FINAL
ENVIRONMENTAL IMPACT STATEMENT

SOLEDAD CANYON

SAND AND GRAVEL MINING PROJECT

TECHNICAL APPENDICES

OEPC #FES-00-18

BUREAU OF LAND MANAGEMENT
PALM SPRINGS - SOUTH COAST FIELD OFFICE

JUNE 2000

FINAL ENVIRONMENTAL IMPACT STATEMENT
SOLEDAD CANYON SAND AND GRAVEL MINING PROJECT

TECHNICAL APPENDICES

Prepared for:

BUREAU OF LAND MANAGEMENT
PALM SPRINGS - SOUTH COAST FIELD OFFICE
690 W. Garnet Avenue
P.O. Box 1260
North Palm Springs, California 92258

Project Applicant:

TRANSIT MIXED CONCRETE COMPANY
1201 West Gladstone Street
Azusa, California 91702

EIS Consultant:

CHAMBERS GROUP, INC.
17671 Cowan Avenue, Suite 100
Irvine, California 92614

JUNE 2000

FINAL
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G Land Use (Update of Mineral Land Classification of Portland Cement Concrete Aggregate in Ventura, Los Angeles, and Orange Counties, California. Part II - Los Angeles County, CDMG 1994)

H Comments and Responses to County Departmental Reviews November 1995 and July 1998

The Technical Appendix Volume contains plans and reports that were used in the evaluation of the Project.

In addition, the following technical reports were used in the design and analysis of the Project. These reports are available from the County of Los Angeles, Regional Planning Office, and Transit Mixed Concrete Company.

- Associated Transportation Engineers (ATE)
  Transit Mix Concrete Facility in Soledad Canyon, County of Los Angeles, California, Traffic and Circulation Study. ATE Project #97095, May 7, 1998.

- C.A. Rasmussen Company
  Drainage Concept for Transit Mixed Concrete Company Soledad Canyon Project. Prepared for Transit Mixed Concrete Company, June 1993.

- Chambers Group, Inc.
  Final Biological Assessment, Soledad Canyon, Sand & Gravel Mining. Prepared by Chambers Group, Inc., Irvine, CA. Prepared for Transit Mix Concrete Company, Azusa, Calfornia. June 1996.

  Results of Butterfly Survey, Transit Mixed Concrete Company, Soledad Canyon Project. Prepared by Chambers Group, Inc., Irvine, CA. February 1992.

  Results of a Biological Survey for a Proposed Sand and Gravel Extraction Operation in Soledad Canyon. Prepared by Chambers Group, Inc., Irvine, CA. March 1991.

  Survey of Unarmored Threespine Stickleback Habitat Near Lang in Soledad Canyon. Prepared by Chambers Group, Inc., Irvine, CA. Prepared for Transit Mixed Concrete Company, Azusa, California. March 1991.

  Phase I and II - Environmental Site Assessment, Soledad Canyon Quarry, Soledad Canyon, Los Angeles County, California. Prepared by Chambers Group, Inc., Irvine, CA. Prepared for Transit Mixed Concrete Company, Azusa, and C.A. Rasmussen Company, Simi Valley, California.

  Cultural Resource Assessment of a 460-Acre Parcel in Soledad Canyon Area, California. Prepared by Chambers Group, Inc., Irvine, CA. Prepared for Transit Mixed Concrete Company, Azusa, CA. July 1990.

- Environmental Solutions, Inc. (ESI)
  Transmittal, Revised Slope Stability Calculations - Soledad Canyon Project. Prepared for Transit Mixed Concrete, July 1, 1993.

  Conceptual Design Transmittal No. 03 Soledad Canyon Project North Fines Storage Area Placement and Compaction Procedures. Prepared for Transit Mixed Concrete, April 24, 1991.

- Goodman, R.H.
  Survey for the Southwestern Pond Turtle, Clemmys marmorata pallida, in Soledad Canyon Along the Santa Clara River, Los Angeles County, California. Prepared for Chambers Group, Inc., July 1994.

- Ground Water Systems, Inc. (GWSI)
  Evaluation of Water Resources in Vicinity of the Transit Mixed Concrete, Inc. - C.A. Rasmussen Company Properties in the Soledad Canyon, Los Angeles County, California.

- Hilltop Geotechnical
  Slope Stability Evaluation Update, North Fines Storage Area, Final Reclaimed Contour Configurations, Proposed Soledad Canyon Aggregate Facility, Soledad Canyon Area, Los Angeles County. December 10, 1997.

  Surficial Slope Stability Evaluation, Final Reclaimed Contour Configurations, Proposed Soledad Canyon Aggregate Facility, Soledad Canyon Area, Los Angeles County. October 14, 1997.

  Supplemental Slope Stability Evaluations, Final Reclaimed Contour Configurations, Proposed Soledad Canyon Aggregate Facility, Soledad Canyon Area, Los Angeles County. September 30, 1997.

  Additional Slope Stability Evaluation, North Fines Storage Area, Proposed Soledad Canyon Aggregate Facility, Soledad Canyon Area, Los Angeles County. January 31, 1996.

  Supplemental Slope Stability Evaluations, Aggregate Mining Area Final Contour Configurations, Proposed Soledad Canyon Aggregate Facility, Soledad Canyon Area, Los Angeles County. July 12, 1995.

  Supplemental Slope Stability Evaluation, North Fines Storage Area, Proposed Soledad Canyon Aggregate Facility, Soledad Canyon Area, Los Angeles County. March 23, 1995.

  Clarification Regarding Geotechnical Reports, Proposed Aggregate Facility, Soledad Canyon County. May 4, 1993.

  Preliminary Cut Bench Stability Analysis, Proposed Aggregate Facility, Soledad Canyon Area, Los Angeles County County. May 19, 1993.

  Clarification of Fault Activity on the Soledad Canyon Fault and the Agua Dulce Fault, Soledad Canyon Site, Los Angeles County County. December 11, 1992.

Letter Report from M. Hulett Clarification of Fault Activity on the Soledad Canyon Fault and the Agua Dulce Fault, Soledad Canyon Site, Los Angeles County, California.

- Law/Crandall, Inc. (LAW)
  Groundwater and Surface Water Monitoring, Proposed Soledad Canyon Mining Operation, Santa Clarita, California. Prepared for Transit Mixed Concrete Company, March 25, 1996.

  Santa Clara River Underflow 1991 Annual Report, Transit Mixed Concrete Company's Proposed Soledad Canyon Mining Operation, Los Angeles County, California. July 30, 1992.

- Pearson, D.C.
  Focused Survey for Endangered Species at Soledad Canyon. Report to Transit-Mixed Concrete. 1989.

- Soil and Testing Engineers, Inc. (STE)
  Report of Geological Conditions and Cut Slope Stability Analysis for a Proposed Aggregate Facility of 460± Acres in the Soledad Canyon Area, Los Angeles County, California. Prepared for Transit Mixed Concrete Company. November 8, 1991.

  Preliminary Geologic Mapping and Sampling of 460± Acres in the Soledad Canyon Area, Los Angeles County, California. April 23, 1990.

  Visual Evaluation of Curtis Operations' Pit Excavation. August 24, 1990.

  Results of Field Mapping, Soledad Area, Los Angeles, California. August 28, 1990.

  Report of Visual Evaluation (of Geologic Conditions) of Proposed Settling Ponds at Soledad Canyon, Los Angeles County, California. September 21, 1990.

- Transit Mixed Concrete (TMC)
  Surface Mining Permit Application, Conditional Use Permit Application, and Mining and Reclamation Plan Submittal to Los Angeles County Regional Planning Department, 3 Volumes. Prepared by Chambers Group, Inc. May 24, 1991.

- West Coast Environmental
  Transit Mixed Concrete Company Soledad Canyon Aggregate and Concrete Batch Plants Storm Water Discharge Pollution Prevention Plan. June 1997.

  Transit Mixed Concrete Company Soledad Canyon Plants Spill Prevention Control and Countermeasure Plan. June 1997.

  Preliminary Site Assessment, Soledad. Canyon Mining Site, Soledad Canyon Road, Los Angeles County, California. Prepared for Transit Mixed Concrete Company.

Air Quality Modeling Results - Estimated NO_2 and PM_{10} Emissions from Transit Mixed Concrete Company Soledad Canyon Project. November 17, 1999.

Answers to Vested Rights Protests vs. Application No. 29967, Transit Mixed Concrete Company, Soledad Canyon Project. March 11, 1994.

- Western Technologies, Inc. (WTI)
  Hydrogeological Assessment Report, Soledad Canyon, Los Angeles County, California. September 12, 1989.

APPENDIX A

NOTICE OF INTENT, NOTICE OF INTENT MAILING LIST, COMMENTS RECEIVED, AND NOTICE OF AVAILABILITY OF DRAFT EIS MAILING LIST

Federal agency to initiate Federal salary or annuity offsets as necessary to collect excessive housing assistance received by the tenant.

9. Records, except for those obtained from the SSA and the IRS under 26 U.S.C. 6103(l)(7), concerning an individual's receipt of excessive housing assistance, including the individual's actions to repay the same, may be disclosed to the Federal agency that employs such individual, for the purpose of notifying the employer of potential violation of the Standards of Ethical Conduct for Employees of the Executive Branch.

10. Records may be used to provide statistical information to Congress and the Office of Management and Budget for use in evaluating the effectiveness of computer matching, income verification and related administrative or legal actions taken.

POLICIES AND PRACTICES FOR STORING, RETRIEVING, ACCESSING, RETAINING AND DISPOSING OF RECORDS IN THE SYSTEM:

STORAGE:

Records are stored manually in tenant case files and electronically in office automation equipment. Records, except for those obtained from the SSA and the IRS under 26 U.S.C. 6103(1)(7) (A) and (B), may also be stored on mainframe computer facilities.

RETRIEVABILITY:

Records may be retrieved by manual or computer search of indices by the name, social security number, housing agency, owner or management agent.

SAFEGUARDS:

Records are maintained in locked file cabinets or in metal file cabinets in secured rooms or premises with access limited to those persons whose official duties require access. Computer files and printed listings are maintained in licked cabinets. Computer terminals are secured in controlled areas which are locked when unoccupied. Access to automated records is limited to authorized personnel who must use a password system to gain access. HUD will safeguard the SSA and the IRS records obtained pursuant to 26 U.S.C. 6103(l)(7) (A) and (B) in accordance with 26 U.S.C. 6103(p)(4) and the IRS's "Tax Information Security Guidelines for Federal, State and Local Agencies," Publication 1075.

RETENTION AND DISPOSAL:

Only those computer files and printouts created from the computer matching that meet predetermined criteria are maintained. These records will be destroyed as soon as they have served the matching program's purpose. All other records will be destroyed as soon as possible within 1 year. Paper listings containing personal identifiers will be shredded. Computer source files provided by other organizations will be returned to those organizations or destroyed in accordance with computer matching agreements.

Information obtained through computer matching and tenant case file reviews will be destroyed as soon as follow-up processing of this information is completed, unless the information is required for evidentiary reasons or needed by housing agencies, owners and management agents for use in program eligibility determinations. When needed for evidentiary documentation, the information will be referred to the HUD Office of Inspector General (OIG) or other appropriate Federal, state or local agencies charged with the responsibility for investigating or prosecuting such violations. When referred to the HUD OIG, the information then becomes a part of the Investigative Files of the Office of Inspector General, HUD/OIG–1.

SYSTEM MANAGER AND ADDRESS:

Director, Computer Matching Activities, Office of the Public and Indian Housing Comptroller, U.S. Department of Housing and Urban Development, 451 Seventh Street, SW., Room 5156, Washington, DC 20410.

NOTIFICATION AND RECORD ACCESS PROCEDURES:

Individuals seeking to determine whether this system of records contains information about themselves, or seeking access to such records, should address inquiries to the Director, Computer Matching Activities, Office of the Public and Indian Housing Comptroller, U.S. Department of Housing and Urban Development, 451 Seventh Street, SW., Room 5156, Washington, DC 20410.

Written requests should contain the full name, Social Security Number, date of birth, current address and telephone number of the individual.

For personal visits, the individual must be able to provide some acceptable identification, such as a driver's license or other identification card.

CONTESTING RECORD PROCEDURES:

The procedures for amendment or correction of records, and for appealing initial agency determinations, appear in 24 CFR part 16.

RECORD SOURCE CATEGORIES:

The Assistant Secretary for Public and Indian Housing collects information from a variety of sources, including: housing agencies, the Assistant Secretary for Housing-Federal Housing Commissioner (tenant information provided by owners and management agents), state wage information collection agencies, other Federal and state agencies, law enforcement agencies, program participants, complainants, and other nongovernmental sources.

EXEMPTIONS FROM CERTAIN PROVISIONS OF THE ACT:

To the extent that information in this system of records falls within the coverage of subsection (k)(2) of the Privacy Act, 5 U.S.C. 552(k)(2), the system is exempt from the requirements of subsections (c)(3), (d)(1), (d) (2), and (e)(1) of the Privacy Act. To the extent that information in this system of records falls within the coverage of subsection (k)(5) of the Privacy Act, 5 U.S.C. 552a(k)(5), the system is exempt from the requirements of subsection (d)(1) of the Privacy Act. See 24 CFR 16.15 (c) and (d).

[FR Doc. 95–25589 Filed 10–13–95; 8:45 am]
BILLING CODE 4210–01–M

DEPARTMENT OF THE INTERIOR

Bureau of Land Management

[CA–066–96–1300–00; CACA–20139 and CACA–22901]

Proposed Sand and Gravel Mining Operation in Soledad Canyon, Los Angeles County, CA

AGENCY: Bureau of Land Management, Department of the Interior, Palm Springs—South Coast Resource Area, Desert District, California.

ACTION: Notice of intent to prepare an environmental impact statement.

SUMMARY: In compliance with the National Environmental Policy Act (NEPA) of 1969 and 40 CFR 1508.22, notice is hereby given that the Bureau of Land Management (BLM) will prepare an Environmental Impact Statement (EIS) for the Transit Mixed Concrete (TMC) Surface Mining Project (Project) proposed for construction and operation in Soledad Canyon, Los Angeles County, California. TMC acquired the rights to develop the Project through a competitive bid process. The BLM granted the mineral material contract to TMC in March 1990. The BLM complied with NEPA for the sale of sand and gravel for the Project site by preparing an Environmental Assessment (EA) and issuing a Finding of No Significant Impact (FONSI) in 1989.

The Project plans to mine a total of 83 million tons of materials and sell approximately 56 million tons of sand and gravel, also known as Portland cement concrete sand and gravel (PCC aggregates), over a 20-year period to fulfill contracts entered into with the BLM. The Project includes plans to operate a concrete batch plant to produce and deliver ready-mixed concrete to the local market. All proposed mining and operations will be located north of Soledad Canyon Road and the Santa Clara River. The 500-acre site represents one of the westernmost reserves for PCC aggregate production in the Saugus-Newhall Production-Consumption Region that is located outside the floodplain of the Santa Clara River or a tributary wash.

The general mining plan is to mine on the south side of the ridge through a series of four excavation cuts. Each cut will progress from a higher elevation and proceed downslope. Fill areas for excess natural fines will be established on both the south and north sides of the ridge. Reclamation will be concurrent with mining operations and measures have been incorporated into Project design to minimize erosion, provide watershed control, and protect water quality in the Santa Clara River. A full range of alternatives to the proposed action will be considered in the EIS.

SUPPLEMENTARY INFORMATION: The Project site is on "split-estate" lands where the minerals are federally owned and administered by the BLM, and where the surface is privately owned. Because the Project is located in the County of Los Angeles (County), it is also subject to approval of a Surface Mining Permit through preparation of an Environmental Impact Report (EIR) in accordance with the California Environmental Quality Act (CEQA). The County has been the Lead Agency for preparation of an EIR that has been prepared as a document separate from the EIS.

Public participation is an integral part of the review process. Comments are being requested to help identify significant issues or concerns related to the proposed action to determine the scope of the issues (including alternatives) that need to be analyzed, and to identify and eliminate from detailed study the issues that are not significant. All comments recommending that the EIS address specific environmental issues should contain supporting documentation and rationale.

DATES: Written comments must be submitted no later than November 15, 1995, to the following address: Ms. Julia Dougan, Area Manager, Bureau of Land Management, Palm Springs—South Coast Resource Area Office, P.O. Box 2000, North Palm Springs, California 92258–2000.

FOR ADDITIONAL INFORMATION CONTACT: Ms. Patty Cook, BLM, Palm Springs—South Coast Resource Area, P.O. Box 2000, North Palm Springs, CA 92258–2000, telephone 619–251–4853.

Dated: October 4, 1995.

Joan Oxendine,

Acting Area Manager.

[FR Doc. 95–25483 Filed 10–13–95; 8:45 am]

BILLING CODE 4310–40–P

[AK–040–1430–00; AA–76879, AA–76936, AA–77643, AA–77776]

Notice of Intent To Prepare a Management Framework Plan Amendment/Environmental Assessment (MFP/EA); Alaska

ACTION: Notice of Intent to prepare an amendment to Southcentral Planning Area Management Framework Plan (MFP) to analyze a proposal adding lands to those designated in the MFP as "AREAS IN WHICH APPLICATIONS FOR FLPMA LEASES AND SALES WILL BE ACCEPTED." The plan amendment would be called "Victory Bible Camp Amendment to the Southcentral MFP".

SUMMARY: The Anchorage District Office (ADO), Bureau of Land Management (BLM) proposes an amendment to Southcentral Planning Area MFP dated March 3, 1983, which would allow ADO to classify approximately 129 acres as available for sale under the Federal Land Policy Management Act (FLPMA).

Affected lands are described as follows:

Parcel One: Land now under Airport Lease A–053435, at Victory Bible Camp, near Mile 95 of the Glenn Highway, further described as lying within:

Seward Meridian, Alaska

T. 20 N., R. 8 E.,
Secs. 23 and 26.
Containing approximately 80 acres.

Parcel Two: Land adjacent to the United Methodist Church, at Chugiak, Alaska, further described as:

Seward Meridian, Alaska

T. 15 N., R. 1 W.,
Lot 53, Section 19.
Containing 1.42 acres.

Parcel Three: Land now under Lease AA–55607 for a parking lot adjacent to the Pioneer Peak Baptist Church along the old Glenn Highway near Bodenburg Butte, at Palmer, Alaska, further described as:

Seward Meridian, Alaska

T. 17 N., R. 2 E.,
Lot 22, Section 26.
Containing 0.94 acre.

Parcel Four: A portion of Lot 2, U.S. Survey 2625, now occupied by Jack and Nadine Smith, at Medfra, Alaska, lying within:

Kateel River Meridian, Alaska

T. 27 S., R. 22 E.,
Sec. 32.
Containing approximately 45 acres.

Parcel Five: One (1) acre of land now occupied by John and Natalie Stone, described by metes and bounds as follows:

Beginning at the witness point located on line 4–1 of U.S. Survey No. 10551, Alaska, in Sec. 32, T. 27 S., R. 22 E., Kateel River Meridian, Alaska;
Thence southwesterly approximately 132 feet on line 4–1 to establish Corner No. 1, the true point of beginning;
Thence continuing southwesterly along line 4–1 approximately 198 feet to Corner No. 2;
Thence southeasterly approximately 220 feet to Corner No. 3;
Thence northeasterly 198 feet to Corner No. 4;
Thence northwesterly 220 feet to Corner No. 1, and the true point of beginning.

The intent of this description is to encompass the applicant's improvements and not encumber more than one (1) acre.

Parcel Six: A parcel of land in the vicinity of Clam Gulch, described by metes and bounds as follows:

Beginning at ¼ corner (GLO Monument) of Sections 21 and 22, T. 2 N., R. 12 W., Seward Meridian, Alaska, Corner No. 1 the true point of beginning;
Thence westerly approximately 659.70 feet to Corner No. 2;
Thence northerly approximately 66 feet to Corner No. 3;
Thence easterly approximately 659.70 feet to Corner No. 4;
Thence southerly approximately 66 feet to Corner No. 1, and the true point of beginning; containing approximately 1 acre.

The issue to be addressed in the Amendment/EA is: should these lands be classified for disposal and offered for direct sale to proponents.

The Southcentral Planning Area MFP has been reviewed and found to be inadequate to support disposal of the affected parcels, even though it did recommend opening other lands in the southcentral area to various types of settlement entry and sale.

DATES: Interested parties may submit comments regarding this plan amendment until November 30, 1995.

ADDRESSES: Comments should be sent to District Manager, Anchorage District

4310-40-P
6-00160

DEPARTMENT OF THE INTERIOR

Bureau of Land Management

[CA-066-96-1300-00; CACA-20139 and CACA-22901]

SUBJECT: Proposed Sand and Gravel Mining Operation in Soledad Canyon, Los Angeles County, California

AGENCY: Bureau of Land Management, Department of the Interior, Palm Springs - South Coast Resource Area, Desert District, California.

ACTION: Notice of Intent to prepare an Environmental Impact Statement - Second Notice

SUMMARY: In compliance with the National Environmental Policy Act (NEPA) of 1969 and 40 CFR 1508.22, notice is hereby given that the Bureau of Land Management (BLM) will prepare an Environmental Impact Statement (EIS) for the Transit Mixed Concrete (TMC) Surface Mining Project (Project) proposed for construction and operation in Soledad Canyon, Los Angeles County, California. TMC acquired the rights to develop the Project through a competitive bid process. The BLM granted the mineral material contract to TMC in March 1990. The BLM complied with NEPA for the sale of sand and gravel for the Project site by preparing an Environmental Assessment (EA) and issuing a Finding of No Significant Impact (FONSI) in 1989.

The Project plans to mine a total of 83 million tons of materials and sell approximately 56 million tons of sand and gravel, also known as Portland cement concrete sand and gravel (PCC aggregates), over a 20-year period to fulfill contracts entered into with the BLM.

The Project includes plans to operate a concrete batch plant to produce and deliver ready-mixed concrete to the local market. All proposed mining and operations will be located north of Soledad Canyon Road and the Santa Clara River. The 500-acre site represents one of the westernmost reserves for PCC aggregate production in the Saugus-Newhall Production-Consumption Region that is located outside the floodplain of the Santa Clara River or a tributary wash.

The general mining plan is to mine on the south side of the ridge through a series of four excavation cuts. Each cut will progress from a higher elevation and proceed downslope. Fill areas for excess natural fines will be established on both the south and north sides of the ridge. Reclamation will be concurrent with mining operations and measures have been incorporated into Project design to minimize erosion, provide watershed control, and protect water quality in the Santa Clara River. A full range of alternatives to the proposed action will be considered in the EIS.

SUPPLEMENTARY INFORMATION: The Project site is on "split-estate" lands where the surface is privately owned and the minerals are federally owned and administered by the BLM. The project is subject to approval of a Surface Mining Permit and environmental analysis in accordance with the California Environmental Quality Act (CEQA). The County of Los Angeles is the Lead Agency for preparation of an Environmental Impact Report (EIR) which will be prepared separate from the EIS.

Comments from members of the public are being requested to help identify significant issues or concerns related to the proposed action to determine the scope of the issues and alternatives that need to be analyzed, and to identify and eliminate from detailed study the issues that are not significant. All comments recommending that the EIS address specific environmental issues should contain supporting documentation and rationale.

A Notice of Intent announcing BLM's intent to prepare an Environmental Impact Statement for the proposed project, was previously published in the *Federal Register* October 16, 1995. The public comment period closed November 15, 1995. Per public request, the comment period for the Notice of Intent has been extended another 30-days. Comments submitted during the previous public comment period will be considered.

DATES: Written comments must be submitted no later than 30 days from the date of this notice to the following address: Ms. Julia Dougan, Area Manager, Bureau of Land Management, Palm Springs - South Coast Resource Area Office, P.O. Box 2000, North Palm Springs, California, 92258-2000.

FOR ADDITIONAL INFORMATION CONTACT

Ms. Patty Cook, BLM, Palm Springs - South Coast Resource Area, P.O. Box 2000 North Palm Springs, CA 92258-2000, telephone 619-251-4853.

DATED: November 29, 1995

Julia Dougan

Julia Dougan
Area Manager

U.S. Department of the Interior
Bureau of Land Management

News Release

For Release: IMMEDIATELY, November 30, 1995 CA-060-96-09
Contact: Public Affairs Staff, 909/697-5215

BLM Extends Comment Period for Proposed Sand and Gravel Project

To accomodate public requests, the Bureau of Land Management (BLM) is extending the comment period for the Transit Mixed Concrete (TMC) Surface Mining Project proposed for construction and operation in Soledad Canyon, Los Angeles County, California. The new date for submission of comments is January 5, 1996.

"Public participation is an integral part of the review process of the EIS," said Julia Dougan, BLM's Palm Springs-South Coast Area Manager. "We are extending the comment period due to a number of requests we have received from members of the public who would like more time to formulate their comments. Public input will be used to help identify significant issues or concerns related to the proposed action to determine the scope of the issues (including alternatives) that need to be analyzed, and to identify and eliminate from detailed study the issues that are not significant."

TMC plans to mine a total of 83 million tons of materials, of which approximately 56 million tons of sand and gravel will be sold over a 20-year period to fulfill contracts entered into with the BLM. The project includes operation of a concrete batch plant to produce and deliver ready-mixed concrete to the local market. All proposed mining and operations will be located north of Soledad Canyon Road and the Santa Clara River.

The project site is on "split-estate" lands where the surface is privately owned and the minerals are federally owned and administered by the BLM. Because the project is located in the County of Los Angeles (County), it is subject to approval of a Surface Mining Permit. The County has been the lead agency for preparation of an Environmental Impact Report (EIR) which will be completed separately from the EIS.

To be included in the draft EIS, written comments must be submitted by January 6, 1995 to: Area Manager, Bureau of Land Management, Palm Springs-South Coast Resource Area Office, P.O. Box 2000, North Palm Springs, CA 92258-2000. For additional information contact Patty Cook, BLM, Palm Springs-South Coast Resource Area at 619/251-4853.

-BLM-

Transit Mixed Suface Mining Project
Mailing List

Agua Dulce Civic Association Inc.
P.O. Box 6028
Agua Dulce, CA 91350

Mr. Howard Kaplan
33264 Encaro Court
Agua Dulce, CA 91350

Agua Dulce Town Council
P.O. Box 6099
Agua Dulce, CA 91350

Mr. Charles Brink
P.O. Box 9333
Van Nuys, CA 91409

Ms. Laura Stotler
City of Santa Clarita
23920 Valencia Blvd, Ste 300
Santa Clarita, CA 91355-2196

Valenicia Library
23743 Valencia Blvd.
Santa Clarita, CA 91355

Mr. Bill Burger
Kaiser Materials Corp.
2680 Bishop Drive, Ste. 225
San Ramon, CA 94583

Agua Dulce/Acton Country Journal
35327 Glenwall Street
Agua Dulce CA 91350
Attn: Ms. Lillian Smith

Acton Agua Dulce News
P.O. Box 57
Acton, CA 93510
Attn: Ms. Gayle Joyce

The Signal
24000 Creekside Road
Valencia, CA 91355
Attn. Mr. Tim Whyte

OPTIONAL FORM 99 (7-90)

FAX TRANSMITTAL # of pages ▶ 1

To Mr. Tom Ryan	From Elena Misquez
Dept./Agency	Phone # 619 251 4826
Fax # 714 261 8950	Fax #

NSN 7540-01-317-7368 5099-101 GENERAL SERVICES ADMINISTRATION

Charles Brink

When possible to save time I prefer response by FAX instead of mail

PO Box 9333 Van Nuys CA 91409
818-886-5223 FAX 818-886-1026
PO Box 69 Acton, CA 93510
805-269-2030 FAX 805-269-2036
800-773-5228 FAX 800-606-2036
E-mail acton@aol.com

Bureau of Land Management
Attn: Area Manager
Palm Springs- South Coast Resource Area Office
PO Box 2000
North Palm Springs, CA 92258-2000

Via FAX 619-251-4899

November 24, 1995

RE CA -060-96-07 Transit Mix Concrete (TMC) Surface Mining Project

I believe the following areas should be investigated by the Environmental Impact Statement (EIS) concerning the Transit Mix Sand and Gravel extraction project in Agua Dulce (erroneously identified as Soledad Canyon).

Even though I requested it, the BLM has failed to make available any of the files concerning the project at any reasonably close location to the community. BLM has placed the files in Palm Springs, some sixty miles farther from the community than their regional headquarters in Riverside. It is this writer's opinion that this was done intentionally, to make it difficult for the community to access the data. Transit Mix has also been extremely uncooperative in providing any data and all they would send me was the FR statement.

Based on the very limited information we have in the Federal Register (FR) statement, the press release, and rumors, the following is an initial input on the scope of the EIS. I would reserve the right to add to this scope when the copies of the data we have previously requested has been made available to the community.

As to the due date of the Comment period, the News release (NR) dated 10-25-95 called for a response in 30 days making today November 24 the 30th day. Federal register states an earlier due date which had passed before I received the FR.

The improper identification of the project as in the community of "Soledad Canyon" and not Agua Dulce and boarding Acton, coupled with no data available in the community seems to be a part of as planned effort of limiting community notification or participation.

1. **Factual description of project.** An investigation should be made as to whether or not this is the "Western-most deposit", of concrete aggregate material for the Newhall area as stated in the FR or one of the last available sources of concrete aggregate material for the Los Angeles Basin as stated in the NR. A cursory examination shows two or three sand and gravel extraction operations exist in the riverbed, directly west of this site. Therefore both statements are not true.

1.a If it is just to supply the Santa Clarita Valley, the EIS should investigate all sources of aggregate which could be conveniently used for that area.

1.b If it is to supply the entire Los Angles Basin's requirements, the EIS should investigate all sources of aggregate which could be conveniently used for that area.

1.c All potential sources of aggregate should be include as to the need for these projects are based on market requirements. There are 2 proposed projects adjacent to this project and 3 more in the Antelope Valley which could supply the same market. The total cumulative effect of all of these projects must be considered in the initial EIR.

2. **Market requirements.** If the FR is correct, the EIS should determine the future needs of the Santa Clarita Valley area for aggregate. The study should determine the projected needs of aggregate materials in the Santa Clarita Valley, based on the last five years usage with the earthquakes added needs removed as it was a one time event. It would seem that fast growth has toped out and that the needs for aggregate materials should be substantially reduced.

2.a. The EIS should determine if the existing sources of aggregate in the Santa Clara River, west of the proposed site, are sufficient to provide for the needs of the Santa Clarita Valley, and if so, for how long will they provide the needs.

2.b If the NR is correct, the study should cover the entire Los Angeles Basin.

3. **Renewable vs. one use strip mining**. The EIS should determine whether the renewable sources of aggregate should be used as opposed to non-renewable sources as in this project. From what we can determine approximately 30% of the material mined is unusable as aggregate and once the usable portions are gone, the area will be left scarred and damaged with an expensive reclamation effort required.

3.a The recycling of scrap concrete should be studied, as opposed to landfill disposal, as a source or aggregate instead of surface mining.

3.b The EIS should determine if renewable sources of aggregate, as mined from the river bed, have less environmental effect than a one time strip mining operation.

4. **Restoration**. The EIS should determine whether a stable slope can be maintained with the "fines" materials which are to be used to make a man made mountain as proposed by Transit Mix. This appears to be is a large soft fill waiting to slough off into either the riverbed on one side or a canyon on the other. Investigation should be determined of over the long period of time, i.e. hundreds of years, whether or not these fines will remain sufficiently stable during a 100 year storm and the maximum possible earthquake event or whether were when saturated with water they would suffer a collapse.

5. **Additional industrial operations**. The need for new concrete batch plant and asphalt plant.

5a. The need for a new concrete batch plant must be determine. There seems to be an adequate supply of batch plants to serve the markets. The added environmental impact of the new unneeded batch plant, located on property not owned or properly zoned for heavy industrial use, needs to be investigated.

5.b We have heard stories that an asphalt plant will also be operated on the site, adding potential oil pollution to the ground water and the air in its manufacturing operations.

5.c We have also heard that gold and other minerals will be mined and the effects of this mining and potential chemical pollution should be considered in the EIS.

6. **Traffic.** The EIS should determine mitigation of the additional truck traffic of the on narrow Soledad Canyon. Soledad Canyon, which is the only access (both north and south) to the freeway,

is a two lane old county road which was never designed for the heavy use that would be resultant of the sand and gravel operation. The road bed is virtually non existent, as it was built in late 1890's and minimally improved over the years.

Traffic Routing from the plant must be studied. The effect of the heavy trucks they if utilize either Agua Dulce Canyon to the north or Soledad Canyon to the north must be considered . Neither of these roads are designed for heavy truck traffic. The effect of inducing heavy truck traffic going north towards Agua Dulce and Acton must be studied.

7. **Noise.** The EIS should determine noise population. A special analysis on noise must be performed because the community of Agua Dulce is a very quiet rural community. The night time sound level approaches 40 Dbm or less. Mitigation measures to attenuate the sound from this 24 hour source must be put in place, because now the freeway noise during heavy traffic hours can be heard very well in Agua Dulce. The additional trucks that they would use and the crushing equipment would add additional noise sources to this residential community.

8. **Light.** The EIS should determine light pollution. Agua Dulce is a "dark skies" community with a county ordinance banning most street lights and no urban lighting. It has now a maximum one lighted commercial sign which is disliked by the community. It would not be there if the community had any way to block it. The community desires a dark sky for a rural viewing of the night and any increase in ambient lighting towards the sky or the community would damage the lifestyle.

9. **Air Pollution**. The area is a non-attainment area from the standpoint of the smog. In a non-attainment area, there is no justification for adding additional point sources of pollution when other methods of obtaining aggregate might be used. The community is a haven for many people who have come here to escape the high smog and dust levels in the Los Angeles and Antelope Valley basins.

10a. Dust and particulate matter. It is unlikely, considering that over 30% of material is too fine to use for aggregate, that the fines will not blow all over the place during the mining and crushing process. This would severely increase the dust in the community along with respiratory diseases. A comparison of mining in an area where less fines have to be disposed of should be made.

10b. Emissions from trucks and mining equipment. The added pollution of the delivery trucks and the non electrically powered mining equipment should be considered.

10c. Emission from the concrete and asphalt batch plants should be studied

11. **Growth enhancement.** The EIS should investigate whether a new source of aggregate would enhance growth over higher priced or less easily obtainable aggregate.

and that water should be reserved for residential uses as opposed to sand and gravel uses because without the need for residential uses in the area there is virtually no need for sand and gravel.

12. **Water resources**. The Santa Clara River is the primary underground aquifer in the area. It supplies water for Acton and is the only possible source for Agua Dulce if a water system is ever installed to replace private wells. It supplies the unincorporated areas west of Agua Dulce and the City of Santa Clarita. The Santa Clarita area is also served by the State water project.

12a If any additional use of ground water for non-residential usage would be proper.

12b. If the existing sand and gravel operations water is recycled directly back into the aquifer and reused again is better than the proposed project.

12c. The proponents of this project have objected for a residential project located in Agua Dulce, just upstream from this location. They claimed to the California Regional Water Resources that an extraction permit to the residences would leave insufficient water for both the aggregate operations.. This would indicate that the river is very near the safe extraction capacity.

12d. A large portion of the Santa Clara River has been designated as a significant ecological area (SEA) and contains an endangered species fish. Extraction and pollution can affect this fish.

13e. The river is one of the last free flowing rivers to the sea in Southern California. Included in the study should be the effect down stream of water and aggregate extraction and additional building created by the added sources of aggregate.

The water quantity is the limiting factor to growth in the area. If no more ground water is available, then no more houses could be built since the California Water Project is already overloaded. This would indicate there would be no need for further aggregate therefore the entire project would be unnecessary. The water resources in the area are close to being fully used since Transit Mix claims this project plus one residential project would overdraw the aquifer

December 20, 1995

RECEIVED
BUREAU OF LAND MANAGEMENT
1995 DEC 29 AM 9:44
PALM SPRINGS-SOUTH COAST
RESOURCE AREA

AREA MANAGER
BUREAU OF LAND MANAGEMENT
PALM SPRINGS-SOUTH COAST RESOURCE AREA OFFICE
P.O. BOX 2000
NORTH PALM SPRINGS, CA. 92258-2000

RE: TRANSIT MIXED CONCRETE SURFACE MINING PROJECT

TO WHOM IT MAY CONCERN:

PLEASE INCLUDE THIS LETTER AS PART OF THE PUBLIC COMMENT REGARDING THE TRANSIT MIXED SURFACE MINING PROJECT.

AS A RESIDENT OF THE TOWN OF AGUA DULCE IN AN UNINCORPORATED PORTION OF LOS ANGELES COUNTY, I AM EXTREMELY CONCERNED ABOUT THE AFFECTS OF THIS PROJECT UPON OUR COMMUNITY.

PERSONALLY, I AM OPPOSED TO THIS OR ANY PROJECT THAT WILL IN EFFECT REMOVE PART OF THE NATURAL SURROUNDING MOUNTAINS. THIS PROJECT WILL LOWER SOME OF THE MOUNTAIN RIDGES THAT SURROUND AGUA DULCE WHICH PROVIDE NATURAL BARRIERS FROM THE ELEMENTS OF WEATHER AND THE EFFECTS OF WIND.

I REALIZE THAT EVEN IF OUR COMMUNITY OPPOSED THIS PROJECT, IT WILL PROBABLY BE APPROVED, CONSIDERING WE ARE OPPOSING BIG BUSINESS AND BIG DOLLARS.

THE RESIDENTS OF AGUA DULCE HAVE ELECTED A TOWN COUNCIL TO REPRESENT US IN MATTERS SUCH AS THIS. IF APPROVED, PLEASE INCLUDE A STIPULATION THAT TRANSIT MIXED BE REQUIRED TO MEET AND CONFER WITH THE AGUA DULCE TOWN COUNCIL REGARDING MATTERS AFFECTING OUR COMMUNITY.

OPPOSINGLY YOURS,

Howard Kaplan

HOWARD KAPLAN
33264 ENCARO COURT
AGUA DULCE, CA. 91350
(805) 268-8006

cc: AGUA DULCE TOWN COUNCIL

Agua Dulce Civic Association Inc.
...Serving Agua Dulce since 1957

RECEIVED
BUREAU OF LAND MANAGEMENT
1995 DEC 29 PM 12: 14
PALM SPRINGS-SOUTH COAST
RESOURCE AREA

December 27, 1995

Bureau of Land Management
Palm Springs; South Coast Resource Area Office
P.O. Box 2000
Palm Springs, Ca. 92258-2000

Att: Area Manager
RE: CA-060-96-07 Transit Mix Surface Mining Project

To Whom it May Concern:

Our organization has represented the residents and property owner's of Agua Dulce for over forty years. Our membership is deeply concerned about the above referenced project and the potential impact it will have on their property values, peaceful and enjoyable use of their property and the prospects for long term, irreparable damage to our watershed and viewscape.

Your office should be considering the following list of potential subjects although they are not presented here in any specific order of importance or significance:

1. Is this project really needed? Particularly on an ecologically sensitive site adjacent to residential communities.
2. What short and long term impacts will this project have on our limited water resources?
3. What traffic mitigations are being proposed to deal with congestion on the Antelope Valley freeway, Agua Dulce Canyon Road, Soledad Canyon Road, etc?
4. How much pollution will we see caused by congestion, dust and possible cyanide leaching - to both our air and water?
5. What impact will this have on our school district, its bus routes and the closeness of the Agua Dulce elementary school?
6. Will lighting and noise interfere with our day and evening viewscape?
7. Will the close proximity of this and another similar project being proposed adjacent to this property, cause a reduction in the value of our properties?
8. How much is crime projected to increase?
9. What immediate and long term benefits are derived by our community should this project be approved?

P.O. Box 6028 • Agua Dulce, California 91350

This list is by no means all inclusive. Other issues and potential impacts will undoubtedly be identified as this project's true scope comes to the attention of this community.

It is hard to imagine such a destructive endeavor even being considered for this region. Economics don't appear to support it nor do ecological. Better sites exist, it seems and this would appear unnecessary and potentially harmful. We look forward to your response and in being included in all future mailings and notifications.

In conclusion, our Association and membership are deeply concerned about this project and others being proposed for this area. Our Town Council has taken a similar position, we understand, although they cannot reach the resident property owner's as we can. Nor can they claim nearly five decades of successful support and representation of the interests of the Agua Dulce residents and property owners. Thank you for this opportunity to suggest issues of importance in the forth coming scoping period for Transit Mix's EIS.

Sincerely,

Rick Curtis

Rick Curtis, president Agua Dulce Civic Association

Agua Dulce Town Council

Jim O'Keefe
President
ph/fax 268-1311

Members Of The Council
Dennis Dee
ph/fax 268-1280
Geri Dee
268-1280
fax 818-855-3759
Julianne Feuerhelm
ph/fax 268-0211
Nolan Henderson
268-1070
Tana Lampton
268-1136
fax 268-8864
Lianne Swanson
268-0204
fax 268-8350

December 28, 1995

Bureau of Land Management
Attn: Area Manager
Palm Springs-South Coast Resource Area Office
P.O. Box 2000
North Palm Springs, Ca. 92258-2000

Re: CA-060-07 Transit Mix Concrete(TMC) Surface Mining Project

To whom it may concern:

We represent Agua Dulce which includes the immediate area of the proposed project. We are providing this initial comment on the scope of the EIS although we have not been provided either comprehensive data on the project or a reasonably close repository to review any available data.

We request that you add our name to the distribution list on this project and as well provide as soon as possible copies of any current files concerning the project. We reserve the right to supplement these comments upon receipt of a copy of those files.

1. Marketability

The EIS should determine the future needs of aggregate for the Santa Clarita Valley area. The EIS should also determine whether there are sufficient sources already available to meet those future needs. I.e., there are existing sources already being mined in the Santa Clara River and just West of the proposed project which could meet all future needs.

There is some confusion as to whether the EIS will address the future aggregate needs of the Santa Clarita Valley area or that of the Los Angeles Basin. If the basin is the focus, then the study should determine the future needs of the entire L.A. Basin and what are the available sources and their projected longevity.

Any analysis of the projected future needs should consider the

last five years of usage discounting any spike associated with the Northridge earthquake. Growth projections including data from governmental agencies including City of Santa Clarita, Southern California Association of Governments, etc., should be included.

2. Other industrial operations

The analysis set forth above should also be applied to any onsite concrete batch and/or asphalt plant proposed in this project. There appears to be an adequate supply of batch plants in the area. Further, the environmental impact of any such plant located as is proposed on property not zoned for heavy industrial use needs to be investigated. Obviously, the operation of an asphalt plant would increase the risk of pollution to our ground water and riparian area.

Should there be any contemplated extraction of precious metals or minerals then the potential for chemical pollution should also be addressed in the EIS.

3. Renewable vs. strip mining

As an adjunct to the above analysis, the EIS should address whether other sources will satisfy any identified future needs. E.g., recycling of demolished concrete should be studied. This avenue would save both precious landfill space and provide an excellent source for aggregate.

Further, the study should review the relative merits and impacts on the environment of strip-mining operations as opposed to river bed mining. The latter being currently conducted in the Santa Clara riverbed is a natural renewable source and not likely to lead to the scarring and damage associated with a one time surface mining operation coupled with an expensive reclamation requirement.

4. Restoration

The study should address whether a stable slope can be maintained in the long term with the "fine" material remaining onsite. There is concern that the material will slough off into the Santa Clara River or damage or endanger adjacent residents or properties. There should be special inquiry as to whether the "fine" will remain sufficiently stable during a 100 year storm or major earthquake.

The adequacy of any reclamation plan must also be addressed. Of special concern is the restoration of the view scape along

either the 14 Freeway or Soledad Canyon Road. Sloping, contouring and revegetation must be included in the study.

5. Traffic

The main access from the project to the freeway is Soledad Canyon Road. This road is a narrow and curvy two lane road which was never designed for the heavy use associated with this project. The EIS should study that roadway base and adequately address both the sufficiency of that base and the adequacy of any proposed mitigation.

The ingress and egress routing of the site and any onsite plant must be studied. The commuter traffic patterns and volumes on Agua Dulce Canyon Road and Soledad Canyon Road must be studied along with the induced truck traffic on either of those roads.

6. Noise

Agua Dulce is a very quiet rural community with a night time ambient sound level of 40dbm or less. A special sound analysis is necessary to address the noise pollution concern. The additional sounds generated by the 24-hour operation of trucks and crushing equipment need to be addressed and mitigated.

7. Light

The EIS should study the light pollution associated with this project and address the mitigation measures needed to preserve the "dark sky" Agua Dulce currently enjoys. Our community is a rural community and exterior lighting is discouraged in order to promote that lifestyle.

8. Air Pollution

Agua Dulce currently enjoys a generally smog free and dust free environment. There is no justification for adding additional sources of pollution when other methods of obtaining aggregate already exist.

The EIS should study the effect on our community and the project surrounds of dust and particulate matter pollution. More than 30% of the material is too fine to be used for aggregate and hence will remain onsite. This material will likely be blown about during the mining process and expose all to increased health risks. A comparison study of mining as proposed and mining where the fine material is properly

disposed seems in order.

The EIS should also study the emissions from the trucks and other equipment going to or from the site as well as all onsite equipment.

The EIS should also study the emissions from any batch plant proposed for the site.

9. Water Resources

The Santa Clara River is the primary underground aquifer in the area. It supplies water for Acton and the City of Santa Clarita. It is the only potential source of water for Agua Dulce should private wells be unusable or outlawed. It currently supplies water to many residents in our area.

The EIS should study whether any additional use of ground water for non-residential usage is warranted. The study should also address whether the proposed project's use of groundwater is better for the environment than recycling the water as is currently being done by existing sand and gravel operations.

The study should also address whether the Santa Clara River is over taxed already. The California Regional Water Resources Board is currently considering the allocation of water resources of this project and other residential projects above and below this site. TMC has stated that the available water is insufficient to meet each party's needs.

A large portion of the Santa Clara River has been designated as a significant ecological area(SEA) and contains endangered stickleback fish. Extraction and pollution effects on the ecology and endangered species must be studied. The river is also one of the last remaining free flowing rivers hence the effect of this project on that riparian condition remaining must be studied.

Groundwater is the limiting factor for future growth and development in our area. Depletion or pollution of that resource will have grave consequences to the economic well-being of our community and the Santa Clarita Valley. The study should address and weigh the cost and benefits associated with locating this project in such a sensitive niche.

The Agua Dulce Town Council appreciates the opportunity to respond to the project but we continue to be concerned that projects that affect our community are being considered

without an opportunity for comment. We again ask that we be added to the mailing list for this project and be put on any other mailing list for projects in this area. We look forward to the receipt of the above requested information.

Your continued cooperation is appreciated.

Very respectfully,

Jim O'Keefe
President
Agua Dulce Town Council

cc: Mike Antonovich
Joanne Darcy

Elena

Center for Urban Affairs
and Policy Research
NORTHWESTERN UNIVERSITY

October 19, 1995

Patty Cook
Bureau of Land Management
Palm Springs- South Coast Resource Area
P.O. Box 2000
North Palm Springs, CA 92258-2000

Dear Ms. Cook:

Please send me a copy of the EIS and EIR regarding the proposed sand and gravel mining operation in Soledad Canyon, Los Angeles County, CA. I would also like a copy of the scoping material.

Thank you.
Sincerely,

H. Paul Friesema

H. Paul Friesema
Professor

RECEIVED
BUREAU OF LAND MANAGEMENT
1995 OCT 25 AM 10 48
PALM SPRINGS-SOUTH COAST
RESOURCE AREA

2040 Sheridan Road/Evanston, Illinois 60208-4100/708-491-3395/Fax 708-491-9916

From: PATRICIA COOK
To: emisquez
Date: Thu, Nov 2, 1995 2:50 pm
Subject: Request for EIS when available

Elena, I received a voice mail message from Sandy Hyatt of Weyerhauser Company. She asked that when the EIS is available, please notify Greg Tolbert, Weyerhauser Company, CH2J28, Tacoma, Washington 98477.

Thanks!!!!!

From: PATRICIA COOK
To: emisquez
Date: Thu, Nov 2, 1995 4:42 pm
Subject: Request for copy of Federal Register publication

I received a call from Charles Brink, Vanguard News, P.O. Box 9333, Van Nuys, CA 91409, asking for a copy of the Federal Register Notice for the TMC EIS. Would it be possible for you to throw a copy in the mail to this guy, or I would be glad to if you could give me a copy. Thanks, Elena!!!

NOI sent 11/6/95

Phone (805) 269-2030

Please send me the draft EIS on the Proposed Sand & Gravel Mining Operation in Soledad Canyon, Los Angeles Co, CA when it is available.

Thank you

M. Troy Gordon
P. O. Box 58
Columbia, MO 65205-0058

NOTICE OF AVAILABILITY OF DRAFT EIS MAILING LIST

COUNTY DEPARTMENTS

County of Los Angeles
Department of Regional Planning
320 West Temple Street, 13th Floor
Los Angeles, CA 90012
Attn: Daryll Koutnik/Kerwin Chih

County of Los Angeles
Department of Parks & Recreation
433 South Vermont Avenue
Los Angeles, CA 90020-1975
Attn: Planning Division

County of Los Angeles
Fire Department
Forestry Division, Prevention Bureau
5823 Rickenbacker Road, Room 123
Commerce, CA 90040
Attn: Ms. Cusick

County of Los Angeles
Health Services
Environmental Planning & Evaluation
2525 Corporate Place
Monterey Park, CA 91754
Attn: Environmental Protection

County of Los Angeles
Public Works Department
Planning Division
900 South Fremont Avenue
Alhambra, CA 91803
Attn: Environmental/Special Studies

County of Los Angeles
Sheriff Department
Santa Clarita Valley Area 1 Station
23740 West Magic Mountain Pkwy.
Valencia, CA 91355
Attn: Environmental Review

FEDERAL AGENCIES

Angeles National Forest
701 North Santa Anita Avenue
Arcadia, CA 91006
Attn: Environmental Review

Bureau of Land Management
2135 Butano Drive
Sacramento, CA 95285
Attn: Mitchell Leverette

Bureau of Land Management
California Desert District
6221 Box Springs Blvd.
Riverside, CA 92507
Attn: Rob Waiwood

Bureau of Land Management
Palm Springs Office - South Coast
Field Office
690 W. Garnet Ave., P.O. Box 1260
North Palm Springs, CA 92258-1260
Attn: Elena Misquez

U.S. Department of the Army
Los Angeles District, Corps of Engineers
911 Wilshire Blvd.
Los Angeles, CA 90012
Attn: Environmental Review

U.S. Environmental Protection Agency
Office of Federal Activities
Room 2119 Mall
401 M St., S.W. Washington, DC 20460
Attn: EIS Filing Section, MS A-104

U.S. Fish & Wildlife Service
Southern California Field Station
2730 Loker Avenue West
Carlsbad, CA 92008
Attn: Environmental Review

U.S. Fish & Wildlife Service
Ventura Field Office
2493 Portola Road, Suite B
Ventura, CA 93003
Attn: Environmental Review

LOCAL GROUPS AND AGENCIES

Acton Town Council
4145 Gillespie Avenue
Acton, CA 93510
Attn: Monet Pierce

Agua Dulce Town Council
33201 Agua Dulce Canyon Road
P.O. Box #8
Agua Dulce, CA 91350
Attn: Environmental Review

Archaeological Information Center
UCLA Institute of Archaeology
Fowler Museum of Cultural History
Los Angeles, CA 90024-1510
Attn: Quick Check

Castaic Lake Water Agency
23560 Lyons Avenue, #225
Santa Clarita, CA 91321
Attn: Environmental Review

City of Santa Clarita
Planning Department
23920 Valencia Blvd., #300
Santa Clarita, CA 91355
Attn: Enrique Diaz

Communities For A Better Environment
500 Howard Street, Suite 506
San Francisco, CA 94105
Attn: Legal Director

Los Angeles County
Canyon Country Library
18536 Soledad Canyon Road
Santa Clarita, CA 91351
Attn: Environmental Review

Los Angeles County
Newhall Library
22704 West 9th Street
Santa Clarita, CA 91321
Attn: Environmental Review

Los Angeles County
Valencia Library
23743 West Valencia Blvd.
Santa Clarita, CA 91355
Attn: Environmental Review

Newhall County Water District
P.O. Box 220970
Santa Clarita, CA 91322-0970
Attn: Environmental Review

Santa Clarita Civic Association
P.O. Box 384
Santa Clarita, CA 91322
Attn: Environmental Review

Santa Clarita Water Company
22722 Soledad Canyon Road
Santa Clarita, CA 91380-9003
Attn: Environmental Review

Santa Monica Mtns. Conservancy
5750 Ramirez Canyon Road
Malibu, CA 90265
Attn: Environmental Review

SCOPE
P.O. Box 1182
Canyon Country, CA 91351
Attn: Environmental Review

South Coast Air Quality Mgmt. District
21865 East Copley Drive
Diamond Bar, CA 91765-4182
Attn: Steve Smith

Southern California Assoc.
of Governments
818 West 7th Street, 12th Floor
Los Angeles, CA 90017
Attn: Environmental Review

Valencia Water Company
28769 Castaic Canyon Road
Valencia, CA 91355
Attn: Environmental Review

STATE AGENCIES

California Integrated Waste Management Board
8800 Cal Center Drive
Sacramento, CA 95826
Attn: Environmental Review

California Regional Water Quality Control Board
Division of Water Rights
901 P Street
Sacramento, CA 95814
Attn: Ross Swenerton

California Regional Water Quality Control Board
Los Angeles Region
320 W. 4th Street, Suite 200
Los Angeles, CA 90013
Attn: Environmental Review

Caltrans - District 7
IGR / CEQA Coordinator
Transportation Planning & Analysis
120 South Spring Street
Los Angeles, CA 90012

Department of Conservation
801 "K" Street
Sacramento, CA 95814
Attn: Environmental Review

Department of Conservation
Division of Oil, Gas & Geothermal Resources
5816 Corporate Avenue, Suite 200
Cypress, CA 90630
Attn: Environmental Review

Department of Conservation
Division of Mines & Geology
801 "K" Street
Sacramento, CA 95814
Attn: Environmental Review

Department of Fish & Game
330 Golden Shore, #50
Long Beach, CA 90802
Attn: Environmental Review

Department of Parks and Recreation
P.O. Box 942896
Sacramento, CA 94296-0001
Attn: Environmental Review

Department of Water Resources
1416 Ninth Street
Sacramento, CA 95814
Attn: Environmental Review

Native American Heritage Commission
915 Capital Mall
Sacramento, CA 95814
Attn: Environmental Review

Southern California Regional Rail Authority
700 S. Flower Street, 26th Floor
Los Angeles, CA 90017-4606

State Clearinghouse
1400 Tenth Street, Room 121
Sacramento, CA 95814
Attn: Environmental Review

State Lands Commission
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825-8202
Attn: Environmental Review

ADJACENT PROPERTY OWNERS

CA Rasmussen Company
2360 Shasta Way
Simi Valley, CA 93065

Calmat Company
Legal Department
3200 San Fernando Road
Los Angeles, CA 90065

Canyon Country Enterprises, Inc.
P.O. Box 1367
Canyon Country, CA 91386

Lambert Ranch
7030 Senalda Road
Los Angeles, CA 90068

Richard A. Lang
Estate of Dec'd Marguerite Lang
637 Ohio Avenue
Richmond, CA 94804

Donellan T. Lavigne
5160 Birch Street, #200
Newport Beach, CA 92660

Norman N. & Mabel M. Mamey
Mamey Family Trust
5160 Birch Street, #101
Newport Beach, CA 92660

Polish Center of Los Angeles
3424 W. Adams Blvd.
Los Angeles, CA 90018

John B. & Irma V. Wagner
702 West 173rd Place
Gardena, CA 90247

John B. Wagner
1515 Alamenda Street
Compton, CA 90220

OTHER INTERESTED PARTIES

Lillian Smith, Editor
Agua Dulce/Acton Country Journal
35327 Glenwall Street
Agua Dulce, CA 92350

Laverne Harris
Agua Dulce Civic Association
33201 Agua Dulce Canyon Road #1
Agua Dulce, CA 91350

Jim Duzick
9303 Old Stage Rd.
Agua Dulce, CA 91350

Robert Martinez
Sikand Engineering
15230 Burbank Blvd.
Van Nuys, CA 91411

Mr. Howard Kaplan
33264 Encaro Court
Agua Dulce, CA 91350

Mr. Robert Baida
Stonecrest Homeowners
14210 W. Everglades Court
Canyon Country, CA 91351

Mr. Charles Brink
P.O. Box 9333
Van Nuys, CA 91409

Ms. Laura Stotler
City of Santa Clarita
23920 Valencia Blvd., Ste. 300
Santa Clarita, CA 91355-2196

Mr. Bill Burger
Kaiser Materials Corp.
2680 Bishop Drive, Ste. 225
San Ramon, CA 94583

M. Troy Gordon
P.O. Box 58
Columbia, MO 65205-0058

H. Paul Friesema
2040 Sheridan Road
Evanston, IL 60208-4100

Greg Tolbert
Weyerhauser Company
CH2J28
Tacoma, WA 98477

Christine Burton
Land Design Consultants
225 S. Lake Avenue, Suite 600
Pasadena, CA 91101

Chris Kolski
7945 Sausalita Avenue
West Hills, CA 91304

William Waggoner, Business Manager
International Union of
Operating Engineers
Local 12
150 E. Carson Street
Pasadena, CA 91103

REPRESENTATIVES

Representative Brad Sherman
Woodland Hills District Office
21031 Ventura Blvd., Ste. 1010
Woodland Hills, CA 91364
Attn: Ms. Evita Mindiola

Representative Howard P. McKeon
Santa Clarita Valley District Office
23929 W. Valencia Blvd., Ste. 410
Santa Clarita, CA 91355
Attn: Mr. David Foy

Representative Howard L. Berman
10200 Sepulveda Blvd., Ste. 300
Mission Hills, CA 91345
Attn: Ms. Pearl Ricci

Representative James F. Rogan
199 S. Los Robles Avenue, Ste. 560
Pasadena, CA 91101
Attn: Ms. Denise Milinkovich

Representative David Dreier
112 North Second Avenue
Covina, CA 91723
Attn: Mr. Mark Harmson

Representative Henry A. Waxman
8436 W. Third Street, Ste. 600
Los Angeles, CA 90048
Attn: Ms. Lisa Ellman

Representative Xavier Becerra
1910 Sunset Blvd., Ste. 560
Los Angeles, CA 90026
Attn: Ms. Eva Matas

Representative Matthew Martinez
2550 W. Main Street, Ste. 301
Alhambra, CA 91801
Attn: Ms. Crystal Rangel

Representative Julian C. Dixon
5100 West Goldleaf Circle, Ste. 208
Los Angeles, CA 90056
Attn: Ms. Patricia Miller

Representative Lucille Roybal-Allard
255 E. Temple Street, Ste. 1860
Los Angeles, CA 90012-3334
Attn: Ms. Elvia Perez

Representative Grace Flores Napolitano
1712 West Beverly Blvd., Ste. 201
Montebello, CA 90640
Attn: Ms. Rose Stevens

Representative Maxine Waters
10124 S. Broadway, Ste. 1
Los Angeles, CA 90003
Attn: Mr. Mike Murase

Representative Steven T. Kuykendall
21311 Hawthorne Blvd., Ste. 250
Torrance, CA 90503
Attn: Mr. Marg McDonald

Representative Juanita Millender-McDonald
970 W. 190th Street, Est Tower, Ste. 900
Torrance, CA 90502
Attn: Ms. Mary Geddis

Representative Steve Horn
4010 Watson Plaza Drive, Ste. 160
Lakewood, CA 90712
Attn: Ms. Connie Sziebel

Representative Ed Royce
305 N. Harbor Blvd., Ste. 300
Fullerton, CA 92832
Attn: Ms. Corina Jurovich

Representative Gary G. Miller
1333 Willow Pass Rd., Ste. 203
Concord, CA 94520
Attn: Mr. David Tucker

Representative Dana Rohrabacher
101 Main Street, Ste. 3C
Huntington Beach, CA 92648
Attn: Ms. Kathleen Hollingsworth

Representative Loretta Sanchez
Garden Grove Office
12397 Lewis Street, Ste. 101
Garden Grove, CA 92840
Attn: Ms. Anne Garcia

Representative Christopher Cox
One Newport Place, Ste. 420
Newport Beach, CA 92660
Attn: Ms. Suzie Rems

Representative Ron Packard
629 Camino De Los Mares, Ste. 204
San Clemente, CA 92673
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County of Los Angeles
Department of Parks & Recreation
433 South Vermont Avenue
Los Angeles, CA 90020-1975
Attn: Patrick Reynolds

County of Los Angeles
Fire Department
Forestry Division, Prevention Bureau
5823 Rickenbacker Road, Room 123
Commerce, CA 90040
Attn: Ms. Cusick

County of Los Angeles
Health Services
Environmental Planning & Evaluation
2525 Corporate Place
Monterey Park, CA 91754
Attn: Environmental Protection

County of Los Angeles
Public Works Department
Planning Division
900 South Fremont Avenue
Alhambra, CA 91803
Attn: Environmental/Special Studies

County of Los Angeles
Sheriff Department
Santa Clarita Valley Area 1 Station
23740 West Magic Mountain Pkwy.
Valencia, CA 91355
Attn: Environmental Review

FEDERAL AGENCIES

Angeles National Forest
701 North Santa Anita Avenue
Arcadia, CA 91006
Attn: Mike McCorison

Bureau of Land Management
2135 Butano Drive
Sacramento, CA 95829
Attn: Mitchell Leverette/Jack Mills/
Al Wright

Bureau of Land Management
California Desert District
6221 Box Springs Blvd.
Riverside, CA 92507
Attn: Rob Waiwood/Tim Salt
Attn: Carol Levitzky, Media Director

Bureau of Land Management
Palm Springs Office - South Coast
Field Office
690 W. Garnet Ave., P.O. Box 1260
North Palm Springs, CA 92258-1260
Attn: Elena Misquez

Bureau of Land Management
Ridgecrest Field Office
300 S. Richmond Road
Ridgecrest, CA 93555
Attn: Ahmed Mohsen
Attn: Glenn Harris

U.S. Department of the Army
Los Angeles District, Corps of Engineers
911 Wilshire Blvd.
Los Angeles, CA 90012
Attn: Environmental Review

U.S. Environmental Protection Agency
Office of Federal Activities
NEPA Compliance Division
EIS Filing Section
Ariel Rios Building (South Oval Lobby)
Mail Code 2252-A, Room 7241
1200 Pennsylvania Ave., N.W.
Washington, DC 20044

U.S. Fish & Wildlife Service
Southern California Field Station
2730 Loker Avenue West
Carlsbad, CA 92008
Attn: Environmental Review

U.S. Fish & Wildlife Service
Ventura Field Office
2493 Portola Road, Suite B
Ventura, CA 93003
Attn: Environmental Review

Department of Energy
Golden Field Office
1617 Cole Blvd.
Golden, CO 80401
Attn: Guy Williams

Department of the Interior
Office of Environmental Policy
& Compliance
1849 'C' Street N.W., Room 2340 Dept.
Washington, DC 20240
Attn: Phyllis Davis

National Park Service
NPS (2310)
1849 C Street, NW, Room 2749
Washington, DC 20240-0001
Attn: Dale Morlock

LOCAL GROUPS AND AGENCIES

Acton Town Council
4145 Gillespie Avenue
Acton, CA 93510
Attn: Monet Pierce

Agua Dulce Town Council
33201 Agua Dulce Canyon Road
P.O. Box #8
Agua Dulce, CA 91350
Attn: Environmental Review

Archaeological Information Center
UCLA Institute of Archaeology
Fowler Museum of Cultural History
Los Angeles, CA 90024-1510
Attn: Quick Check

Castaic Lake Water Agency
23560 Lyons Avenue, #225
Santa Clarita, CA 91321
Attn: Environmental Review

City of Santa Clarita
Planning Department
23920 Valencia Blvd., #300
Santa Clarita, CA 91355
Attn: Enrique Diaz
Attn: Lisa Hardy

Communities For A Better Environment
500 Howard Street, Suite 506
San Francisco, CA 94105
Attn: Lisa Hardy

Los Angeles County
Canyon Country Library
18536 Soledad Canyon Road
Santa Clarita, CA 91351
Attn: Environmental Review

Los Angeles County
Newhall Library
22704 West 9th Street
Santa Clarita, CA 91321
Attn: Environmental Review

Los Angeles County
Valencia Library
23743 West Valencia Blvd.
Santa Clarita, CA 91355
Attn: Environmental Review

Newhall County Water District
P.O. Box 220970
Santa Clarita, CA 91322-0970
Attn: Environmental Review

Santa Clarita Civic Association
P.O. Box 384
Santa Clarita, CA 91322
Attn: Environmental Review

Santa Clarita Water Company
22722 Soledad Canyon Road
Santa Clarita, CA 91380-9003
Attn: Environmental Review

Santa Monica Mtns. Conservancy
5750 Ramirez Canyon Road
Malibu, CA 90265
Attn: Environmental Review

SCOPE
P.O. Box 1182
Canyon Country, CA 91351
Attn: Environmental Review

South Coast Air Quality Mgmt. District
21865 East Copley Drive
Diamond Bar, CA 91765-4182
Attn: Steve Smith

Southern California Assoc. of Governments
818 West 7th Street, 12th Floor
Los Angeles, CA 90017
Attn: Environmental Review

Valencia Water Company
24631 Avenue Rockefeller
Valencia, CA 91355
Attn: Environmental Review

<u>STATE AGENCIES</u>

California Integrated Waste Management Board
8800 Cal Center Drive
Sacramento, CA 95826
Attn: Environmental Review

State Water Resources Control Board Division of Water Rights
901 P Street
Sacramento, CA 95814
Attn: Ross Swenerton

California Regional Water Quality Control Board Los Angeles Region
320 W. 4th Street, Suite 200
Los Angeles, CA 90013
Attn: Environmental Review

Caltrans - District 7 IGR / CEQA Coordinator
Transportation Planning & Analysis
120 South Spring Street
Los Angeles, CA 90012

State Mining and Geology Board
801 "K" Street
Sacramento, CA 95814
Attn: John Parrish

Department of Conservation Division of Oil, Gas & Geothermal Resources
5816 Corporate Avenue, Suite 200
Cypress, CA 90630
Attn: Environmental Review

Department of Conservation Division of Mines & Geology
801 "K" Street
Sacramento, CA 95814
Attn: Dave Beeby

Department of Fish & Game
330 Golden Shore, #50
Long Beach, CA 90802
Attn: Environmental Review

Department of Parks and Recreation
P.O. Box 942896
Sacramento, CA 94296-0001
Attn: Environmental Review

Department of Water Resources
1416 Ninth Street
Sacramento, CA 95814
Attn: Environmental Review

Native American Heritage Commission
915 Capital Mall
Sacramento, CA 95814
Attn: Environmental Review

Southern California Regional Rail Authority
700 S. Flower Street, 26th Floor
Los Angeles, CA 90017-4606

State Clearinghouse
1400 Tenth Street, Room 121
Sacramento, CA 95814
Attn: Environmental Review

State Lands Commission
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825-8202
Attn: Environmental Review

Department of Conservation
Office of Governmental &
Environmental Relations
801 K Street MS 24-02
Sacramento, CA 95814
Attn: Jason Marshall

ADJACENT PROPERTY OWNERS

CA Rasmussen Company
2360 Shasta Way
Simi Valley, CA 93065

Calmat Company
Legal Department
3200 San Fernando Road
Los Angeles, CA 90065

Ben Curtis
Curtis Sand and Gravel
Canyon Country Enterprises, Inc.
P.O. Box 1367
Canyon Country, CA 91386

Lambert Ranch
7030 Senalda Road
Los Angeles, CA 90068

Richard A. Lang
Estate of Dec'd Marguerite Lang
637 Ohio Avenue
Richmond, CA 94804

Donellan T. Lavigne
5160 Birch Street, #200
Newport Beach, CA 92660

Norman N. & Mabel M. Mamey
Mamey Family Trust
5160 Birch Street, #101
Newport Beach, CA 92660

Polish Center of Los Angeles
3424 W. Adams Blvd.
Los Angeles, CA 90018

John B. & Irma V. Wagner
702 West 173rd Place
Gardena, CA 90247

John B. Wagner
1515 Alamenda Street
Compton, CA 90220

OTHER INTERESTED PARTIES

Lillian Smith, Editor
Agua Dulce/Acton Country Journal
35327 Glenwall Street
Agua Dulce, CA 92350

Agua Dulce Civic Association
33201 Agua Dulce Canyon Road #1
Agua Dulce, CA 91350

Jim Duzick
9303 Old Stage Rd.
Agua Dulce, CA 91350

Robert Martinez
Sikand Engineering
15230 Burbank Blvd.
Van Nuys, CA 91411

Mr. Howard Kaplan
33264 Encaro Court
Agua Dulce, CA 91350

Mr. Robert Baida
Stonecrest Homeowners
14210 W. Everglades Court
Canyon Country, CA 91351

Mr. Charles Brink
P.O. Box 9333
Van Nuys, CA 91409

Ms. Laura Stotler
City of Santa Clarita
23920 Valencia Blvd., Ste. 300
Santa Clarita, CA 91355-2196

Mr. Bill Burger
Kaiser Materials Corp.
2680 Bishop Drive, Ste. 225
San Ramon, CA 94583

M. Troy Gordon
P.O. Box 58
Columbia, MO 65205-0058

H. Paul Friesema
2040 Sheridan Road
Evanston, IL 60208-4100

Greg Tolbert
Weyerhauser Company
CH2J28
Tacoma, WA 98477

Christine Burton
Land Design Consultants
225 S. Lake Avenue, Suite 600
Pasadena, CA 91101

Chris Kolski
7945 Sausalita Avenue
West Hills, CA 91304

William Waggoner, Business Manager
International Union of
Operating Engineers
Local 12
150 E. Carson Street
Pasadena, CA 91103

Mr. Brian Mastin
TMC
1201 W. Gladstone
Azusa, CA 91702

Mr. John Hecht
West Coast Environmental
44253 Transport Street, Suite A
Ventura, CA 93003

Mr. Kerry Shapiro
Baker and McKenzie
Two Embarcadero Center, 24th Fl.
San Francisco, CA 94111

Ron Bottors
Friends of Santa Clara River
660 Randy Drive
Newberry Park, CA 91320

John Geddie
8040 Bellamah Ct. N.E.
Albuquerque, NM 87110

Mike Karbacher
SAFE
33333 Pewter Rd.
Agua Dulce, CA 91350

Sulphur Springs Elementary School District
17866 Sierra Highway
Canyon Country, CA 91351

Sand Canyon Homeowners Association
P.O. Box 1081
Canyon Country, CA 91351

Marc Hebert
Bracewell & Patterson, LLP
2000 K Street N.W., Ste. 500
Washington, DC 20006-1872

Lana Lampton
Natural History Club of
Acton & Agua Dulce
31851 Windrush Rd.
Agua Dulce, CA 91350

David Perkins
Kravan & Associates
215 W. Dakota Ave.
Clovis, CA 93612

Glen Kepler
Minerals Management Service
Royalty Evaluations Division
12600 W. Colfax Ave., Suite C-100
Lakewood, CO 80215

Don Fields
RFCommunications
1201 "K" Street, Suite 850
Sacramento, CA 95814

Jason Takenouchi, Business Writer
Daily News
24800 Avenue Rockefeller
Valenica, CA 91355

Dwight Carey
EMA
1698 Greenbiar Lane, Suite 210
Brea, CA 92821

Marsha McLean, President
SCV Canyons Preservation Commission
24519 Breckenridge Pl.
Newhall, CA 91321

Allan Cameron
Comprehensive Development Consulting Co.
19425 Soledad Canyon Rd., # 412
Santa Clarita, CA 91351

Lynn Sickler
Acton Civic Association/Acton Town Council
5301 Soledad Canyon Rd.
Acton, CA 93510

Charles Brink
Vanguard News
17839 Osborne
Northridge, CA 91325

Ingrid Elsel Associates
468 E. Main St., Suite E
Ventura, CA 93001

Marsha McLean
Environmental Committee
Santa Clarita Chamber of Commerce
24519 Breckenridge Pl.
Newhall, CA 91321

Christina Grider
M.H. Wolfe and Associates
P.O. Box 10254
Bakersfield, CA 93389

Peter Galvin
Center for Biological Diversity
P.O. Box 710
Tucson, AZ 85702

Ed Dorland
Ultra Systems Environmental
6 Jenner, Ste. 210
Irvine, CA 92618-3811

Michael Collins
EEC
3501 N. 16th St.
Phoenix, AZ 85016-6419

Kurt Buehler
29003 Sylvia Dr.
Canyon Country, CA 91351

Douglas Barnett
5213 Shannon Valley Rd.
Acton, CA 93510

Ray Billet (Elizabeth)
31880 Aliso Canyon Rd.
Palmdale, CA 93550

Bill Daniels (Judi)
2805 Calmgarden Rd.
Acton, CA 93510

Chrys Hamper (Brian)
2670 Kashmere Canyon Rd.
Acton, CA 93510

Dick Morris
2703 W. Sierra Hwy.
Acton, CA 93510

Calvin A. Oglesby, Jr. (Innes)
32177 42nd St. W.
Acton, CA 93510

Leona Sexton (Paul)
32010 Quirk Rd.
Acton, CA 93510

David Weary (Shari)
35225 Via Famero Dr.
Acton, CA 93510

William Hart
c/o Robert Lee
Union High School District
21515 Redview Dr.
Santa Clarita, CA 91530

M. Ferguson
College of the Canyons
26455 Rockwell Canyon Rd.
Santa Clarita, CA 91355

Administrator
Pincrest Schools
16530 Lost Canyon Rd.
Canyon Country, CA 91350

Administrator
Pincrest Schools
25443 N. Orchard Village Rd.
Valencia, CA 91355

Marc Winger
Newhall School District
25375 Orchard Village Rd.
Valencia, CA 91355-3000

Saugus Union School District
24930 Avenue Stanford
Santa Clarita, CA 91365

Jim Duzick
Acton-Agua Dulce Unified School District
32248 Crown Valley Rd., Box 68
Acton, CA 93510

Keefe Ferrandini
Save the Angeles Foundation
18925 Tenderfoot Trail
Newhall, CA 91321

Ester Kmetty
EEC
3501 North 16th Street
Phoenix, AZ 95016-6419

Nick Teeter
Superintendent of Business Services
Sulphur Springs Elementary School District
17866 Sierra Highway
Canyon County, CA 91351

Thom Ryan
17910 Skypark Circle, #108
Irvine, CA 92614
Hand Delivered

Jo Ellen Rismanchi
28316 Simsalido Ave.
Canyon Country, CA 92531

Berta Gonzales-Harper
Canyon Country General Beautification
Committee
27210 Plumwood Ave.
Santa Clarita, CA 91351

Canyon Country Enterprises, Inc.
P.O. Box 1367
Canyon Country, CA 91386

Dina Proffer
33233 Canyon Quail Trail
Agua Dulce, CA 91350

Richard Poole
Associated Transportation Engineers
100 N. Hope Ave., Ste. 4
Santa Barbara, CA 92110-1686

Keefe Ferrandini, President
Save the Angeles Foundation
18925 Tenderfoot Trail
Newhall, CA 91321

Andrew G. Fried
Safe Action for the Environment, Inc.
P.O. Box 6100
Agua Dulce, CA 91350

California Air Resources Board
P.O. Box 2815
Sacramento, CA 95814

Jeanne Dunn Geselbracht
CMD-2
USEPA REGION 9
75 Hawthorne Street
San Francisco, CA 94105

Southern California Association of
Governments (SCAG)
818 West 7th Street, 12th Floor
Los Angeles, CA 90017-3435

George H. Miller
33349 Wisconsin Street
Acton, CA 93510

Michael Blackwell
6 Jenner, Suite 210
Irvine, CA 92618

Center for Biological Diversity
California & Pacific Office
P.O. Box 40090
Berkeley, CA 94704-4090

Judy Smith
Monographs and Acquisition Service
Colorado State University Libraries
Fort Collins, CA 90523-1019

Jeb Stuart
Construction Industry Air Quality Co.
17 Cherbourg
Newport Beach, CA 92660

REPRESENTATIVES

Representative Brad Sherman
Woodland Hills District Office
21031 Ventura Blvd., Ste. 1010
Woodland Hills, CA 91364
Attn: Ms. Evita Mindiola

Representative Howard P. McKeon
Santa Clarita Valley District Office
23929 W. Valencia Blvd., Ste. 410
Santa Clarita, CA 91355
Attn: Mr. David Foy

Representative Howard L. Berman
10200 Sepulveda Blvd., Ste. 300
Mission Hills, CA 91345
Attn: Ms. Pearl Ricci

Representative James F. Rogan
199 S. Los Robles Avenue, Ste. 560
Pasadena, CA 91101
Attn: Ms. Denise Milinkovich

Representative David Dreier
112 North Second Avenue
Covina, CA 91723
Attn: Mr. Mark Harmson

Representative Henry A. Waxman
8436 W. Third Street, Ste. 600
Los Angeles, CA 90048
Attn: Ms. Lisa Ellman

Representative Xavier Becerra
1910 Sunset Blvd., Ste. 560
Los Angeles, CA 90026
Attn: Ms. Eva Matas

Representative Matthew Martinez
2550 W. Main Street, Ste. 301
Alhambra, CA 91801
Attn: Ms. Crystal Rangel

Representative Julian C. Dixon
5100 West Goldleaf Circle, Ste. 208
Los Angeles, CA 90056
Attn: Ms. Patricia Miller

Representative Lucille Roybal-Allard
255 E. Temple Street, Ste. 1860
Los Angeles, CA 90012-3334
Attn: Ms. Elvia Perez

Representative Grace Flores Napolitano
1712 West Beverly Blvd., Ste. 201
Montebello, CA 90640
Attn: Ms. Rose Stevens

Representative Maxine Waters
10124 S. Broadway, Ste. 1
Los Angeles, CA 90003
Attn: Mr. Mike Murase

Representative Steven T. Kuykendall
21311 Hawthorne Blvd., Ste. 250
Torrance, CA 90503
Attn: Mr. Marg McDonald

Representative Juanita Millender-McDonald
970 W. 190th Street, Est Tower, Ste. 900
Torrance, CA 90502
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Representative Steve Horn
4010 Watson Plaza Drive, Ste. 160
Lakewood, CA 90712
Attn: Ms. Connie Sziebel

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305 N. Harbor Blvd., Ste. 300
Fullerton, CA 92832
Attn: Ms. Corina Jurovich
Representative Gary G. Miller
1333 Willow Pass Rd., Ste. 203
Concord, CA 94520
Attn: Mr. David Tucker

Representative Dana Rohrabacher
101 Main Street, Ste. 3C
Huntington Beach, CA 92648
Attn: Ms. Kathleen Hollingsworth

Representative Loretta Sanchez
Garden Grove Office
12397 Lewis Street, Ste. 101
Garden Grove, CA 92840
Attn: Ms. Anne Garcia

Representative Christopher Cox
One Newport Place, Ste. 420
Newport Beach, CA 92660
Attn: Ms. Suzie Rems

Representative Ron Packard
629 Camino De Los Mares, Ste. 204
San Clemente, CA 92673
Attn: Mr. Don Polese

NOTICE OF AVAILABILITY OF FEIS

Deanna M. Weiman
United States Environmental Protection Agency
75 Hawthorne Street
San Francisco, CA 94105

Jeanne Geselbracht
United States Environmental Protection Agency
75 Hawthorne Street
San Francisco, CA 94105

Jason Marshall
Department of Conservation
801 K Street, MS 24-02
Sacramento, CA 95814

Ross Swenerton
State Water Resources Control Board
901 P Street
Sacramento, CA 95814

Stephen W. Verigin
Department of Water Resources
2200 X Street, Suite 200
Sacramento, CA 95818

Terry Roberts
Governor's Office of Planning and Research State Clearinghouse
1400 Tenth Street, Room 222
Sacramento, CA 95814

Harry M. Schueller
State Water Resources Control Board
901 P Street
Sacramento, CA 95814

Charles A. Rich
State Water Resources Control Board
901 P Street
Sacramento, CA 95814

Stephen J. Buswell
Department of Transportation
120 SO. Spring Street
Los Angeles, CA 90012

Jeffery Lambert
City of Santa Clarita
23920 Valencia Blvd., Ste. 300
Santa Clarita, CA 91355

Morris J. Litwack
LA County Department of Regional Planning
320 West Temple Street
Los Angeles, CA 90012

Jo Anne Darcy
City of Santa Clarita
23920 Valencia Blvd., Ste. 300
Santa Clarita, CA 91355

Gail Wickstrom
Saugus Union School District
24930 Avenue Standford
Santa Clarita, CA 91355

J. David Stein
Southern California Association of Government
010 West Seventh Street, 12th Floor
Los Angeles, CA 90017

Thomas E. Shollenberger
Newhall County Water District
23780 North Pine Street
P.O. Box 220970
Santa Clarita, CA 91322

Michael A. Wilkinson
LA County Fire Department
1320 North Eastern Avenue
Los Angeles, CA 90063

Steve Smith
South Coast Air Quality Management District
21865 E. Copley Drive
Diamond Bar, CA 91765

David Yamahara
County of Los Angeles
Department of Public Work
900 South Fremont Avenue
Alhambra, CA 91803

Henry Schultz
Sierra Club, Angeles Chapter
3430 Wilshire Blvd., Ste. 320
Los Angeles, CA 90010

Jonathan N. Baskin
San Marino Environmental Associates
560 South Greenwood Avenue
San Marino, CA 91108

Andrea A. Matarazoo
Remy, Thomas and Moose, LLP
455 Capitol Mall, Ste. 210
Sacramento, CA 95814

Lynne A. Plambeck
SCOPE
P.O. Box 1182
Canyon Country, CA 91386

Ron Bottorff
Friends of the Santa Clara River
660 Randy Drive
Newbury Park, CA 91320

Tana Lampton
S.A.F.E.
P.O. Box 6009
Agua Dulce, CA 91350

Matin Schlageter
Sierra Club, Angeles Chapter
3435 Whilshire Blvd., Ste. 320
Los Angeles, CA 90010

Stacey Nickels
Natural History Club of Acton/Agua Dulce
P.O. Box 965
Acton, CA 93510

Jim Duzick
Acton- Agua Dulce Unified School District
32248 Crown Valley Road
P.O. Box 68
Acton, CA 93510

Diane Trautman
Democratic Alliance for Action
P.O. Box 802481
Santa Clarita, CA 91380

James F. Duzick & Diane Terito
The Agua Dulce Town Council and
The Agua Dulce Civic Association
33201 Agua Dulce Canyon Road, Box 8
Agua Dulce, CA 91350

Peter Galvin
Center for Biological Diversity
P.O. Box 40090
Berkeley, CA 94704

Carlyle W. Hall Jr.
Hall and Associates
10951 West Pico Blvd., 3rd Floor
Los Angeles, CA 90064

Susan Kaplan & Diane Terito
Agua Dulce Town Council and
Agua Dulce Civic Association
33201 Agua Dulce Canyon Road, Box 8
Agua Dulce, CA 91350

Marc Winger
Newhall School District
25375 Orchard Road
Valencia, CA 91355

Joseph Yore
38753 26th Street East
Palmdale, CA 93550

Mary K Riggins
29230 N. Sequoia Road
Canyon Country, CA 91351

Michelle Hoffman
25634 Salceda Road
Valencia, CA 91355

Estelle Blashak
48303 N. 20th Street W.
Lancaster, CA 93534

Nancy Miller
29249 N. Sequoia Road
Canyon Country, CA 91351

Vinton & Tana Lampton
31851 Windrush Road
Agua Dulce, CA 91350

Stacey Parrino
30217 Pink Pansy Court
Canyon Country, CA 91351

Edith & George Haddock
12104 Davenport Road
Agua Dulce, CA 91350

Beth Shott
33309 Santiago Road, PMB #314
Acton, CA 93510

Mary Alexoff
32317 Agua Dulce Canyon Road
Agua Dulce, CA 91350

The Olen's
440 E. Soledad Pass Road
Palmdale, CA 93550

Phillip Avila
343 Los Serenos Drive
Fillmore, CA 93015

James R. Lankford
617 Boulder Street
Fillmore, CA 93015

Richard Thompson
1831 Burch Avenue
Simi Valley, CA 93063

Rosalio Gzamco
3418 Helms Avenue #2
Culver City, CA 90232

Maurivo Murillo
1720 1st Street
Simi Valley, CA 93065

Tory Cabrac
316 Rhodes Court
Fillmore, CA 93015

David Bamo
1079 Lookout Rock Trail
Simi Valley, CA 93063

Dan Steek
213 Sharon Lane
Port Huerrme, CA 93041

Santos Garcia
421 Old Telegraph
Fillmore, CA 93015

Marcos Alvarez Lugo
8800 Kester Avenue #140
Panorama City, CA 91402

Francisco Isiordia
7068 Shady Grove Street
Tujunga, CA 91042

Omero Keyes
1300 Saratoga Avenue #2106
Ventura, CA 93003

Reiner Schone
9262 Old Stage Road
Agua Dulce, CA 91350

Francesca Capasso
9262 Old Stage Road
Agua Dulce, CA 91350

Michael D. Antonovich
500 West Temple Street
Los Angeles, CA

Kurt L. Hayden
11705 Laramie Way
Agua Dulce, CA 91350

Pat Allen
11535 Mint Canyon Road
Saugus, CA 91350

Robert K. Grier
10321 Escondido Canyon Road
Agua Dulce, CA 91350

Stuart Larson
14215 W. Everglades Court
Canyon Country, CA 91351

James Frautnick
29319 Snapdragon Place
Santa Clarita, CA 91351

Alan & Christine Chudnow
15603 Lucille Court
Canyon Country, CA 91351

Susan Tjark
10060 Lagos Road
Agua Dulce, CA 91350

Joseph V. Castagna, Jr.
7030 Senalda Road
Los Angeles, CA 90068

B&R Gallery
17720 Sierra Highway
Canyon Country, CA 91351

Peter J. Saputo
24841-A Apple Street
Newhall, CA 91321

George H. Miller
33349 Wisconsin Street
Acton, CA 93510

Mr & Mrs Stuart
28916 Poppy Meadow Street
Canyon Country, CA 91351

Elaine & Howard Fox
29178 Flowerpark Drive
Canyon Country, CA 91351

Jonathan Bishop
California Regional Water Quality
Control Board Los Angeles Region
320 W. 4th Street, Suite 200
Los Angeles, CA 90013

James S. Pompy
Department of Conservation
801 K Street, MS 09-06
Sacramento, CA 95814

Marcia Kiesse
California Integrated Waste
Management Board-Permitting and
Inspection
8800 Cal Center Drive
Sacramento, CA 95826

George Runner
California Legislature District Office
23920 Valencia Blvd. Suite 250
Santa Clarita, CA 91355

Kerwin Chih
County of Los Angeles Department of
Regional Planning
320 W. Temple Street, 13th Floor
Los Angeles, CA 90012

Harry W. Stone
LA Department of Public Works
900 South Fremont Avenue
Alhambra, CA 91803

Chris Mastro
LA County Department of Health
Services
2525 Corporate Place
Monterey Park, CA 91754

J. David Stein
Southern California Association of
Governments- Dept. of Regional
Planning
818 West Seventh St, 12th Floor
Los Angeles, CA 90017

Kimel Conway
LA Department of Parks and
Recreation
433 South Vermont Avenue
Los Angeles, CA 90020

Robert Zeller
Antelope Valley, Air Pollution Control
District
43301 Division Street, Ste. 206
Lancaster, CA 93539

Lisa Hardy
City of Santa Clarita
23920 Valencia Blvd. Suite 300
Santa Clarita, CA 91355

Scott Litchfield
Acton Chamber of Commerce
P.O. Box 81
Acton, CA 93510

Tim Buresh
Alameda Corridor Transportation
Authority
1 Civic Plaza Ste. 650
Carson, CA 90745

Robert Nolet
Sulphur Springs School District
17866 Sierra Highway
Canyon Country, CA 91351

Mark Nielsen
Acton Agua Dulce Unified School
District
32248 Crown Valley Road
P.O. Box 68
Acton, CA 93510

JR Jasobs
County of Los Angeles Fire Department
5823 Rickenbacker Road
Commerce, CA 90040

Sand Canyon Home Owners Assc.
Sand Canyon Homeowners Association
P.O. Box 1081
Canyon Country, CA 91351

Donna Saufley
Agua Dulce Civic Association, Inc.
33201 Agua Dulce Canyon Road #1
Agua Dulce, CA 91350

John Carmona
Carmona and Associates
371 Lexington Street
Upland, CA 91786

Barbara Wampole
Friends of the Santa Clara River
660 Randy Drive
Newbury Park, CA 91320

Monet Pierce
Acton Town Council
P.O. Box 810
Acton, CA 93510

Steve A. Billy
International Union of Operating Engineers
150 East Corson Street
P.O. Box 7109
Pasadena, CA 91109

Tina A. Thomas
Remy, Thomas and Moose, LLP
455 Capitol Mall, Ste. 210
Sacramento, CA 95814

Jeb Stuart
Jeb Stuart Air Quality Consultant
17 Cherbourg
Newport Beach, CA 92660

Richard C. Slade
Richard C. Slade & Associates LLC
6442 Coldwater Canyon Avenue, Ste. 214
North Hollywood, CA 91606

David P. Weary
Acton Town Council
P.O. Box 810
Acton, CA 93510

R.J. Corner
Law Offices Christensen, Miller, Fink, Jacobs, Glaser, Weil & Shaping LLP
2121 Avenue of The Stars, 18th Floor
Los Angeles, CA 90067

Andrew G. Fried
S.A.F.E.
P.O. Box 6009
Agua Dulce, CA 91350

Kent M. Madsen
Acton Civic Association
P.O. Box 550
Acton, CA 93510

Steve Werner
Thousand Trails
4700 Crown Valley Road
Acton, CA 93510

Robert E. Alderman
33336 Agua Dulce Canyon Road., Ste. 105
Agua Dulce, CA 91350

Pamela Gordon
16310 Sultus Street
Canyon Country, CA 91351

Catherine Hewitt
P.O. Box 1002
Canyon Country, CA 91351

Tim & Patty Stopper
33493 Domino Hill
Agua Dulce, CA 91350

Joe Savatgy
34421 Harrah Road
Agua Dulce, CA 91350

Laura & Mark King
26340 Ravenhill Road
Santa Clarita, CA 91350

Chris Kolski
13130 Soledad Canyon Road
Saugus, CA 91350

Mark Cruz
33601 Steele Avenue
Agua Dulce, CA 91350

D. Scott Hendricks
32267 Agua Dulce Canyon Road
Agua Dulce, CA 91350

Mr & Mrs. Carl Cuigino
12124 Spade Spring
Agua Dulce, CA 91350

Ben Curtis
P.O. Box 1367
Canyon Country, CA 91386

Denise Flinders
32455 Agua Dulce Canyon Road
Agua Dulce, CA 91350

Robert Flinders
32455 Agua Dulce Canyon Road
Agua Dulce, CA 91350

Joe & Polly Staats
33232 Casa Dulce Lane
Agua Dulce, CA 91350

Berta Gonzales- Harper
27210 Plumwood Avenue
Santa Clarita, CA 91351

Richard and Bonnie Lombardo
14201 Everglades Court
Canyon Country, CA 91351

Charles Robert Knight
29459 N Mammoth Lane
Canyon Country, CA 91351

Steven Silveri
29366 N. Hidden Oak Place
Canyon Country, CA 91351

Bess Levin Knight
29459 N Mammoth Lane
Canyon Country, CA 91351

Bonnie Schilf
14208 West Sequoia Road
Canyon Country, CA 91351

Roberta Silveri
29366 N. Hidden Oak Place
Canyon Country, CA 91351

Maria Albanese
29345 Hidden Oak PL
Canyon Country, CA 91351

Salvatore Albanese
29345 Hidden Oak PL
Canyon Country, CA 91351

Shirley Skinner
15814 Cindy Court
Canyon Country, CA 91351

Harold Skinner
15814 Cindy Court
Canyon Country, CA 91351

Jacqueline Siddens
29224 Sequoia Road
Canyon Country, CA 91351

Mark Siddens
29224 Sequoia Road
Canyon Country, CA 91351

Kurt L. Hayden
11705 Laramie Way
Agua Dulce, CA 91350

Leo Goldman
29303 Mammoth Lane
Canyon Country, CA 91351

Tresa Rudert
14218 W. Yellowdstone Lane
Canyon Country, CA 91351

Vaclan Hayek
28113 Tenda Drive
Canyon Country, CA 91351

Tony Santoro
16000 Live Oaks Springs
Canyon Country, CA 91351

Barbara Wampole
28262 Lakecrest Avenue
Santa Clarita, CA 91351

Karly Wilson
915 Trail Road
Agua Dulce, CA 91350

Heather Moss & Scott Byrd
12937 Titian Avenue
Granada Hills, CA 91344

Joseph Giannone
28262 Lakecrest Avenue
Santa Clarita, CA 91351

Barbara Gross
16948 Minter Court
Canyon Country, CA 91351

Dorothy Lewn
16742 Bermyo Street
Canyon Country, CA 91351

Mr. & Mrs. Bagby
33801 Agua Dulce Canyon Road
Agua Dulce, CA 91350

Marta Thorne
36491 Bouquet Canyon Road
Saugus, CA 91350

Joan Ivy
19144-B Ave y The Oaks
Santa Clarita, CA 91321

Michael Pugmire
14222 West Everglades Court
Canyon Country, CA 91351

Melissa Claiborne
6140 Snowshoe Thompson
Agua Dulce, CA 91350

Paul Jeffery Lavo
14510 West Stone Ridge Court
Canyon Country, CA 91351

Gina Lavo
14510 West Stone Ridge Court
Canyon Country, CA 91351

Daivs Morris
26616 Sand Canyon Road
Canyon Country, CA 91351

Jackie Skilley
1567 Poppyseed Lane
Santa Clarita, CA 91350

Charmaine Posten
16442 Lost Canyon Road
Canyon Country, CA 91351

Lori Powell
29513 Poppy Meadow Street
Canyon Country, CA 91351

Rodolfo Jimenez
19403 Delight Street
Canyon Country, CA 91351

Connie Jimenez
19403 Delight Street
Canyon Country, CA 91351

Dennis Skelton
30407 Jasmine Valley Drive
Canyon Country, CA 91351

Leah Southwell
28291 Bockdale Avenue
Canyon Country, CA 91351

Richard Coheman
29406 Hidden Oak Place
Canyon Country, CA 91351

Daniel Sosa
29309 Hidden Oak Place
Canyon Country, CA 91351

Bill Colangelo
14411 W. Catskills Court
Canyon Country, CA 91351

Marsha Connelly
19697 May Way
Canyon Country, CA 91351

Karen Chebul
29241 N. Sequoia Road
Canyon Country, CA 91351

Brian Chebul
29241 N. Sequoia Road
Canyon Country, CA 91351

Karen Miller
23210 Valerio Street
W. Hills, CA 91307

Laura Steger
19551 Alobury Street
Canyon Country, CA 91351

Jon Beight
18852 Darton Drive
Canyon Country, CA 91351

Greg & Liliana Silberman
14556 Grandifloras Road
Santa Clarita, CA 91351

Penny Upton
28154 La Veda Avenue
Canyon Country, CA 91351

Robert Lombardo
29443 N. Mammoth Lane
Canyon Country, CA 91351

JoAnne Lombardo
29443 N. Mammoth Lane
Canyon Country, CA 91351

Linda Stelling
10012 Escondido Canyon
Agua Dulce, CA 91350

Karolyn DeMott
33819 Agua Dulce Canyon Road
Agua Dulce, CA 91350

James Schilf
14208 W.Sequoia Road
Canyon Country, CA 91351

Michele Engerran
19300 W. Nadal Street
Canyon Country, CA 91351

Robert & Mary Clement
16207 Valley Ranch Road
Canyon Country, CA 91351

Patricia Tucker
18005 Flynn Dr #534
Canyon Country, CA 91351

Larry Schallert
29851 Groundiflores Road
Pintree, CA 91351

Robert Fleck
27363 Sand Canyon Road
Santa Clarita, CA 91351

Jane Fleck
27363 Sand Canyon Road
Santa Clarita, CA 91351

Chris Hoefflin
P.O. Box 2623
Santa Clarita, CA 91386

Joan Dunn
15414 Rhododendron Drive
Canyon Country, CA 91351

Jo Ellen Risianclei
28316 Simsalido Avenue
Canyon Country, CA 91351

Ed Dunn
15414 Rhododendron Drive
Canyon Country, CA 91351

T.S. Kwong
1810 Shadow Canyon Road
Acton, CA 93510

Bob & Linda Lang
29509 Abelia Road
Canyon Country, CA 91351

Nancy Miller
29249 N. Sequoia Road
Canyon Country, CA 91351

Susan Wilson
28838 Oak Spring Canyon Road
Canyon Country, CA 91351

Glenda Wolfe
26524 Cockleburr Lane
Canyon Country, CA 91351

Kathy Riggins
29230 N. Sequoia Road
Canyon Country, CA 91351

Pinecrest School
16530 Lost Canyon Road
Canyon Country, CA 91351

Sydell Stokes
25715 No.Hogan Dr. B-1
Valencia, CA 91355

Edward Gonzalez
30446 Abelia Road
Canyon Country, CA 91351

Martine Gonzales
14822 Begonias Lane
Canyon Country, CA 91351

Judy Smith
Monographs and Acquisition Service
Colorado State University Libraries
Fort Collins, CO 80523-1019

Amy Bailey
2976 Willington Circle West
Tallahassee, FL 32308

FEIS DISTRIBUTION LIST

Deanna M. Weiman
United States Environmental Protection Agency
75 Hawthorne Street
San Francisco, CA 94105

Jeanne Geselbracht
United States Environmental Protection Agency
75 Hawthorne Street
San Francisco, CA 94105

Jason Marshall
Department of Conservation
801 K Street, MS 24-02
Sacramento, CA 95814

Ross Swenerton
State Water Resources Control Board
901 P Street
Sacramento, CA 95814

Stephen W. Verigin
Department of Water Resources
2200 X Street, Suite 200
Sacramento, CA 95818

Terry Roberts
Governor's Office of Planning and Research State Clearinghouse
1400 Tenth Street, Room 222
Sacramento, CA 95814

Harry M. Schueller
State Water Resources Control Board
901 P Street
Sacramento, CA 95814

David P. Weary
Acton Town Council
P.O. Box 810
Acton, CA 93510

Stephen J. Buswell
Department of Transportation
120 SO. Spring Street
Los Angeles, CA 90012

Jeffery Lambert
City of Santa Clarita
23920 Valencia Blvd., Ste. 300
Santa Clarita, CA 91355

Morris J. Litwack
LA County Department of Regional Planning
320 West Temple Street
Los Angeles, CA 90012

Gail Wickstrom
Saugus Union School District
24930 Avenue Standford
Santa Clarita, CA 91355

J. David Stein
Southern California Association of Government
010 West Seventh Street, 12th Floor
Los Angeles, CA 90017

Thomas E. Shollenberger
Newhall County Water District
23780 North Pine Street
P.O. Box 220970
Santa Clarita, CA 91322

Steve Smith
South Coast Air Quality Management District
21865 E. Copley Drive
Diamond Bar, CA 91765

Henry Schultz
Sierra Club, Angeles Chapter
3430 Wilshire Blvd., Ste. 320
Los Angeles, CA 90010

Jonathan N. Baskin
San Marino Environmental Associates
560 South Greenwood Avenue
San Marino, CA 91108

Andrea A. Matarazoo
Remy, Thomas and Moose, LLP
455 Capitol Mall, Ste. 210
Sacramento, CA 95814

Lynne A. Plambeck
SCOPE
P.O. Box 1182
Canyon Country, CA 91386

Ron Bottorff
Friends of the Santa Clara River
660 Randy Drive
Newbury Park, CA 91320

Tana Lampton
S.A.F.E.
P.O. Box 6009
Agua Dulce, CA 91350

Matin Schlageter
Sierra Club, Angeles Chapter
3435 Whilshire Blvd., Ste. 320
Los Angeles, CA 90010

Stacey Nickels
Natural History Club of Acton/Agua Dulce
P.O. Box 965
Acton, CA 93510

Jim Duzick
Acton- Agua Dulce Unified School District
32248 Crown Valley Road
P.O. Box 68
Acton, CA 93510

Diane Trautman
Democratic Alliance for Action
P.O. Box 802481
Santa Clarita, CA 91380

James F. Duzick & Diane Terito
The Agua Dulce Town Council and
The Agua Dulce Civic Association
33201 Agua Dulce Canyon Road, Box 8
Agua Dulce, CA 91350

Peter Galvin
Center for Biological Diversity
P.O. Box 40090
Berkeley, CA 94704

Carlyle W. Hall Jr.
Hall and Associates
10951 West Pico Blvd., 3rd Floor
Los Angeles, CA 90064

R.J. Corner
Law Offices Christensen, Miller, Fink, Jacobs, Glaser, Weil & Shaping LLP
2121 Avenue of The Stars, 18th Floor
Los Angeles, CA 90067

Marc Winger
Newhall School District
25375 Orchard Road
Valencia, CA 91355

Jonathan Bishop
California Regional Water Quality Control Board Los Angeles Region
320 W. 4th Street, Suite 200
Los Angeles, CA 90013

Marcia Kiesse
California Integrated Waste Management Board-Permitting and Inspection
8800 Cal Center Drive
Sacramento, CA 95826

Kerwin Chih
County of Los Angeles Department of Regional Planning
320 W. Temple Street, 13th Floor
Los Angeles, CA 90012

Harry W. Stone
LA Department of Public Works
900 South Fremont Avenue
Alhambra, CA 91803

Scott Litchfield
Acton Chamber of Commerce
P.O. Box 81
Acton, CA 93510

Sand Canyon Home Owners Assc.
Sand Canyon Homeowners Association
P.O. Box 1081
Canyon Country, CA 91351

Donna Saufley
Agua Dulce Civic Association Inc
33201 Agua Dulce Canyon Road #1
Agua Dulce, CA 91350

John Carmona
Carmona and Associates
371 Lexington Street
Upland, CA 91786

Monet Pierce
Acton Town Council
P.O. Box 810
Acton, CA 93510

Steve A. Billy
International Union of Operating Engineers
150 East Corson Street
P.O. Box 7109
Pasadena, CA 91109

Richard C. Slade
Richard C. Slade & Associates LLC
6442 Coldwater Canyon Avenue, Ste. 214
North Hollywood, CA 91606

APPENDIX B

FLOOD AND WATER QUALITY

APPENDIX B1

STORM WATER POLLUTION PREVENTION PLAN
(West Coast Environmental 1997)

WEST COAST
ENVIRONMENTAL

STORM WATER POLLUTION PREVENTION PLAN

Transit Mixed Concrete - Soledad Canyon Facility
12101 Soledad Canyon Road
Canyon Country, CA

Draft Plan for Proposed Project
Version 2

Original Issued:	June, 1993
Revised:	June, 1997

Prepared For:	Transit Mixed Concrete Company 12101 Soledad Canyon Road Canyon Country, California
Prepared By:	West Coast Environmental 4253 Transport Street, Suite A Ventura, California 93003 (805) 644-7976

TR110-5-360

4253 Transport St., Suite A
Ventura, California 93003
Phone 805/644-7976
Fax 805/644-5929

TRANSIT MIXED CONCRETE - SOLEDAD CANYON FACILITY
STORM WATER POLLUTION PREVENTION PLAN

June 1997

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WEST COAST
ENVIRONMENTAL

4253 Transport Street, Suite A
Ventura, California 93003
Phone 805/644-7976
Fax 805/644-5929
main@wcenviro.com

STORM WATER POLLUTION PREVENTION PLAN
Transit Mixed Concrete - Soledad Canyon Facility
JUNE 1997

1.0 EXECUTIVE SUMMARY

1.1 Purpose and General Requirements of the Plan

In 1987, Congress enacted the Water Quality Act, amending the Federal Water Pollution Control Act to include regulation of the discharge of storm water from industrial and certain municipal sources. EPA issued final regulations establishing permit application requirements for storm water in the November 16, 1990, Federal Register (55 FR 47990). The regulations provide for individual and group applications and for the issuance of individual and general permits.

In California, the State Water Board elected to issue a statewide general permit (Permit) that will apply to all discharges requiring a permit except construction activities. The Board adopted the Permit and Fact Sheet on November 19, 1991. The original Storm Water Pollution Prevention Plan (SWPPP) for this facility was based on the Fact Sheet issued December 18, 1991.

On April 17, 1997, the State Water Board adopted an updated version of the statewide general permit. This SWPPP was updated in June 1997 to reflect the changes in the updated permit.

The Permit requires that each facility:

- Eliminate non-storm water discharges;
- Develop and implement a storm water pollution prevention plan (SWPPP); and
- Perform monitoring of discharges to the storm sewer system.

This Storm Water Pollution Prevention Plan has been developed as required by the Permit to fulfill two major objectives:

- Identify sources of pollution that may affect the quality of industrial storm water discharges; and
- Describe and ensure the implementation of practices to reduce pollutants in storm water discharges.

Since the facility has not yet been constructed, a Notice of Intent (NOI) has not been filed but one will be filed at least 30 days before the start of construction. A draft NOI appears in Appendix F. The practices and procedures outlined in this document will be in place when the facility is in operation and during construction. This document will be considered a working document, and will undergo constant revisions during the life of the facility as the project progresses from construction through mining to reclamation.

1.2 Responsible Personnel

The following individuals are responsible for development, implementation and maintenance of this document:

Environmental Affairs Manager, Brian Mastin, 818-812-7955

Facility Manager, To be Named.

Maintenance Supervisor, To Be Named

Lead Operator, To Be Named

Safety Officer/Facility Operations Secretary, To Be Named

1.3 Summary of Plan Contents

The Transit Mixed Concrete Company (TMC) Soledad Canyon Facility is located approximately 30 miles north of the City of Los Angeles, near the city of Santa Clarita in unincorporated Los Angeles County (see Figure 1). The facility site encompasses approximately 500 acres of which a maximum of 225 acres will be disturbed. Approximately 2 acres will be paved with asphalt or concrete, and an additional 7 acres will be paved with gravel. The operations at the site include: sand and gravel mining, rock processing including crushing and screening, concrete mixing, vehicle fueling, and vehicle maintenance. Site drainage is through seven outfalls summarized in Table 1 and illustrated on Figures 3 and 4.

The potential sources of storm water runoff pollution at the facility include: fugitive dust from the aggregate operations, oil and grease from equipment operation and maintenance, hydrocarbons from fuel and oil dispensing, cement and fly ash from the cement batch operation, compounds from admixtures used in the concrete operation, flocculents used in water treatment, and dust control agents applied to roads and storage piles. The potential pollutants appear in Table 2, Section 4. The following pollutants may be present in storm water discharge from the facility: oil and grease (O&G), total dissolved solids (TDS), total suspended solids (TSS), a basic pH, increased Biochemical Oxygen Demand (BOD) and some trace chemicals.

As the facility is new, there is no history of hazardous material or oil releases by Transit Mixed Concrete Company.

Storm water management practices have been selected to include both baseline and advanced management practices. As this is a new facility, storm water management has been incorporated into facility design wherever possible including: design of sedimentation and erosion control structures, covering and or containing hazardous material storage and use areas, and preparation of a Spill Prevention, Control and Countermeasure (SPCC) Plan.

The management of Transit Mixed Concrete has been involved in the preparation and review of this Plan and have provided certification of its accuracy as required by the EPA and SRWQCB.

The following table summarizes the outfalls at the facility. Drainage areas and Los Angeles County Department of Public Works (LACOPW) culverts are marked on Figure 2. Drainage areas are marked on Figures 2 and 4. Drainage Areas H and G will have sheet flow discharge from undisturbed sections of the facility and consequently have not been identified as unique outfalls. If these areas are incorporated in future development plans, they will be included in this program.

Table 1 - Outfall Summary (see also Figure 4)

Outfall	Outfall Location	Description of Operations in drainage area
OF-1	SE corner of facility, discharge from Desilting/Debris Basin 1 to LACOPW culvert 1 and on to the Santa Clara River.	Material storage, mining, maintenance, fueling.
OF-2E	SE corner of the facility, discharge from Desilting/Debris Basin 2E to LACOPW existing Culvert 2 and & proposed Culvert 2A, and on to the Santa Clara River.	Concrete facility, mining, water treatment, material processing, fueling, and fines storage.
OF-A	NW corner of facility, discharge from Desilting/Debris Basin A to Bee Canyon and on to the Santa Clara River.	Future mining, fines storage.
OF-B	NW corner of facility, discharge from Desilting/Debris Basin B to Bee Canyon and on to the Santa Clara River.	Fines storage.
OF-C	NW corner of facility, discharge from Desilting/Debris Basin C via "blue line" creek to Bee Canyon and on to the Santa Clara River.	Fines storage.
OF-D	SW corner of the facility, discharge from Desilting/Debris Basin D to LACOPW Culvert 4 and on to the Santa Clara River.	Mining, Fines storage.
OF-F	SW corner facility, discharge from Desilting/Debris Basin F to LACOPW 5 and on to the Santa Clara River.	Mining, Fines Storage.

2.0 GENERAL FACILITY INFORMATION

2.1 Description

General:

The Transit Mixed Concrete Company (TMC) Soledad Canyon Aggregate and Concrete Batch Facility will be engaged in the mining and processing of natural rock formations into Portland Cement Concrete (PCC) aggregate, rock, sand and concrete products to be used in the construction industry. The natural rock formations are mined under contract with the Bureau of Land Management (BLM) and mining by TMC will continue for approximately 20 years from the start of operations. The mining operation not only provides aggregate and sand for use off site but uses the sand and aggregate on site in the concrete batch facility to produce ready mix concrete for immediate use at local construction sites.

Setting / Distance to Surface Water:

The Soledad Canyon Aggregate and Concrete Batch Facility is located in Los Angeles County, approximately 30 miles north of Los Angeles near the city of Santa Clarita, California as illustrated in Figure 1. The Soledad Canyon Facility lies north of Soledad Canyon Road approximately one-half mile west of Agua Dulce Canyon Road including portions of Sections 9 and 16, Township 4N, Range 14W. Operations at the site include: sand and gravel mining, rock processing including crushing and screening, concrete mixing, vehicle fueling, and vehicle maintenance.

The nearest surface water to the site is the Santa Clara River which runs approximately 500 feet south of the site as illustrated in Figure 5. The property also drains north into the Bee Canyon wash which converges on the Santa Clara River one-half mile west of the site. The Santa Clara River ultimately discharges into the Pacific Ocean at Ventura, approximately 55 miles to the west.

2.2 Size and Drainage Characteristics

The facility encompasses 460 acres of land under contract from the BLM for sand and gravel mining, and 40 acres leased from the C.A. Rasmussen Company. Of this 500 acres, about 1.4 % (7 acres) of the surface area will be paved with gravel and 0.4% (2 acres) will be paved with concrete or asphalt. The remaining area will be either undisturbed natural surface, process areas, or mining related operations. As illustrated in Figure 2, the site covers an area on both sides of a ridge that extends north east from Soledad Canyon Road. Seven outfalls have been identified and are indicated in Figures 3 and 4. Figure 5 shows the offsite flow path from the southern facility boundary to the Santa Clara River. The drainage conditions were characterized in a "Drainage Concept" Plan prepared by the C.A. Rasmussen Company in 1993. A description of each outfall follows:

Outfall 1 (OF-1)

As illustrated in Figure 3, the maintenance, material storage, mining, and fueling operations take place on the southern side of the ridge and the resulting storm water runoff will pass through Desilting/Debris Basin 1 to Outfall 1. Runoff will discharge to the Santa Clara River through a LACOPW culvert that passes under Soledad Canyon Road. Figure 5 illustrates the anticipated drainage paths from Outfalls 1 and 2E. The existing drainage conditions will be altered at construction to achieve these conditions. The approximate size of the drainage area for Outfall 1 is 10 acres.

Outfall 2E (OF-2E)

Sedimentation Basins 2 and E were combined to create Desilting/Debris Basin 2E. This basin will now drain through Outfall 2E. Drainage will be from the southern side of the ridge to the Santa Clara river via LACOPW culvert 2, and a proposed 45" culvert (2A) that will pass under Soledad Canyon Road. Figure 5 illustrates the anticipated drainage paths from Outfalls 1 and 2E. The existing drainage conditions will be altered at construction to achieve these conditions. The approximate size of this drainage area is 116 acres

Outfall A (OF-A)

Drainage to Outfall A is from undisturbed areas on the northern side of the ridge and the north fines storage area. Figure 4 illustrates the approximate drainage area of Outfall A. Runoff will pass through Desilting/Debris Basin A, and discharge to a creek that runs into Bee Canyon and on to the Santa Clara River. The approximate drainage area is 34 acres.

Outfall B (OF-B)

Drainage to Outfall B is from undisturbed areas on the northern side of the ridge, the north fines storage area road, and the north fines storage area. Figure 4 illustrates the approximate drainage area of Outfall B. Runoff will pass through Desilting/Debris Basin B and discharge to the USGS "blue line" creek that runs into Bee Canyon and on to the Santa Clara River. The approximate drainage area is 52 acres.

Outfall C (OF-C)

Drainage to Outfall C is from undisturbed areas on the northern side of the ridge, the north fines storage area haul road, and the north fines storage area. Figure 4 illustrates the approximate drainage area of Outfall C. Runoff will pass through Desilting/Debris Basin C and discharge to the USGS "blue line" creek that runs into Bee Canyon and on to the Santa Clara River. The approximate drainage area is 14 acres.

Outfall D (OF-D)

Drainage to Outfall D is from the southwestern portion of the facility, the north fines storage area haul road and future mining locations. Figure 4 illustrates the approximate drainage area of Outfall D. Runoff will pass through Desilting/Debris Basin D and discharge from the southern boundary of the facility to the Santa Clara River via a LACOPW Culvert 4 that passes under Soledad Canyon Road. The approximate drainage area is 27 acres.

Outfall F (OF-F)

Drainage to Outfall F is from the southwestern portion of the facility, the north fines storage area haul road, and future mining locations. Figure 4 illustrates the approximate drainage area of Outfall F. Runoff will pass through Desilting/Debris Basin F and discharge from the southern portion of the facility to the Santa Clara River via a USGS "blue line" creek and LACOPW Culvert 5. The approximate area drained is 35 acres.

Drainage Area G (DA-G)

Drainage Area G includes undisturbed areas at the extreme northern section of the property as illustrated in Figure 's 2 and 4. No activity is expected in this area during the 20 year mining plan. Runoff will discharge from this portion of the site to a USGS "blue line" creek that runs into Bee Canyon northeast of Outfall A, and on to the Santa Clara River.

Drainage Area H (DA-H)

Drainage Area H includes undisturbed areas at the western edge of the property as illustrated in Figure 's 2 and 4. No activity is expected in this area during the 20 year mining plan. Runoff will discharge mostly through LACOPW Culvert 6 and on to the Santa Clara River. Some runoff from this area may discharge north to Bee Canyon and then into the Santa Clara River.

3.0 POTENTIAL SOURCES OF POLLUTION

3.1 Process Area

Activities that take place in the process area include rock crushing, screening, washing, fines separation, water treatment, and conveying. Potential sources of pollution in this area include:

- Suspended solids from aggregate processing;
- Oil and grease from vehicle and machinery operation; and
- Flocculent from the water treatment process.

3.2 Maintenance Area

Outdoor activities that take place in the maintenance area include some maintenance of large equipment and storage/parking of heavy equipment. The majority of the maintenance operations will be performed indoors, and hazardous material storage and dispensing will either be indoors or spill contained with proper procedures in place to remove storm water runoff (see SPCC). Potential sources of pollution in this area include:

- Oil and grease from machinery maintenance;
- Suspended solids from nearby aggregate operations; and
- Wear metals in used engine oil.

3.3 Fueling Areas

Fueling areas are located near the maintenance building and at the concrete batch facility. Each fueling area dispenses diesel fuel and motor oil. The dispensing pads are covered and sloped to drain to a sump, while the fuel storage tanks are spill contained with proper procedures to remove storm water runoff (see SPCC). Because of the design, these areas should generate minimal pollution. Potential sources of pollution in this area include:

- Hydrocarbons from diesel fuel;
- Oil and grease from machinery and oil dispensing; and
- Suspended solids from nearby aggregate operations.

3.4 Batch Facility

The concrete batch facility will take sand and aggregate from the rock processing area, mix the sand and aggregate with portland cement and water, and discharge the mixture to ready mix concrete trucks. The truck wash out area will have a separate water recycling system which will remove particulates from the wash water and should not impact runoff. Potential sources of pollution in this area include:

- Suspended solids from aggregate processing and transfer to the facility;
- Suspended solids from cement transfer;
- Suspended solids from fly ash transfer;
- Suspended solids from the concrete processing and transfer;
- Oil and grease from vehicle and machinery operation;
- Suspended solids and chemical compounds from concrete admixtures; and
- High pH from cement fugitive dust.

Concrete admixtures are used in varied quantities as an additive to the concrete. The admixtures are usually in a liquid slurry form and will be stored in 300 to 2,000 gallon plastic tanks in the batch facility area. The specific admixtures that will be used are not known at this time. Secondary containment will be provided for the outside storage tanks and materials will be handled appropriately.

3.5 Mining Areas

Large areas of the site will be mined over an extended period of time. Each area mined will disturb the natural ground cover and expose the virgin formation to storm water. Operations in the mining areas will include excavating, material loading, and some routine maintenance of the excavating shovel. Because the shovel is hydraulic, hose breaks may occur, occasionally resulting in contamination from hydraulic fluid; however such contamination will be cleaned up and disposed of properly as described in the SPCC. Potential sources of pollution in this area include:

- Suspended solids from aggregate mining and loading;
- Oil and grease from vehicle and machinery operation; and
- Hydraulic oil from shovel hose breaks.

3.6 Material Storage

After mining and processing, material of various sizes will be stored at this location. Storage piles will be either active or inactive and will vary in size and number depending upon demand for individual products. Potential sources of pollution from the storage piles include:

- Suspended solids from aggregate storage.

3.7 Fines Storage

Because of the anticipated excess natural fine material in the existing rock formations, the Mining and Reclamation Plan (see references in Appendix E) calls for storage of the excess fine material in the northern section of the property (north fines storage area) and in mined out areas at various locations on site. Potential sources of pollution in fines storage areas include:

- Suspended solids from fines; and
- Flocculent from the water treatment process.

3.8 Water Recovery and Clarification System

Water used in the material process area will be treated to remove suspended particulates and reused at the processing facility. The treatment system will use a flocculent that causes the particles to settle from the water. The solid material which is composed of particles from the process area and the flocculent will be transferred to the north fines storage area. The potential pollution from this process include:

- Suspended solids from fines; and
- Ingredients of the flocculent.

The type of flocculent used will be a anionic acrylamide copolymer (polyacrylamide). Since the specific product used will be approved by the California EPA and FDA for potable water treatment and the amount used will be very small, approximately 0.091 lb/ton of solids, this source is not expected to have a significant effect on storm water run off quality.

3.9 Dust Control Agents

Unpaved roads and some material storage piles will be treated with a lignon sulfonate dust control agent. A review of available MSDS information for LIGNOSITE, a product manufactured by Georgia Pacific, indicates that no hazardous ingredients are present in the product and that the product is biodegradable. The potential pollution from the use of this product includes:

- BOD (biochemical oxygen demand) from organic compounds in the product.
- TDS (total dissolved solids) from calcium compounds in the product.

Since the product is biodegradable and will be exposed to air and moisture, long term accumulation is not expected. Increased levels of the pollutants listed above may be encountered if a storm occurrs immediately after application.

4.0 DESCRIPTION OF POLLUTANTS

4.1 Description

The construction sand and gravel category is listed in 40 CFR Chapter 436, Subchapter C which establishes effluent guidelines for the discharge of pollutants from facilities of this type. The only specified effluent discharge limitation is for pH and requires that discharges not exceed a pH value of 6.0 - 9.0 at any time. The regulation also states that "Any overflow from facilities governed by this subpart shall not be subject to paragraph (a) (pH limitation of 6.0 - 9.0) if the facilities are designed, constructed and maintained to contain or treat the volume of waste water which would result from a 10 year 24 hour storm event" 40CFR §436.22(b). Figure 4 illustrates the location of each outfall at the facility. Section 2.2 describes each outfall and the associated drainage area. A description of potential pollutants for each outfall follows in Table 2.

Table 2 - Potential Pollutants

Potential Pollutant	Potential Quantity/Value	Outfalls Expected	Possible Sources/Comments
Oil and Grease	ND/Trace	1,2	Diesel fuel/oil dispensing or vehicle maintenance operations.
TDS	100-400 ppm	All	Exposed mining areas, aggregate or fines storage, material processing, concrete mixing operations, dust control agents.
TSS	< 2,200 ppm	All	Exposed mining areas, aggregate or fines storage, material processing, or concrete mixing operations.
Iron (Fe)	ND/Trace	All	The General Storm Water Permit requires that facilities identified by the Standard Industrial Classification (SIC) Code 327 (Ready Mix Operations) test their effluent for iron.
Chloride	ND/Trace	None	If the chloride-containing dust palliatives are used, chloride may be present.
pH	> = 7.0	All	Particulates from aggregate and cement can raise the pH of the runoff.
BOD	Slightly above background	All	Organic compounds in the dust control agents may slightly increase BOD.
Toxic	N/A	None	Solvents and concrete admixtures all may contain very small amounts of a variety of compounds that could enter storm water runoff.

TDS = Total Dissolved Solids
TSS = Total Suspended Solids
BOD = Biochemical Oxygen Demand
Metals = Metals listed in CCR Title 22
pH = Measure of acidity/alkalinity

The dust from the aggregate and cement that comes in contact with storm water runoff will become suspended in the water. The amount of suspended particles in the water is indicated by the Total Suspended Solids (TSS) analysis.

5.0 HAZARDOUS MATERIAL RELEASES

5.1 Toxic Chemical Discharges to Storm Water

As required by the California General Permit, this section is provided to discuss previous discharges of toxic chemicals (as listed in 40 CFR 372) at the facility since November 19, 1988. This facility will not be in operation until 1997 or later. Additionally, the facility is not planning to have any 40 CFR 372 toxic chemicals on site in excess of the quantities required for Form R reporting. Small quantities of solvents and cleaners will be used in the maintenance area. Storage and use of these materials will be addressed in the Hazardous Materials Management Plan to be developed during construction. Any outside storage of these materials will be secondarily contained with appropriate spill response and rainfall accumulation removal, if applicable.

Toxic chemicals that will be present on site will be managed in a manner consistent with this plan. Management practices will include proper inside storage, proper handling procedures, prompt clean up of spills, and secondary containment for outside storage of materials containing toxic chemicals. Toxic chemicals are not expected to be present in the flocculent and dust control additives as discussed in Section 3.

5.2 Oil Substances Released in Excess of Reportable Quantities

As required by the California General Permit, this section is provided to discuss previous discharges of oil substances in excess of reportable quantities at the facility since November 19, 1988. This facility will not be in operation until 1997 or later and thus has not had any reportable discharges.

The facility will have oil substances present on site in the form of diesel fuel, motor oil, and hydraulic fluid. Transit Mixed Concrete, in accordance with State and Federal Regulations, has developed a Spill Prevention, Control, and Countermeasure (SPCC) plan to address the possibility of a spill of these substances (Appendix E, Reference 1).

6.0 SAMPLING DATA

6.1 Summary of Available Data

Because this facility has not been constructed, no data is available.

7.0 STORM WATER MANAGEMENT PRACTICES (BMP'S)

7.1 SWPPP Committee

The Storm Water Pollution Prevention Committee identifies specific individuals within the Transit Mixed Concrete organization who are responsible for developing the SWPPP and assisting the Facility Manager in its implementation, maintenance and revision. While the committee is responsible for assisting the Facility Manager, the overall responsibility and accountability for the quality of the SWPPP and the adequate implementation of the plan lies with the Facility Manager. The individual members of the committee are as follows:

Off site SWPPP Responsibility:	Environmental Affairs Manager
Primary SWPPP Responsibility:	Facility Manager
Day shift SWPPP coordinator:	Maintenance Supervisor
Second shift SWPPP coordinator:	Lead Operator
Secretary/Organization:	Safety Officer/Facility Operations Secretary

7.2 Preventative Maintenance

A preventative maintenance (PM) program will be implemented at the facility and will include machinery/vehicles and storm water conveyance systems. Each piece of equipment will be maintained on a routine basis to minimize the possibility of the contamination of storm water runoff. Development of a PM program will be the responsibility of the Maintenance Supervisor and will, at a minimum, address the following items that could impact the storm water discharge program:

- Hydraulic systems including the shovel and loaders.
- Petroleum product storage and dispensing equipment as outlined in the SPCC.
- Hazardous material, flocculent, and concrete admixture storage and use equipment.
- Process equipment reservoirs and lubrication points.
- Storm water runoff channels and berms at the facility that are intended to direct the runoff into the sedimentation basins.
- Desilting/Debris basin capacity.

7.3 Good Housekeeping

Good housekeeping practices will be followed at the facility. The Maintenance Supervisor will be responsible for implementing these practices, however the Facility Manager is ultimately responsible for the overall condition of the facility. Housekeeping practices to control contamination of storm water runoff will include:

- Maintaining a clean and orderly facility.
- Periodic cleaning of the maintenance area surfaces exposed to storm water.
- Periodic cleaning of paved surfaces exposed to storm water.
- Proper maintenance of hazardous material storage and dispensing areas.
- Prompt removal and clean up of spills of hazardous material (see SPCC)
- Proper material handling and storage practices, including use of chemical surfactants on inactive storage piles and on unpaved roadways.
- Proper handling and storage of concrete admixtures.

7.4 Spill Prevention and Response

The Spill Prevention, Control and Countermeasure Plan (Appendix E, Reference 1) outlines practices that will be in place at this facility to prevent and respond to a spill of petroleum products. Petroleum products are the only significant materials that are anticipated at the facility. Spill prevention measures include properly designed equipment, secondary containment, training, and inspection programs. Concrete admixtures stored outside will be secondarily contained and the flocculents and dust control agents will have drainage control. If any of these materials require special spill response procedures, the appropriate procedures will be implemented when the material is placed in use.

7.5 Storm Water Management Practices

Due to the nature of this operation and the requirements of other government agencies concerning sediment loading in the downstream waters, the entire facility has been designed to utilize sedimentation basins. The preliminary design of the basins has been performed by The C. A. Rasmussen Company (reference 4 Appendix E). The Desilting/Debris basins have been designed to perform adequately during a 50 year storm and during frequent storm events.

Less frequent storm events are defined by the Storm Water Quality Task Force in their Industrial/Commercial Best Management Practice Handbook. This plan accounts for discharges from frequent event storms because of the higher concentrations of pollutants found during these events.

Additionally, the facility has been designed to minimize storm water runoff contact with hazardous materials operations at the facility. The maintenance area will be enclosed, the fueling areas covered, the fuel, flocculent, and admixture storage tanks secondarily contained, and the process and truck wash water will be recycled.

Additional storm water management practices may be required if O&G, TSS, toxicity, BOD, or pH pose a problem in the discharge. Effluent limits have not yet been provided by the State for O&G or TSS, and the Federal 40 CFR Chapter N limits will be used for pH. Data will be collected as described in the Monitoring Program which will identify actual levels of pollutants and demonstrate if additional management practices are necessary.

7.6 Sediment and Erosion Prevention

Drainage, siltation, and erosion control plans have been developed by Environmental Solutions Incorporated for the site and are included in the mining plan and application to Los Angeles County. These plans implemented for the purpose of controlling downstream silt apply directly to the control required by the California General Industrial Storm Water Permit. The plan will not be reproduced in this document but is cited as Item 3 of Appendix E.

7.7 Employee Training

Affected employees will be trained in the storm water program at the time of hire and annually in conjunction with other training as required by the SPCC and other programs. Training will consist of a review of the SWPPP as it relates to the area in which the employee works.

The Facility Manager will annually review the SWPPP and any changes with members of the SWPPP committee.

7.8 Inspection Program

The SPCC outlines daily, bi-weekly, semi-annual, and annual inspections of the above ground petroleum storage systems. In addition to these inspections, the storm water specific equipment will be inspected using the inspection and log sheets found in Appendix C as follows:

Monthly	Storm water discharge visual observation. Visually inspect storm water outflows during storm events. Observations are only required during daylight hours for storm events that are preceded by three (3) working days without storm water discharges. One observation per month from October 1 to May 30 is required.
Quarterly	Non-storm water discharge visual observation. Visually inspect storm water outflows during non-storm periods for the presence of non-storm water discharge and monitor sedimentation basins for accumulated silt. Inspect ditches and other storm water conveyance structures. Visual observations will be conducted in each of the following periods: January-March, April-June, July-September, and October-December. Visual observations will be conducted within 6-18 weeks of each other

Annually	Inspect the facility to verify that elements of the SWPPP are accurate. Observations that require a response shall be retained as a part of the SWPPP.

Visual observations are required only during scheduled facility operating hours and do not have to be performed during adverse climatic conditions.

Inspection records will be retained on site for five (5) years.

7.9 Sampling Program

The storm water effluent will be sampled and analyzed twice a year. The following events will be sampled and analyzed:

1. The first storm event of the wet season (October 1 to May 31); and
2. One other storm event during the wet season.

Samples will be taken during the first hour of the storm event. Sample collection is only required during scheduled facility operating hours that are preceded by at least three (3) working days without a storm water discharge.

If the first storm event of the wet season is not sampled, two samples will still be collected and the Annual Report will explain why the first storm of the wet season was not sampled.

Storm water will be sampled at each of the storm water discharge locations (if there is flow). This includes the outfalls listed in the following table:

Table 3 - Storm Water Sampling Locations

Location	Location Description
OF-1	SE corner of facility, discharge from Desilting/Debris Basin 1 to LACOPW culvert 1 and on to the Santa Clara River.
OF-2E	SE corner of the facility, discharge from Desilting/Debris Basin 2E to LACOPW existing Culvert 2 and & proposed Culvert 2A, and on to the Santa Clara River.
OF-A	NW corner of facility, discharge from Desilting/Debris Basin A to Bee Canyon and on to the Santa Clara River.
OF-B	NW corner of facility, discharge from Desilting/Debris Basin B to Bee Canyon and on to the Santa Clara River.
OF-C	NW corner of facility, discharge from Desilting/Debris Basin C via "blue line" creek to Bee Canyon and on to the Santa Clara River.
OF-D	SW corner of the facility, discharge from Desilting/Debris Basin D to LACOPW Culvert 4 and on to Santa Clara river.
OF-F	SW corner facility, discharge from Desilting/Debris Basin F to LACOPW 5 and on to the Santa Clara River.

Storm water samples will be analyzed for the general parameters specified in the Permit:

Total suspended solids (TSS)
pH
Specific conductance, and
Oil and Grease (O&G)

In addition to the general parameters listed above, storm water samples will also be analyzed for parameters as specified according to the Standard Industrial Classification (SIC) code for this facility. The SIC codes applicable to this facility, and the additional parameters are:

SIC Code 427 - Sand and Gravel Mining
Parameter: Nitrate and Nitrite Nitrogen (N+N)

SIC Code 327 - Ready Mix Operations
Parameter: Iron (FE)

In addition to the parameters listed above, storm water samples will be tested for chloride if chloride-containing dust palliatives are used at the Soledad Canyon facility.

Appendix H contains a Storm Water Sampling Record form to document storm water sampling procedures.

8.0 CERTIFICATION STATEMENT

1. Name of facility: Transit Mixed Concrete Company - Soledad Canyon Facility

2. Type of facility: Aggregate and Concrete Batch Plant

3. Location of facility: 12101 Soledad Canyon Road
Canyon Country, CA 91351

4. Owner or operator: Transit Mixed Concrete Company
1201 W. Gladstone, P.O. Box 575
Azusa, CA 91351-0575
Telephone: 818-812-7955

5. Designated person(s) accountable for Storm Water Pollution Prevention at facility:

Name and title: **Brian Mastin - Environmental Affairs Manager**
To be named - Facility Manager

8.1 Elimination of Non-Storm Water Discharge

The presence of non-storm water discharges will be monitored at this facility and eliminated as required by the California General Permit. The Monitoring Plan describes the practice for detecting the presence of non-storm water discharges and at a minimum, inspections will be made quarterly when there is no storm discharges.

8.2 Required EPA Assurance of Accuracy

CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: _____ Date: _____

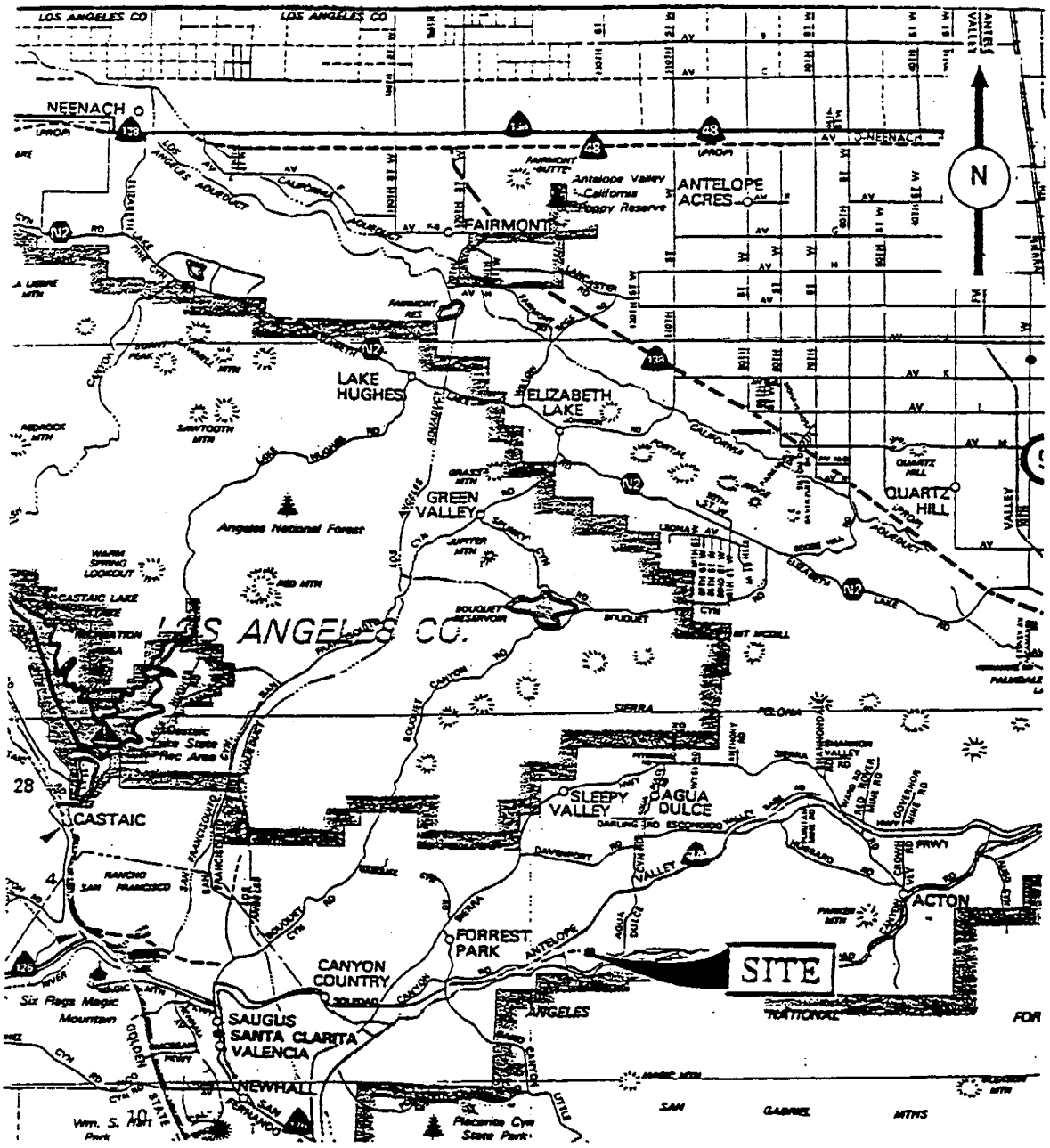
Name/Title: To be named - Plant Manager

FIGURES

Facility Location and Site Drainage Maps

The following pages contain the Figures referenced in this document.

Figure 1: Site Location Map
Figure 2: Topographic Map with Site Drainage
Figure 3: Facilities Site Map w/ Process Areas
Figure 4: Outfalls and Drainage Areas
Figure 5: Drainage Path From Site to Santa Clara River



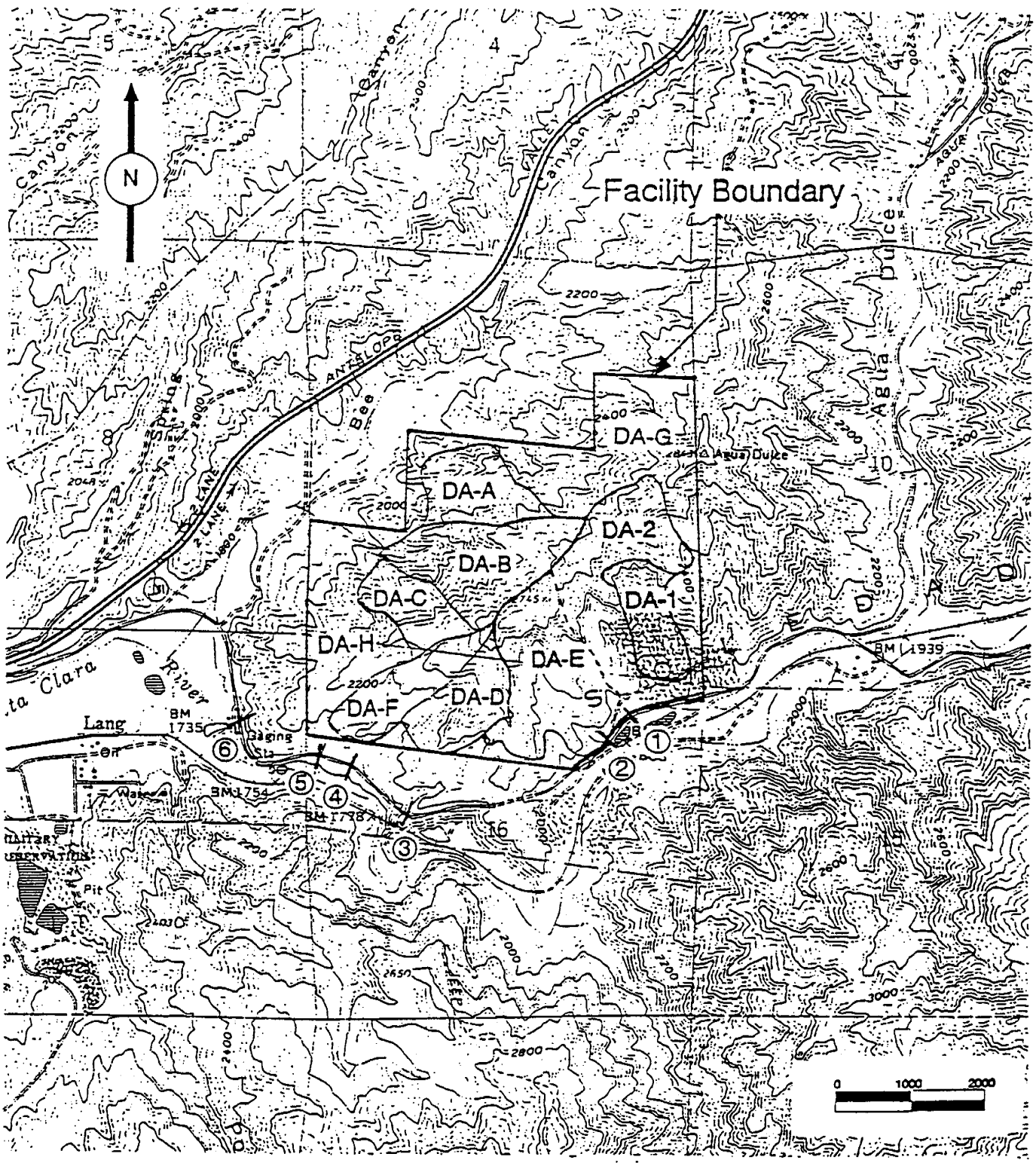
SITE VICINTY MAP

MILES 0 2.5 5 10
KILOMETERS 0 2.5 5 10

Approximate Scale

Drawing Taken From: Thomas Bros. Maps, Page 89, Road Atlas & Driver's Guide, CA.

West Coast Environmental Inc.	Transit Mixed Concrete Company Soledad Canyon Project 12101 Soledad Canyon Road Los Angeles County, CA.	Figure 1 July 1993



Topographic Map with Site Drainage
Base Map From: USGS Agua Dulce.; Drawing No. 34118-D3-TF-024

(#) - LACO Culvert
DA - Drainage Area

West Coast Environmental Inc.	Transit Mixed Concrete Company Soledad Canyon Project 12101 Soledad Canyon Road Los Angeles County, CA.	Figure 2 July 1993

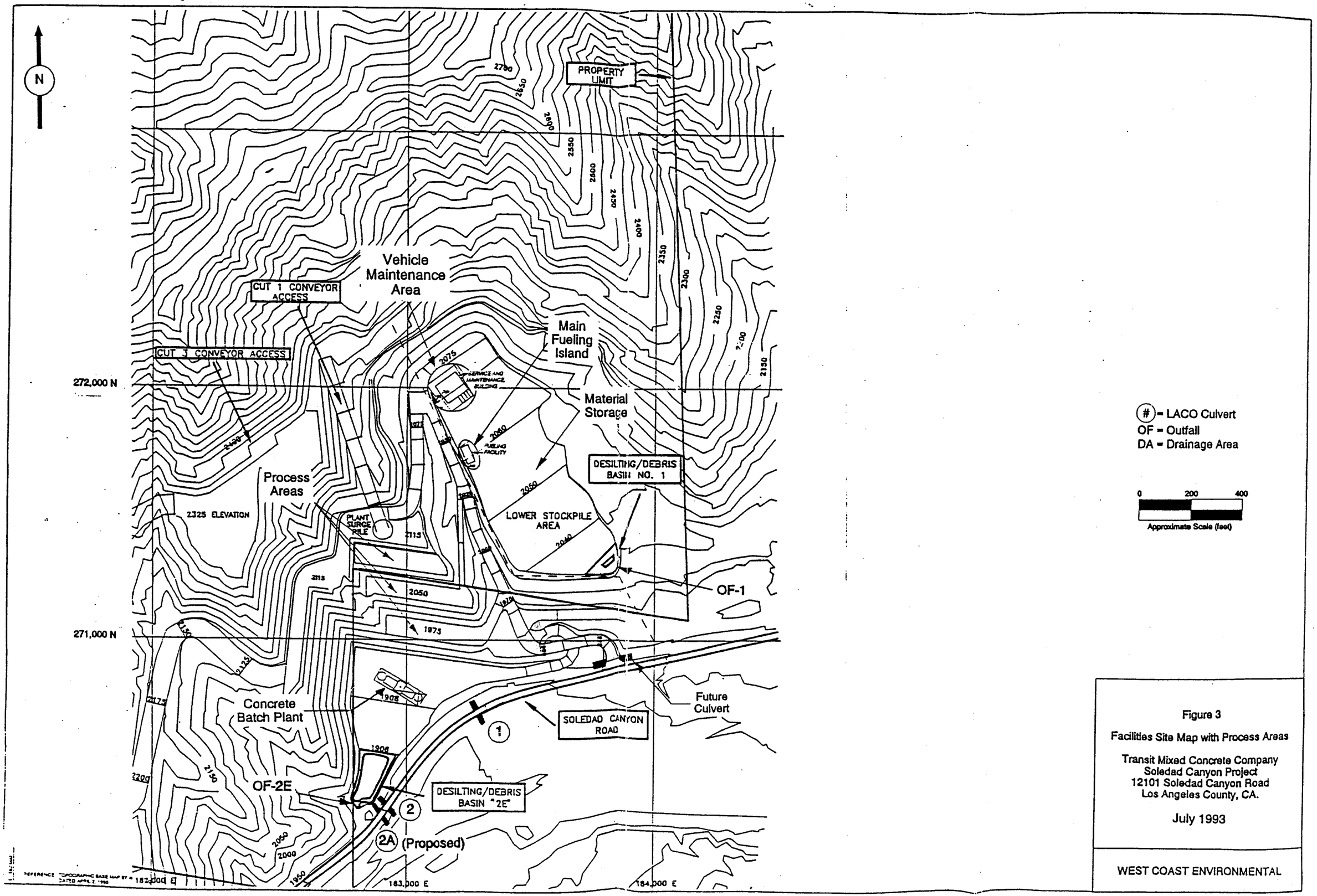


Figure 3

Facilities Site Map with Process Areas

Transit Mixed Concrete Company
Soledad Canyon Project
12101 Soledad Canyon Road
Los Angeles County, CA.

July 1993

WEST COAST ENVIRONMENTAL

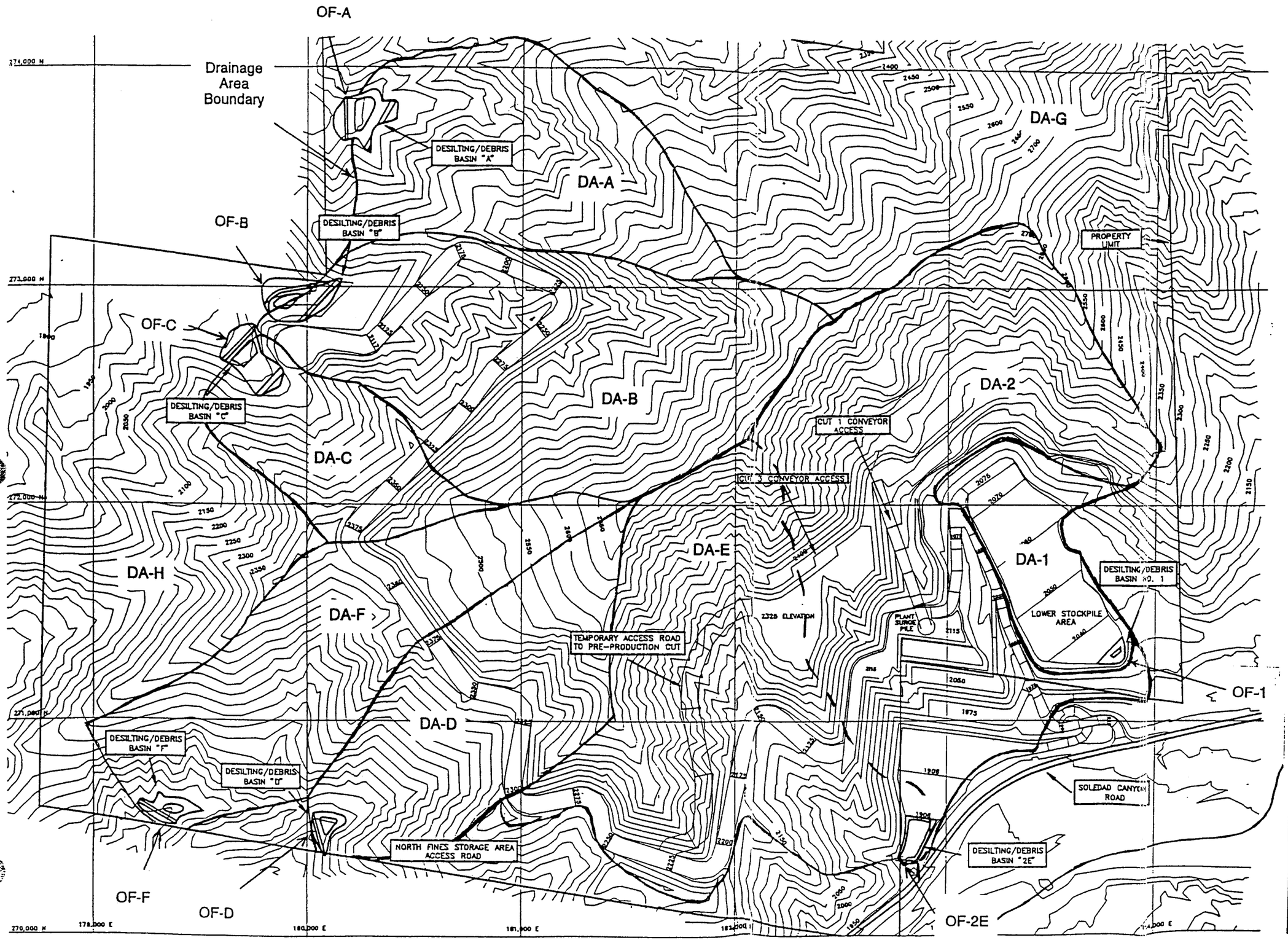


Figure 4

Basins & Drainage Areas

Transit Mixed Concrete Company
Soledad Canyon Project
12101 Soledad Canyon Road
Los Angeles County, CA.

July 1993

WEST COAST ENVIRONMENTAL

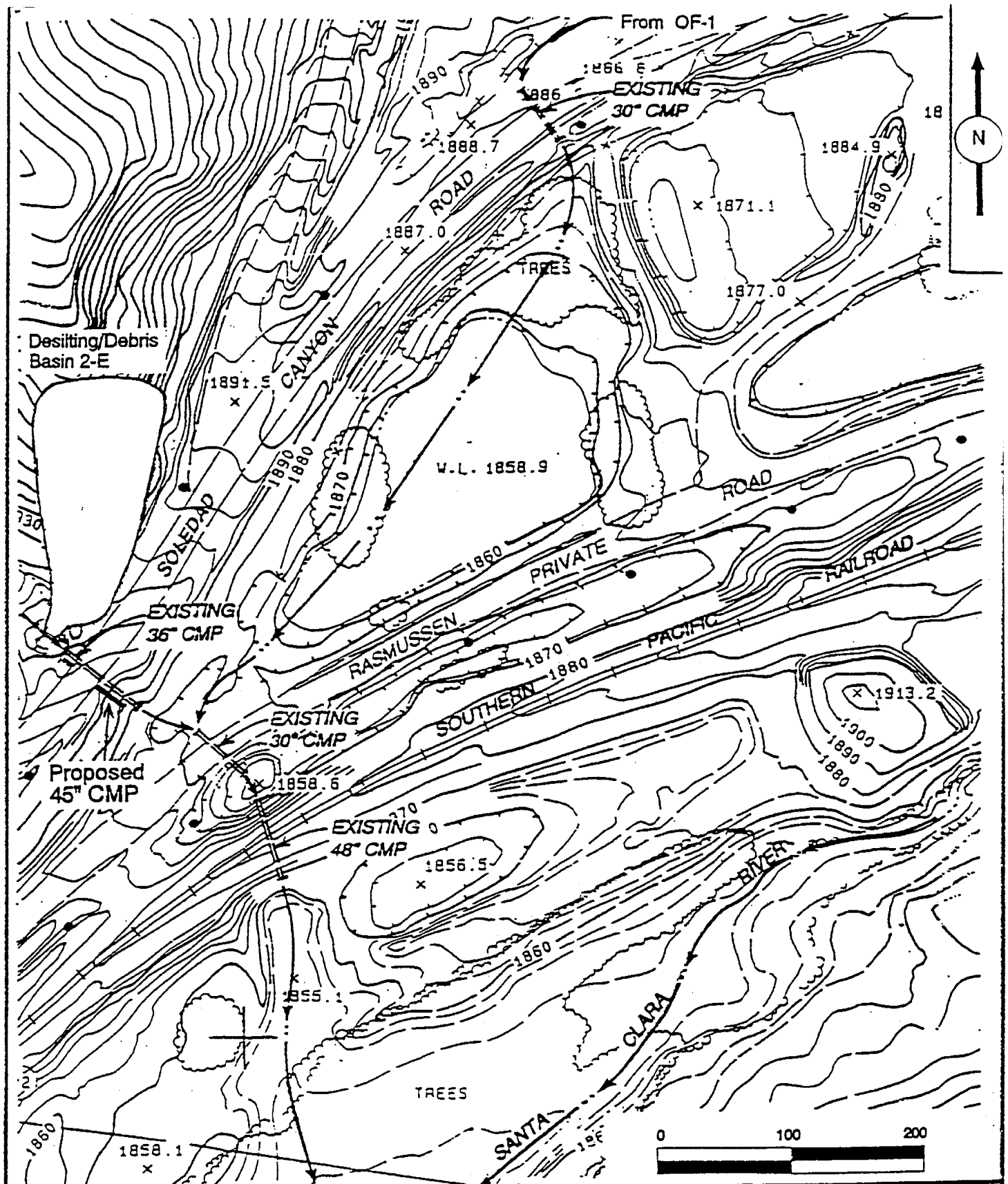


FIGURE 5

DRAINAGE FLOW PATH FROM SITE TO SANTA CLARA RIVER

TRANSIT MIXED CONCRETE
SOLEDAD CANYON

June 1993

ENVIRONMENTAL SOLUTIONS, INC.

APPENDIX A

REVISION AND AMENDMENT RECORD

SOLEDAD CANYON FACILITY
SWPPP PLAN - REVISION AND AMENDMENT RECORD
June, 1997

Record all additions, changes or deletions made to the SWPPP as a result of changes in equipment, policy or regulatory agency requirements. The SWPPP shall be amended whenever there is a facility design change. Amendments shall be implemented no later than six months after changes occur. An inspection of all elements of the SWPPP will be conducted annually to verify the accuracy of: site map, potential pollutant sources, and control measure adequacy.

Date of Amendment	Section Amended	
6/93	All Sections -	Original Storm Water Pollution Prevention Plan
6/97	All Sections -	Updated to reflect new General Storm Water Permit

APPENDIX B

SWPPP DISTRIBUTION LIST

SOLEDAD CANYON FACILITY
SWPPP DISTRIBUTION LIST
June, 1997

DEPARTMENT	TITLE	NO. OF COPIES	PHONE NO.
Operations	Facility Manager SWPPP Coordinator	1	* T.B.D.
Maintenance	Maintenance Supervisor	1	* T.B.D.
Headquarters	Environmental Affairs Manager	1	818-812-7955
Other	L.A. County Dept. of Regional Planning	1	

* To be determined at a later date.

APPENDIX C

INSPECTION AND LOG SHEET

MONTHLY STORM WATER VISUAL OBSERVATION

Date: _____

Time: _____ Observation Performed By: _____

Outfall	Outfall Location		Comments
OF-1	SE corner of facility, discharge from Desilting/Debris Basin 1 to LACOPW culvert 1 and on to the Santa		
OF-2E	SE corner of the facility, discharge from Desilting/Debris Basin 2E to LACOPW existing Culvert 2 and & proposed Culvert 2A, and on to the Santa Clara River.		
OF-A	NW corner of facility, discharge from Desilting/Debris Basin A to Bee Canyon and on to the Santa Clara		
OF-B	NW corner of facility, discharge from Desilting/Debris Basin B to Bee Canyon and on to the Santa Clara		
OF-C	NW corner of facility, discharge from Desilting/Debris Basin C via "blue line" creek to Bee Canyon and on to the Santa Clara River.		
OF-D	SW corner of the facility, discharge from Desilting/Debris Basin D to LACOPW Culvert 4 and on to Santa Clara river.		
OF-F	SW corner facility, discharge from Desilting/Debris Basin F to LACOPW 5 and on to the Santa Clara River.		

Visual observations must be performed during the first hour of discharge at all discharge locations. Visual observations are only required of storm water discharges that occur during daylight hours that are preceded by at least 3 working days without storm water discharges and that occur during scheduled facility operating hours. Visual observations must document the presence of any floating and suspended material, oil and grease, discolorations, turbidity, odor, and source of any pollutants.

QUARTERLY NON-STORM WATER VISUAL OBSERVATION

Date: _____ Performed By: _____

Observations must be performed during the following periods:
□ January-March □ April-June □ July-September □ October-December

Outfall	Outfall Location	Is there flow? (Y or N)	Comments
OF-1	SE corner of facility, discharge from Desilting/Debris Basin 1 to LACOPW culvert 1 and on to the Santa Clara River.		
OF-2E	SE corner of the facility, discharge from Desilting/Debris Basin 2E to LACOPW existing Culvert 2 and & proposed Culvert 2A, and on to the Santa Clara River.		
OF-A	NW corner of facility, discharge from Desilting/Debris Basin A to Bee Canyon and on to the Santa Clara River.		
OF-B	NW corner of facility, discharge from Desilting/Debris Basin B to Bee Canyon and on to the Santa Clara River.		
OF-C	NW corner of facility, discharge from Desilting/Debris Basin C via "blue line" creek to Bee Canyon and on to the Santa Clara River.		
OF-D	SW corner of the facility, discharge from Desilting/Debris Basin D to LACOPW Culvert 4 and on to Santa Clara river.		
OF-F	SW corner facility, discharge from Desilting/Debris Basin F to LACOPW 5 and on to the Santa Clara River.		

Purpose: The purpose of this inspection is to determine if there are any unauthorized non-storm water discharges.

Directions: Observations must be performed quarterly, during daylight hours, on days with no storm water discharges. Visually observe drainage areas for the presence of unauthorized non-storm water discharges and their sources. Flow should be observed for the presence of any discolorations, stains, odors, floating materials as well as the source of any discharge.

APPENDIX D

ACTION CALENDER

The action calendar will be used to track the next required action date. By noting when an event is due on this calendar, a ready reference will be available for the next action date.

Event	Frequency	Date	Completion Date
Employee training	Annual		
Site Inspection and SWPPP Update	Annual		
Storm Water Discharge Visual Observations	One storm event per month during the wet season (October 1 to May 30)		
Test Storm Discharge	The first storm event of the wet season and at least one other storm event in the wet season (2 events)		
Non-storm water visual observation	Quarterly		

APPENDIX E

REFERENCES

REFERENCES

1. Spill Prevention, Control and Countermeasure Plan, West Coast Environmental, June 1997.

2. Surface Hydrology Report, Environmental Solutions Incorporated, April 1991.

3. Drainage, Siltation, and Erosion Control Plan, Environmental Solutions Incorporated, April 1991.

4. Drainage Concept for Transit Mixed Concrete Company, Soledad Canyon Project. Prepared by C.A. Rasmussen Co., June 1993.

APPENDIX F

DRAFT NOTICE OF INTENT

State of California
State Water Resources Control Board

NOTICE OF INTENT

TO COMPLY WITH THE TERMS OF THE
GENERAL PERMIT TO DISCHARGE STORM WATER
ASSOCIATED WITH INDUSTRIAL ACTIVITY (WQ ORDER No. 97-03-DWQ)
(Excluding Construction Activities)

SECTION I. NOI STATUS (please check only one box)

A. [X] New Permittee B. [ ] Change of Information WDID # |_|_|_|_|_|_|_|_|_|_|_|_|

SECTION II. FACILITY OPERATOR INFORMATION (See instructions)

A. NAME: TRIANSIT MIXED CONCRETE COMPANY
Phone: 818-812-7955

Mailing Address: PO BOX 5775

City: AZUSA
State: CA
Zip Code: 91702-0575

Contact Person: BRIAN MASTIN

B. OPERATOR TYPE:
(check one) 1.[X] Private 2.[ ]City 3.[ ]County 4.[ ]State 5.[ ]Federal 6.[ ]Special District 7.[ ]Gov. Combo

SECTION III. FACILITY SITE INFORMATION

A. FACILITY NAME TRIANSIT MIXED CONCRETE COMPANY
Phone: 818-812-7955

Facility Location: 12101 SOLED AD CANYON ROAD
County: LOS ANGELES

City: CANYON COUNTRY
State: CA
Zip Code: |_|_|_|_|-|_|_|_|_|

B. MAILING ADDRESS: PO BOX 5775

City: AZUSA
State: CA
Zip Code: 91702-0575

Contact Person: BRIAN MASTIN

C. FACILITY INFORMATION
Total Size of Site: 500 (Acres [X] Sq. Ft. [ ])
Percent of Site Impervious (*including rooftops*): 1.8 %

D. SIC CODE(S) OF REGULATED ACTIVITY: E. REGULATED ACTIVITY (*describe each SIC code*):

1. 1442 CONSTRUCTION SAND & GRAVEL
2. 3272 CONCRETE PRODUCTS
3. |_|_|_|_|

SECTION IV. ADDRESS FOR CORRESPONDENCE

|_| Facility Operator Address |_| Facility Mailing Address |X| Both

SECTION V. BILLING ADDRESS INFORMATION

SEND BILL TO: [X]Facility Operator (Section II) [ ]Facility (Section III) [ ]Other (*enter information below*)

Name: TRANSIT MIXED CONCRETE COMPANY

Phone: 818-812-7955

Mailing Address: PO BOX 5175

City: AZUSA

State: CA

Zip Code: 91702-0575

Contact Person: BRIAN MASTIN

SECTION VI. RECEIVING WATER INFORMATION

Your facility's storm water discharges flow (*check one*) [ ] Directly OR [X] Indirectly to waters of the United States.

Name of receiving water: SANTA CLARA RIVER
(river, lake, stream, ocean, etc.)

SECTION VII. IMPLEMENTATION OF PERMIT REQUIREMENTS

A. STORM WATER POLLUTION PREVENTION PLAN (SWPPP) (*check one*)
[X] A SWPPP has been prepared for this facility and is available for review.
[ ] A SWPPP will be prepared and ready for review by (enter date): ___/___/___.

B. MONITORING PROGRAM (check one)
[X] A Monitoring Program has been prepared for this facility and is available for review.
[ ] A Monitoring Program will be prepared and ready for review by (enter date): ___/___/___.

C. PERMIT COMPLIANCE RESPONSIBILITY
Has a person been assigned responsibility for:

1. Inspecting the facility throughout the year to identify any potential pollution problems? ..... X YES ___ NO
2. Collecting storm water samples and having them analyzed? ..... X YES ___ NO
3. Preparing and submitting an annual report by July 1 of each year? ..... X YES ___ NO
4. Eliminating discharges other than storm water (*such as equipment or vehicle wash-water*) into the storm drain? ..... X YES ___ NO

SECTION VIII. REGULATORY STATUS (*Go to Section IX if not applicable*)

A. WASTE DISCHARGE REQUIREMENT ORDER NUMBER: _____ B. NPDES PERMIT CA: _____

SECTION IX. SITE MAP

I HAVE ENCLOSED A SITE MAP YES[X] A new NOI submitted without a site map will be rejected.

SECTION X. CERTIFICATION

"I certify under penalty of law that this document and all attachments were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. In addition, I certify that the provisions of the permit, including the development and implementation of a Storm Water Pollution Prevention Plan and a Monitoring Program Plan, will be complied with."

Printed Name: Mr. Brian Mastin

Signature: _____ Date _____

Title: Environmental Affairs Manager

APPENDIX G

DWQ NPDES GENERAL PERMIT 97-03

STATE WATER RESOURCES CONTROL BOARD (STATE WATER BOARD)
WATER QUALITY ORDER NO. 97-03-DWQ
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT NO. CAS000001 (GENERAL PERMIT)

WASTE DISCHARGE REQUIREMENTS (WDRS)
FOR
DISCHARGES OF STORM WATER ASSOCIATED WITH INDUSTRIAL ACTIVITIES
EXCLUDING CONSTRUCTION ACTIVITIES

The State Water Board finds that:

1. Federal regulations for storm water discharges were issued by the U.S. Environmental Protection Agency (U.S. EPA) on November 16, 1990 (40 Code of Federal Regulations [CFR] Parts 122, 123, and 124). The regulations require operators of specific categories of facilities where discharges of storm water associated with industrial activity (storm water) occur to obtain an NPDES permit and to implement Best Available Technology Economically Achievable (BAT) and Best Conventional Pollutant Control Technology (BCT) to reduce or prevent pollutants associated with industrial activity in storm water discharges and authorized non-storm discharges.

2. This General Permit shall regulate storm water discharges and authorized non-storm water discharges from specific categories of industrial facilities identified in Attachment 1, storm water discharges and authorized non-storm water discharges from facilities as designated by the Regional Water Quality Control Boards (Regional Water Boards), and storm water discharges and authorized non-storm water discharges from other facilities seeking General Permit coverage. This General Permit may also regulate storm water discharges and authorized non-storm water discharges from facilities as required by U.S. EPA regulations. This General Permit shall regulate storm water discharges and authorized non-storm water discharges previously regulated by San Francisco Bay Regional Water Board Order, No.92-11 (as amended by Order No. 92-116). This General Permit excludes storm water discharges and non-storm water discharges that are regulated by other individual or general NPDES permits, storm water discharges and non-storm water discharges from construction activities, and storm water discharges and non-storm water discharges excluded by the Regional Water Boards for coverage by this General Permit. Attachment 2 contains the addresses and telephone numbers of each Regional Water Board office.

3. To obtain coverage for storm water discharges and authorized non-storm water discharges pursuant to this General Permit, operators of facilities (facility operators) must submit a Notice of Intent (NOI), in accordance with the Attachment 3

instructions, and appropriate annual fee to the State Water Board. This includes facility operators that have participated in U.S. EPA's group application process.

4. This General Permit does not preempt or supersede the authority of local agencies to prohibit, restrict, or control storm water discharges and authorized non-storm water discharges to storm drain systems or other water-courses within their jurisdictions as allowed by State and Federal law.

5. If an individual NPDES permit is issued to a facility operator otherwise subject to this General Permit or an alternative NPDES general permit is subsequently adopted which covers storm water discharges and/or authorized non-storm water discharges regulated by this General Permit, the applicability of this General Permit to such discharges is automatically terminated on the effective date of the individual NPDES permit or the date of approval for coverage under the subsequent NPDES general permit.

6. Effluent limitations and toxic and effluent standards established in Sections 208(b), 301, 302, 303(d), 304, 306, 307, and 403 of the Federal Clean Water Act (CWA), as amended, are applicable to storm water discharges and authorized non-storm water discharges regulated by this General Permit.

7. This action to adopt an NPDES general permit is exempt from the provisions of the California Environmental Quality Act (Public Resources Code Section 21100, et seq.) in accordance with Section 13389 of the California Water Code.

8. Federal regulations (40 CFR Subchapter N) establish effluent limitations guidelines for storm water discharges from some facilities in ten industrial categories.

9. For facilities which do not have established effluent limitation guidelines for storm water discharges in 40 CFR Subchapter N, it is not feasible at this time to establish numeric effluent limitations. This is due to the large number of discharges and the complex nature of storm water discharges. This is also consistent with the U.S. EPA's August 1, 1996 "Interim Permitting Approach for Water Quality Based Effluent Limitations in Storm Water Permits."

10. Facility operators are required to comply with the terms and conditions of this General Permit. Compliance with the terms and conditions of this General Permit constitutes compliance with BAT/BCT requirements and with requirements to achieve water quality standards. This includes the development and implementation of an effective Storm Water

Pollution Prevention Plan (SWPPP) to reduce or prevent pollutants associated with industrial activity in storm water discharges and authorized non-storm water discharges.

11. Best Management Practices (BMPs) to reduce or prevent pollutants associated with industrial activity in storm water discharges and authorized non-storm water discharges are appropriate where numeric effluent limitations are infeasible, and the implementation of BMPs is adequate to achieve compliance with BAT/BCT and with water quality standards.

12. The State Water Board has adopted a Watershed Management Initiative that encourages watershed management throughout the State. This General Permit recognizes the Watershed Management Initiative by supporting the development of watershed monitoring programs authorized by the Regional Water Boards.

13. Following adoption of this General Permit, the Regional Water Boards shall enforce its provisions.

14. Following public notice in accordance with State and Federal laws and regulations, the State Water Board held a public hearing on November 12, 1996 and heard and considered all comments pertaining to this General Permit. A response to all significant comments has been prepared and is available for public review.

15. This Order is an NPDES General Permit in compliance with Section 402 of the CWA and shall take effect upon adoption by the State Water Board.

16. All terms that are defined in the CWA, U.S. EPA storm water regulations and the Porter-Cologne Water Quality Control Act will have the same definition in this General Permit unless otherwise stated.

IT IS HEREBY ORDERED that all facility operators required to be regulated by this General Permit shall comply with the following:

A. DISCHARGE PROHIBITIONS:

1. Except as allowed in Special Conditions (D.1.) of this General Permit, materials other than storm water (non-storm water discharges) that discharge either directly or indirectly to waters of the United States are prohibited. Prohibited non-storm water discharges must be either eliminated or permitted by a separate NPDES permit.

2. Storm water discharges and authorized non-storm water discharges shall not cause or threaten to cause pollution, contamination, or nuisance.

B. EFFLUENT LIMITATIONS:

1. Storm water discharges from facilities subject to storm water effluent limitation guidelines in Federal regulations (40 CFR Subchapter N) shall not exceed the specified effluent limitations.

2. Storm water discharges and authorized non-storm water discharges regulated by this General Permit shall not contain a hazardous substance equal to or in excess of a reportable quantity listed in 40 CFR Part 117 and/or 40 CFR Part 302.

3. Facility operators covered by this General Permit must reduce or prevent pollutants associated with industrial activity in storm water discharges and authorized non-storm water discharges through implementation of BAT for toxic and non-conventional pollutants and BCT for conventional pollutants. Development and implementation of an SWPPP that complies with the requirements in Section A of the General Permit and that includes BMPs that achieve BAT/BCT constitutes compliance with this requirement.

C. RECEIVING WATER LIMITATIONS:

1. Storm water discharges and authorized non-storm water discharges to any surface or ground water shall not adversely impact human health or the environment.

2. Storm water discharges and authorized non-storm water discharges shall not cause or contribute to an exceedance of any applicable water quality standards contained in a Statewide Water Quality Control Plan or the applicable Regional Water Board's Basin Plan.

3. A facility operator will not be in violation of Receiving Water Limitation C.2. as long as the facility operator has implemented BMPs that achieve BAT/BCT and the following procedure is followed:

a. The facility operator shall submit a report to the appropriate Regional Water Board that describes the BMPs that are currently being implemented and additional BMPs that will be implemented to prevent or reduce any pollutants that are causing or contributing to the exceedance of water quality

standards. The report shall include an implementation schedule. The Regional Water Board may require modifications to the report.

b. Following approval of the report described above by the Regional Water Board, the facility operator shall revise its SWPPP and monitoring program to incorporate the additional BMPs that have been and will be implemented, the implementation schedule, and any additional monitoring required.

4. A facility operator shall be in violation of this General Permit if he/she fails to do any of the following:

a. Submit the report described above within 60 days after either the facility operator or the Regional Water Board determines that discharges are causing or contributing to an exceedance of an applicable water quality standard;

b. Submit a report that is approved by the Regional Water Board; or

c. Revise its SWPPP and monitoring program as required by the approved report.

D. SPECIAL CONDITIONS

1. Non-Storm Water Discharges

a. The following non-storm water discharges are authorized by this General Permit provided that they satisfy the conditions specified in Paragraph b. below: fire hydrant flushing; potable water sources, including potable water related to the operation, maintenance, or testing of potable water systems; drinking fountain water; atmospheric condensates including refrigeration, air conditioning, and compressor condensate; irrigation drainage; landscape watering; springs; ground water; foundation or footing drainage; and sea water infiltration where the sea waters are discharged back into the sea water source.

b. The non-storm water discharges as provided in Paragraph a. above are authorized by this General Permit if all the following conditions are met:

i. The non-storm water discharges are in compliance with Regional Water Board requirements.

ii. The non-storm water discharges are in compliance with local agency ordinances and/or requirements.

iii. BMPs are specifically included in the SWPPP to (1) prevent or reduce the contact of non-storm water discharges with significant materials or equipment and (2) minimize, to the extent practicable, the flow or volume of non-storm water discharges.

iv. The non-storm water discharges do not contain significant quantities of pollutants.

v. The monitoring program includes quarterly visual observations of each non-storm water discharge and its sources to ensure that BMPs are being implemented and are effective.

vi. The non-storm water discharges are reported and described annually as part of the annual report.

c. The Regional Water Board or its designee may establish additional monitoring programs and reporting requirements for any non-storm water discharge authorized by this General Permit.

d. Discharges from firefighting activities are authorized by this General Permit and are not subject to the conditions of Paragraph b. above.

E. PROVISIONS

1. All facility operators seeking coverage by this General Permit must submit an NOI for each of the facilities they operate. Facility operators filing an NOI after the adoption of this General Permit shall use the NOI form and instructions (Attachment 3) attached to this General Permit. Existing facility operators who have filed an NOI pursuant to State Water Board Order No. 91-013-DWQ (as amended by Order No. 92-12-DWQ) or San Francisco Bay Regional Water Board Order No. 92-11 (as amended by Order No. 92-116) shall submit an abbreviated NOI form provided by the State Water Board. The abbreviated NOI form shall be submitted within 45 days of receipt.

2. Facility operators who have filed an NOI, pursuant to State Water Board Order No. 91-013-DWQ (as amended by Order No. 92-12-DWQ) or San Francisco Bay Regional Water Board Order No. 92-11 (as amended by Order No. 92-116), shall continue to implement their existing SWPPP and shall implement any necessary revisions to their SWPPP in accordance with Section A of this General Permit in a timely manner, but in no case later than August 1, 1997. Facility operators beginning industrial activities after

adoption of this General Permit must develop and implement an SWPPP in accordance with Section A of this General Permit when the industrial activities begin.

3. Facility operators who have filed an NOI, pursuant to State Water Board Order No. 91-013-DWQ (as amended by Order No. 92-116) or San Francisco Bay Regional Water Board Order No. 92-11 (as amended by Order No. 92-116), shall continue to implement their existing Monitoring Program and shall implement any necessary revisions to their Monitoring Program in accordance with Section B of the General Permit in a timely manner, but in no case later than August 1, 1997. Facility operators beginning industrial activities after adoption of this General Permit must develop and implement a Monitoring Program in accordance with Section B of this General Permit when industrial activities begin.

4. Facility operators of feedlots as defined in 40 CFR Part 412 that are in full compliance with Section 2560 to Section 2565, Title 23, California Code of Regulations (Chapter 15) will be in compliance with all effluent limitations and prohibitions contained in this General Permit. Facility operators of feedlots that comply with Chapter 15, however, must perform monitoring in compliance with the requirements of Section B.4.d. and B.14. of this General Permit. Facility operators of feedlots must also comply with any Regional Water Board WDRs or NPDES general permit regulating their storm water discharges.

5. All facility operators must comply with lawful requirements of municipalities, counties, drainage districts, and other local agencies regarding storm water discharges and non-storm water discharges entering storm drain systems or other watercourses under their jurisdiction, including applicable requirements in municipal storm water management programs developed to comply with NPDES permits issued by the Regional Water Boards to local agencies.

6. All facility operators must comply with the standard provisions and reporting requirements for each facility covered by this General Permit contained in Section C, Standard Provisions.

7. Facility operators that operate facilities with co-located industrial activities (facilities that have industrial activities that meet more than one of the descriptions in Attachment 1) that are contiguous to one another are authorized to file a single NOI to comply with the General Permit. Storm water discharges

and authorized non-storm water discharges from the co-located industrial activities are authorized provided that the SWPPP and Monitoring Program addresses each co-located industrial activity.

8. Upon reissuance of a successor NPDES general permit by the State Water Board, the facility operators subject to this reissued General Permit may be required to file an NOI.

9. Facility operators may request to terminate their coverage under this General Permit by filing a Notice of Termination (NOT) with the Regional Water Board. The NOT shall provide all documentation requested by the Regional Water Board. The facility operator will be notified when the NOT has been approved. Should the NOT be denied, facility operators are responsible for continued compliance with the requirements of this General Permit.

10. Facility operators who have filed an NOI, pursuant to State Water Board Order No. 91-013-DWQ (as amended by Order No. 92-12) or San Francisco Bay Regional Water Board Order No. 92-11 (as amended by Order No. 92-116) shall:

    a. Complete the 1996-97 activities required by those general permits. These include, but are not limited to, conducting any remaining visual observations, sample collection, annual site inspection, annual report submittal, and (for group monitoring leaders) Group Evaluation Reports; and

    b. Comply with the requirements of this General Permit no later than August 1, 1997.

11. If the Regional Water Board determines that a discharge may be causing or contributing to an exceedance of any applicable water quality standards contained in a Statewide Water Quality Control Plan or the applicable Regional Water Board's Basin Plan, the Regional Water Board may order the facility operator to comply with the requirements described in Receiving Water Limitation C.3. The facility operator shall comply with the requirements within the time schedule established by the Regional Water Board.

12. If the facility operator determines that its storm water discharges or authorized non-storm water discharges are causing or contributing to an exceedance of any

applicable water quality standards, the facility operator shall comply with the requirements described in Receiving Water Limitation C.3.

13. State Water Board Order No. 91-013-DWQ (as amended by Order No. 92-12-DWQ) and San Francisco Bay Regional Water Board Order No. 91-011 (as amended by Order No. 92-116) are hereby rescinded.

F. REGIONAL WATER BOARD AUTHORITIES

1. Following adoption of this General Permit, Regional Water Boards shall:

   a. Implement the provisions of this General Permit, including, but not limited to, reviewing SWPPPs, reviewing annual reports, conducting compliance inspections, and taking enforcement actions.

   b. Issue other NPDES general permits or individual NPDES storm water permits as they deem appropriate to individual facility operators, facility operators of specific categories of industrial activities, or facility operators in a watershed or geographic area. Upon issuance of such NPDES permits by a Regional Water Board, the affected facility operator shall no longer be regulated by this General Permit. Any new NPDES permit issued by the Regional Water Board may contain different requirements than the requirements of this General Permit.

2. Regional Water Boards may provide guidance to facility operators on the SWPPP and the Monitoring Program and reporting implementation.

3. Regional Water Boards may require facility operators to conduct additional SWPPP and Monitoring Program and reporting activities necessary to achieve compliance with this General Permit.

4. Regional Water Boards may approve requests from facility operators whose facilities include co-located industrial activities that are not contiguous within the facilities (e.g., some military bases) to comply with this General Permit under a single NOI. Storm water discharges and authorized non-storm water discharges from the co-located industrial activities and from other sources within the facility that may generate significant quantities of pollutants are authorized provided the SWPPP and

Monitoring Program addresses each co-located industrial activity and other sources that may generate significant quantities of pollutants.

CERTIFICATION

The undersigned, Administrative Assistant to the State Water Board, does hereby certify that the foregoing is a full, true, and correct copy of an order duly and regularly adopted at a meeting of the State Water Resources Control Board held on April 17, 1997.

AYE: John P. Caffrey
John W. Brown
James M. Stubchaer
Marc Del Piero
Mary Jane Forster

NO: None

ABSENT: None

ABSTAIN: None

4/25/97

Maureen Marché
Administrative Assistant to the Board

SECTION A: STORM WATER POLLUTION PREVENTION PLAN REQUIREMENTS

1. *Implementation Schedule*

A storm water pollution prevention plan (SWPPP) shall be developed and implemented for each facility covered by this General Permit in accordance with the following schedule.

a. Facility operators beginning industrial activities before October 1, 1992 shall develop and implement the SWPPP no later than October 1, 1992. Facility operators beginning industrial activities after October 1, 1992 shall develop and implement the SWPPP when industrial activities begin.

b. Existing facility operators that submitted a Notice of Intent (NOI), pursuant to State Water Resources Control Board (State Water Board) Order No. 91-013-DWQ (as amended by Order No. 92-12) or San Francisco Bay Regional Water Quality Control Board (Regional Water Board) Order No. 92-11 (as amended by Order No. 92-116), shall continue to implement their existing SWPPP and shall implement any necessary revisions to their SWPPP in a timely manner, but in no case later than August 1, 1997.

2. *Objectives*

The SWPPP has two major objectives: (a) to identify and evaluate sources of pollutants associated with industrial activities that may affect the quality of storm water discharges and authorized non-storm water discharges from the facility; and (b) to identify and implement site-specific best management practices (BMPs) to reduce or prevent pollutants associated with industrial activities in storm water discharges and authorized non-storm water discharges. BMPs may include a variety of pollution prevention measures or other low-cost and pollution control measures. They are generally categorized as non-structural BMPs (activity schedules, prohibitions of practices, maintenance procedures, and other low-cost measures) and as structural BMPs (treatment measures, run-off controls, overhead coverage.) To achieve these objectives, facility operators should consider the five phase process for SWPPP development and implementation as shown in Table A.

The SWPPP requirements are designed to be sufficiently flexible to meet the needs of various facilities. SWPPP requirements that are not applicable to a facility should not be included in the SWPPP.

A facility's SWPPP is a written document that shall contain a compliance activity schedule, a description of industrial activities and pollutant sources, descriptions of BMPs, drawings, maps, and relevant copies or references of parts of other plans. The SWPPP shall be revised whenever appropriate and shall be readily available for review by facility employees or Regional Water Board inspectors.

3. *Planning and Organization*

a. *Pollution Prevention Team*

The SWPPP shall identify a specific individual or individuals and their positions within the facility organization as members of a storm water pollution prevention team responsible for developing the SWPPP, assisting the facility manager in SWPPP implementation and revision, and conducting all monitoring program activities required in Section B of this General Permit. The SWPPP shall clearly identify the General Permit related responsibilities, duties, and activities of each team member. For small facilities, storm water pollution prevention teams may consist of one individual where appropriate.

b. *Review Other Requirements and Existing Facility Plans*

The SWPPP may incorporate or reference the appropriate elements of other regulatory requirements. Facility operators should review all local, State, and Federal requirements that impact, complement, or are consistent with the requirements of this General Permit. Facility operators should identify any existing facility plans that contain storm water pollutant control measures or relate to the requirements of this General Permit. As examples, facility operators whose facilities are subject to Federal Spill Prevention Control and Countermeasures' requirements should already have instituted a plan to control spills of certain hazardous materials. Similarly, facility operators whose facilities are subject to air quality related permits and regulations may already have evaluated industrial activities that generate dust or particulates.

4. *Site Map*

The SWPPP shall include a site map. The site map shall be provided on an 8-½ x 11 inch or larger sheet and include notes, legends, and other data as appropriate to ensure that the site map is clear and understandable. If necessary, facility operators may provide the required information on multiple site maps.

TABLE A

FIVE PHASES FOR DEVELOPING AND IMPLEMENTING INDUSTRIAL STORM WATER POLLUTION PREVENTION PLANS

PLANNING AND ORGANIZATION

*Form Pollution Prevention Team
*Review other plans

↓

ASSESSMENT PHASE

*Develop a site map
*Identify potential pollutant sources
*Inventory of materials and chemicals
*List significant spills and leaks
*Identify non-storm water discharges
*Assess pollutant Risks

↓

BEST MANAGEMENT PRACTICES IDENTIFICATION PHASE

*Non-structural BMPs
*Structural BMPs
*Select activity and site-specific BMPs

↓

IMPLEMENTATION PHASE

*Train employees
*Implement BMPs
*Conduct recordkeeping and reporting

↓

EVALUATION / MONITORING

*Conduct annual site evaluation
*Review monitoring information
*Evaluate BMPs
*Review and revise SWPPP

The following information shall be included on the site map:

a. The facility boundaries; the outline of all storm water drainage areas within the facility boundaries; portions of the drainage area impacted by run-on from surrounding areas; and direction of flow of each drainage area, on-site surface water bodies, and areas of soil erosion. The map shall also identify nearby water bodies (such as rivers, lakes, ponds) and municipal storm drain inlets where the facility's storm water discharges and authorized non-storm water discharges may be received.

b. The location of the storm water collection and conveyance system, associated points of discharge, and direction of flow. Include any structural control measures that affect storm water discharges, authorized non-storm water discharges, and run-on. Examples of structural control measures are catch basins, berms, detention ponds, secondary containment, oil/water separators, diversion barriers, etc.

c. An outline of all impervious areas of the facility, including paved areas, buildings, covered storage areas, or other roofed structures.

d. Locations where materials are directly exposed to precipitation and the locations where significant spills or leaks identified in Section A.6.a.iv. below have occurred.

e. Areas of industrial activity. This shall include the locations of all storage areas and storage tanks, shipping and receiving areas, fueling areas, vehicle and equipment storage/maintenance areas, material handling and processing areas, waste treatment and disposal areas, dust or particulate generating areas, cleaning and rinsing areas, and other areas of industrial activity which are potential pollutant sources.

5. *List of Significant Materials*

The SWPPP shall include a list of significant materials handled and stored at the site. For each material on the list, describe the locations where the material is being stored, received, shipped, and handled, as well as the typical quantities and frequency. Materials shall include raw materials, intermediate products, final or finished products, recycled materials, and waste or disposed materials.

6. *Description of Potential Pollutant Sources*

a. The SWPPP shall include a narrative description of the facility's industrial activities, as identified in Section A.4.e above, associated potential pollutant sources, and potential pollutants that could be discharged in storm water discharges or authorized non-storm water discharges. At a minimum, the following items related to a facility's industrial activities shall be considered:

i. Industrial Processes

Describe each industrial process, the type, characteristics, and quantity of significant materials used in or resulting from the process, and a description of the manufacturing, cleaning, rinsing, recycling, disposal, or other activities related to the process. Where applicable, areas protected by containment structures and the corresponding containment capacity shall be described.

ii. Material Handling and Storage Areas

Describe each handling and storage area, type, characteristics, and quantity of significant materials handled or stored, description of the shipping, receiving, and loading procedures, and the spill or leak prevention and response procedures. Where applicable, areas protected by containment structures and the corresponding containment capacity shall be described.

iii. Dust and Particulate Generating Activities

Describe all industrial activities that generate dust or particulates that may be deposited within the facility's boundaries and identify their discharge locations; the characteristics of dust and particulate pollutants; the approximate quantity of dust and particulate pollutants that may be deposited within the facility boundaries; and a description of the primary areas of the facility where dust and particulate pollutants would settle.

iv. Significant Spills and Leaks

Describe materials that have spilled or leaked in significant quantities in storm water discharges or non-storm water discharges since April 17, 1994. Include toxic chemicals (listed in 40 CFR, Part 302)

that have been discharged to storm water as reported on U.S. Environmental Protection Agency (U.S. EPA) Form R, and oil and hazardous substances in excess of reportable quantities (see 40 Code of Federal Regulations [CFR], Parts 110, 117, and 302).

The description shall include the type, characteristics, and approximate quantity of the material spilled or leaked, the cleanup or remedial actions that have occurred or are planned, the approximate remaining quantity of materials that may be exposed to storm water or non-storm water discharges, and the preventative measures taken to ensure spill or leaks do not reoccur. Such list shall be updated as appropriate during the term of this General Permit.

v. Non-Storm Water Discharges

Facility operators shall investigate the facility to identify all non-storm water discharges and their sources. As part of this investigation, all drains (inlets and outlets) shall be evaluated to identify whether they connect to the storm drain system.

All non-storm water discharges shall be described. This shall include the source, quantity, frequency, and characteristics of the non-storm water discharges and associated drainage area.

Non-storm water discharges that contain significant quantities of pollutants or that do not meet the conditions provided in Special Conditions D. are prohibited by this General Permit (Examples of prohibited non-storm water discharges are contact and non-contact cooling water, boiler blowdown, rinse water, wash water, etc.). Non-storm water discharges that meet the conditions provided in Special Condition D. are authorized by this General Permit. The SWPPP must include BMPs to prevent or reduce contact of non-storm water discharges with significant materials or equipment.

vi. Soil Erosion

Describe the facility locations where soil erosion may occur as a result of industrial activity, storm water discharges associated with industrial activity, or authorized non-storm water discharges.

b. The SWPPP shall include a summary of all areas of industrial activities, potential pollutant sources, and

potential pollutants. This information should be summarized similar to Table B. The last column of Table B, "Control Practices", should be completed in accordance with Section A.8. below.

7. *Assessment of Potential Pollutant Sources*

a. The SWPPP shall include a narrative assessment of all industrial activities and potential pollutant sources as described in A.6. above to determine:

i. Which areas of the facility are likely sources of pollutants in storm water discharges and authorized non-storm water discharges, and

ii. Which pollutants are likely to be present in storm water discharges and authorized non-storm water discharges. Facility operators shall consider and evaluate various factors when performing this assessment such as current storm water BMPs; quantities of significant materials handled, produced, stored, or disposed of; likelihood of exposure to storm water or authorized non-storm water discharges; history of spill or leaks; and run-on from outside sources.

b. Facility operators shall summarize the areas of the facility that are likely sources of pollutants and the corresponding pollutants that are likely to be present in storm water discharges and authorized non-storm water discharges.

Facility operators are required to develop and implement additional BMPs as appropriate and necessary to prevent or reduce pollutants associated with each pollutant source. The BMPs will be narratively described in Section 8 below.

8. *Storm Water Best Management Practices*

The SWPPP shall include a narrative description of the storm water BMPs to be implemented at the facility for each potential pollutant and its source identified in the site assessment phase (Sections A.6. and 7. above). The BMPs shall be developed and implemented to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges. Each pollutant and its source may require one or more BMPs. Some BMPs may be implemented for multiple pollutants and their sources, while other BMPs will be implemented for a very specific pollutant and its source.

TABLE B

EXAMPLE

ASSESSMENT OF POTENTIAL POLLUTION SOURCES AND CORRESPONDING BEST MANAGEMENT PRACTICES SUMMARY

Area	Activity	Pollutant Source	Pollutant	Best Management Practices
Vehicle & Equipment Fueling	Fueling	Spills and leaks during delivery	fuel oil	- Use spill and overflow protection - Minimize run-on of storm water into the fueling area
		Spills caused by topping off fuel tanks	fuel oil	- Cover fueling area - Use dry cleanup methods rather than hosing down area
		Hosing or washing down fuel area	fuel oil	- Implement proper spill prevention control program - Implement adequate preventative maintenance program to preventive tank and line leaks
		Leaking storage tanks	fuel oil	- Inspect fueling areas regularly to detect problems before they occur
		Rainfall running off fueling area, and rainfall running onto and off fueling area	fuel oil	- Train employees on proper fueling, cleanup, and spill response techniques.

The description of the BMPs shall identify the BMPs as (1) existing BMPs, (2) existing BMPs to be revised and implemented, or (3) new BMPs to be implemented. The description shall also include a discussion on the effectiveness of each BMP to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges. The SWPPP shall provide a summary of all BMPs implemented for each pollutant source. This information should be summarized similar to Table B.

Facility operators shall consider the following BMPs for implementation at the facility:

a. Non-Structural BMPs

Non-structural BMPs generally consist of processes, prohibitions, procedures, schedule of activities, etc., that prevent pollutants associated with industrial activity from contacting with storm water discharges and authorized non-storm water discharges. They are considered low technology, cost-effective measures. Facility operators should consider all possible non-structural BMPs options before considering additional structural BMPs (see Section A.8.b. below). Below is a list of non-structural BMPs that should be considered:

i. Good Housekeeping

Good housekeeping generally consist of practical procedures to maintain a clean and orderly facility.

ii. Preventive Maintenance

Preventive maintenance includes the regular inspection and maintenance of structural storm water controls (catch basins, oil/water separators, etc.) as well as other facility equipment and systems.

iii. Spill Response

This includes spill clean-up procedures and necessary clean-up equipment based upon the quantities and locations of significant materials that may spill or leak.

iv. Material Handling and Storage

This includes all procedures to minimize the potential for spills and leaks and to minimize exposure of significant materials to storm water and authorized non-storm water discharges.

v. Employee Training

This includes training of personnel who are responsible for (1) implementing activities identified in the SWPPP, (2) conducting inspections, sampling, and visual observations, and (3) managing storm water. Training should address topics such as spill response, good housekeeping, and material handling procedures, and actions necessary to implement all BMPs identified in the SWPPP. The SWPPP shall identify periodic dates for such training. Records shall be maintained of all training sessions held.

vi. Waste Handling/Recycling

This includes the procedures or processes to handle, store, or dispose of waste materials or recyclable materials.

vii. Recordkeeping and Internal Reporting

This includes the procedures to ensure that all records of inspections, spills, maintenance activities, corrective actions, visual observations, etc., are developed, retained, and provided, as necessary, to the appropriate facility personnel.

viii. Erosion Control and Site Stabilization

This includes a description of all sediment and erosion control activities. This may include the planting and maintenance of vegetation, diversion of run-on and runoff, placement of sandbags, silt screens, or other sediment control devices, etc.

ix. Inspections

This includes, in addition to the preventative maintenance inspections identified above, an inspection schedule of all potential pollutant sources. Tracking and follow-up procedures shall be described to ensure adequate corrective actions are taken and SWPPPs are made.

x. Quality Assurance

This includes the procedures to ensure that all elements of the SWPPP and Monitoring Program are adequately conducted.

b. Structural BMPs

Where non-structural BMPs as identified in Section A.8.a. above are not effective, structural BMPs shall be considered. Structural BMPs generally consist of structural devices that reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges. Below is a list of structural BMPs that should be considered:

i. Overhead Coverage

This includes structures that provide horizontal coverage of materials, chemicals, and pollutant sources from contact with storm water and authorized non-storm water discharges.

ii. Retention Ponds

This includes basins, ponds, surface impoundments, bermed areas, etc., that do not allow storm water to discharge from the facility.

iii. Control Devices

This includes berms or other devices that channel or route run-on and runoff away from pollutant sources.

iv. Secondary Containment Structures

This generally includes containment structures around storage tanks and other areas for the purpose of collecting any leaks or spills.

v. Treatment

This includes inlet controls, infiltration devices, oil/water separators, detention ponds, vegetative swales, etc., that reduce the pollutants in storm water discharges and authorized non-storm water discharges.

9. Annual Comprehensive Site Compliance Evaluation

The facility operator shall conduct one comprehensive site compliance evaluation (evaluation) in each reporting period (July 1-June 30). Evaluations shall be conducted within 8-16 months of each other. The SWPPP shall be revised, as appropriate, and the revisions implemented within 90 days of the evaluation. Evaluations shall include the following:

a. A review of all visual observation records, inspection records, and sampling and analysis results.

b. A visual inspection of all potential pollutant sources for evidence of, or the potential for, pollutants entering the drainage system.

c. A review and evaluation of all BMPs (both structural and non-structural) to determine whether the BMPs are adequate, properly implemented and maintained, or whether additional BMPs are needed. A visual inspection of equipment needed to implement the SWPPP, such as spill response equipment, shall be included.

d. An evaluation report that includes, (i) identification of personnel performing the evaluation, (ii) the date(s) of the evaluation, (iii) necessary SWPPP revisions, (iv) schedule, as required in Section A.10.e, for implementing SWPPP revisions, (v) any incidents of non-compliance and the corrective actions taken, and (vi) a certification that the facility operator is in compliance with this General Permit. If the above certification cannot be provided, explain in the evaluation report why the facility operator is not in compliance with this General Permit. The evaluation report shall be submitted as part of the annual report, retained for at least five years, and signed and certified in accordance with Standard Provisions 9. and 10. of Section C. of this General Permit.

10. *SWPPP General Requirements*

a. The SWPPP shall be retained on site and made available upon request of a representative of the Regional Water Board and/or local storm water management agency (local agency) which receives the storm water discharges.

b. The Regional Water Board and/or local agency may notify the facility operator when the SWPPP does not meet one or more of the minimum requirements of this Section. As requested by the Regional Water Board and/or local agency, the facility operator shall submit an SWPPP revision and implementation schedule that meets the minimum requirements of this section to the Regional Water Board and/or local agency that requested the SWPPP revisions. Within 14 days after implementing the required SWPPP revisions, the facility operator shall provide written certification to the Regional Water Board and/or local agency that the revisions have been implemented.

c. The SWPPP shall be revised, as appropriate, and implemented prior to changes in industrial activities which (i) may significantly increase the quantities of pollutants in storm water discharge, (ii) cause a new area of industrial activity at the facility to be exposed to storm water, or (iii) begin an industrial activity which would introduce a new pollutant source at the facility.

d. Other than as provided in Provisions B.11, B.12, and E.2 of the General Permit, the SWPPP shall be revised and implemented in a timely manner, but in no case more than 90 days after a facility operator determines that the SWPPP is in violation of any requirement(s) of this General Permit.

e. When any part of the SWPPP is infeasible to implement by the deadlines specified in Provision E.2 or Sections A.1, A.9, A.10.c, and A.10.d of this General Permit due to proposed significant structural changes, the facility operator shall submit a report to the Regional Water Board prior to the applicable deadline that (i) describes the portion of the SWPPP that is infeasible to implement by the deadline, (ii) provides justification for a time extension, (iii) provides a schedule for completing and implementing that portion of the SWPPP, and (iv) describes the BMPs that will be implemented in the interim period to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges. Such reports are subject to Regional Water Board approval and/or modifications. Facility operators shall provide written notification to the Regional Water Board within 14 days after the SWPPP revisions are implemented.

f. The SWPPP shall be provided, upon request, to the Regional Water Board. The SWPPP is considered a report that shall be available to the public by the Regional Water Board under Section 308(b) of the Clean Water Act.

SECTION B. MONITORING PROGRAM AND REPORTING REQUIREMENTS

1. *Implementation Schedule*

Each facility operator shall develop a written monitoring program for each facility covered by this General Permit in accordance with the following schedule:

a. Facility operators beginning industrial activities before October 1, 1992 shall develop and implement a monitoring program no later than October 1, 1992. Facility operators beginning operations after October 1, 1992 shall develop and implement a monitoring program when the industrial activities begin.

b. Facility operators that submitted a Notice Of Intent (NOI) pursuant to State Water Resources Control Board (State Water Board) Order No. 91-013-DWQ (as amended by Order No. 92-12) or San Francisco Bay Regional Water Quality Control Board (Regional Water Board) Order No. 92-11 (as amended by Order No. 92-116), shall continue to implement their existing monitoring program and implement any necessary revisions to their monitoring program in a timely manner, but in no case later than August 1, 1997. These facility operators may use the monitoring results conducted in accordance with those expired general permits to satisfy the pollutant/parameter reduction requirements in Section B.5.c., Sampling and Analysis Exemptions and Reduction certifications in Section B.12., and Group Monitoring Sampling credits in B.15.k. For facilities beginning industrial activities after the adoption of this General Permit, the monitoring program shall be developed and implemented when the facility begins the industrial activities.

2. *Objectives*

The objectives of the monitoring program are to:

a. Ensure that storm water discharges are in compliance with the Discharge Prohibitions, Effluent Limitations, and Receiving Water Limitations specified in this General Permit.

b. Ensure practices at the facility to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges are evaluated and revised to meet changing conditions.

c. Aid in the implementation and revision of the SWPPP required by Section A of this General Permit.

d. Measure the effectiveness of best management practices (BMPs) to prevent or reduce pollutants in storm water discharges and authorized non-storm water discharges. Much of the information necessary to develop the monitoring program, such as discharge locations, drainage areas, pollutant sources, etc., should be found in the Storm Water Pollution Prevention Plan (SWPPP). The facility's monitoring program shall be a written, site-specific document that shall be revised whenever appropriate and be readily available for review by employees or Regional Water Board inspectors.

3. *Non-storm Water Discharge Visual Observations*

a. Facility operators shall visually observe all drainage areas within their facilities for the presence of unauthorized non-storm water discharges;

b. Facility operators shall visually observe the facility's authorized non-storm water discharges and their sources;

c. The visual observations required above shall occur quarterly, during daylight hours, on days with no storm water discharges, and during scheduled facility operating hours[1]. Quarterly visual observations shall be conducted in each of the following periods: January-March, April-June, July-September, and October-December. Facility operators shall conduct quarterly visual observations within 6-18 weeks of each other.

d. Visual observations shall document the presence of any discolorations, stains, odors, floating materials, etc., as well as the source of any discharge. Records shall be maintained of the visual observation dates, locations observed, observations, and response taken to eliminate unauthorized non-storm water discharges and to reduce or prevent pollutants from contacting non-storm water discharges. The SWPPP shall be revised, as necessary, and implemented in accordance with Section A of this General Permit.

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[1] "Scheduled facility operating hours" are the time periods when the facility is staffed to conduct any function related to industrial activity, but excluding time periods where only routine maintenance, emergency response, security, and/or janitorial services are performed.

4. *Storm Water Discharge Visual Observations*

a. With the exception of those facilities described in Section B.4.d. below, facility operators shall visually observe storm water discharges from one storm event per month during the wet season (October 1-May 30). These visual observations shall occur during the first hour of discharge and at all discharge locations. Visual observations of stored or contained storm water shall occur at the time of release.

b. Visual observations are only required of storm water discharges that occur during daylight hours that are preceded by at least three (3) working days[2] without storm water discharges and that occur during scheduled facility operating hours.

c. Visual observations shall document the presence of any floating and suspended material, oil and grease, discolorations, turbidity, odor, and source of any pollutants. Records shall be maintained of observation dates, locations observed, observations, and response taken to reduce or prevent pollutants in storm water discharges. The SWPPP shall be revised, as necessary, and implemented in accordance with Section A of this General Permit.

d. Feedlots (subject to Federal effluent limitations guidelines in 40 Code of Federal Regulations [CFR] Part 412) that are in compliance with Sections 2560 to 2565, Article 6, Chapter 15, Title 23, California Code of Regulations, and facility operators with storm water containment facilities shall conduct monthly inspections of their containment areas to detect leaks and ensure maintenance of adequate freeboard. Records shall be maintained of the inspection dates, observations, and any response taken to eliminate leaks and to maintain adequate freeboard.

5. *Sampling and Analysis*

a. Facility operators shall collect storm water samples during the first hour of discharge from (1) the first storm event of the wet season, and (2) at least one other storm event in the wet season. All storm water discharge locations shall be sampled. Sampling of stored or contained storm water shall occur at the time the stored

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[2] Three (3) working days may be separated by non-working days such as weekends and holidays provided that no storm water discharges occur during the three (3) working days and the non-working days.

or contained storm water is released. Facility operators that do not collect samples from the first storm event of the wet season are still required to collect samples from two other storm events of the wet season and shall explain in the Annual Report why the first storm event was not sampled.

b. Sample collection is only required of storm water discharges that occur during scheduled facility operating hours and that are preceded by at least (3) three working days without storm water discharge.

c. The samples shall be analyzed for:

   i. Total suspended solids (TSS) pH, specific conductance, and total organic carbon (TOC). Oil and grease (O&G) may be substituted for TOC; and

   ii. Toxic chemicals and other pollutants that are likely to be present in storm water discharges in significant quantities. If these pollutants are not detected in significant quantities after two consecutive sampling events, the facility operator may eliminate the pollutant from future sample analysis until the pollutant is likely to be present again; and

   iii. Other analytical parameters as listed in Table D (located at the end of this Section). These parameters are dependent on the facility's standard industrial classification (SIC) code. Facility operators are not required to analyze a parameter listed in Table D when the parameter is not already required to be analyzed pursuant to Section B.5.c.i. and ii. or B.6 of this General Permit, and either of the two following conditions are met: (1) the parameter has not been detected in significant quantities from the last two consecutive sampling events, or (2) the parameter is not likely to be present in storm water discharges and authorized non-storm water discharges in significant quantities based upon the facility operator's evaluation of the facilities industrial activities, potential pollutant sources, and SWPPP. Facility operators that do not analyze for the applicable Table D parameters shall certify in the Annual Report that the above conditions have been satisfied.

   iv. Other parameters as required by the Regional Water Board.

6. *Facilities Subject to Federal Storm Water Effluent Limitation Guidelines*

Facility operators with facilities subject to Federal storm water effluent limitation guidelines, in addition to the requirements in Section B.5. above, must complete the following:

a. Collect and analyze two samples for any pollutant specified in the appropriate category of 40 CFR Subchapter N. The sampling and analysis exemptions and reductions described in Section B.12. of this General Permit do not apply to these pollutants.

b. Estimate or calculate the volume of storm water discharges from each drainage area;

c. Estimate or calculate the mass of each regulated pollutant as defined in the appropriate category of 40 CFR Subchapter N; and

d. Identify the individual(s) performing the estimates or calculations in accordance with Subsections b. and c. above.

7. *Sample Storm Water Discharge Locations*

a. Facility operators shall visually observe and collect samples of storm water discharges from all drainage areas that represent the quality and quantity of the facility's storm water discharges from the storm event.

b. If the facility's storm water discharges are commingled with run-on from surrounding areas, the facility operator should identify other visual observation and sample collection locations that have not been commingled by run-on and that represent the quality and quantity of the facility's storm water discharges from the storm event.

c. If visual observation and sample collection locations are difficult to observe or sample (e.g., sheet flow, submerged outfalls), facility operators shall identify and collect samples from other locations that represent the quality and quantity of the facility's storm water discharges from the storm event.

d. Facility operators that determine that the industrial activities and BMPs within two or more drainage areas are substantially identical may either (i) collect samples from a reduced number of substantially identical

drainage areas, or (ii) collect samples from each substantially identical drainage area and analyze a combined sample from each substantially identical drainage area. Facility operators must document such a determination in the annual report.

8. *Visual Observation and Sample Collection Exceptions*

Facility operators are required to be prepared to collect samples and conduct visual observations at the beginning of the wet season (October 1) and throughout the wet season until the minimum requirements of Sections B.4. and B.5. are completed with the following exceptions:

a. A facility operator is not required to collect a sample and conduct visual observations in accordance with Section B.4 and Section B.5 due to dangerous weather conditions, such as flooding, electrical storm, etc., when storm water discharges begin after scheduled facility operating hours or when storm water discharges are not preceded by three working days without discharge. Visual observations are only required during daylight hours. Facility operators that do not collect the required samples or visual observations during a wet season due to these exceptions shall include an explanation in the Annual Report why the sampling or visual observations could not be conducted.

b. A facility operator may conduct visual observations and sample collection more than one hour after discharge begins if the facility operator determines that the objectives of this Section will be better satisfied. The facility operator shall include an explanation in the Annual Report why the visual observations and sample collection should be conducted after the first hour of discharge.

9. *Alternative Monitoring Procedures*

Facility operators may propose an alternative monitoring program that meets Section B.2 monitoring program objectives for approval by the Regional Water Board. Facility operators shall continue to comply with the monitoring requirements of this Section and may not implement an alternative monitoring plan until the alternative monitoring plan is approved by the Regional Water Board. Alternative monitoring plans are subject to modification by the Regional Water Boards.

10. *Monitoring Methods*

a. Facility operators shall explain how the facility's monitoring program will satisfy the monitoring program objectives of Section B.2. This shall include:

i. Rationale and description of the visual observation methods, location, and frequency.

ii. Rationale and description of the sampling methods, location, and frequency; and

iii. Identification of the analytical methods and corresponding method detection limits used to detect pollutants in storm water discharges. This shall include justification that the method detection limits are adequate to satisfy the objectives of the monitoring program.

b. All sampling and sample preservation shall be in accordance with the current edition of "Standard Methods for the Examination of Water and Wastewater" (American Public Health Association). All monitoring instruments and equipment (including a facility operator's own field instruments for measuring pH and Electro Conductivity) shall be calibrated and maintained in accordance with manufacturers' specifications to ensure accurate measurements. All laboratory analyses must be conducted according to test procedures under 40 CFR Part 136, unless other test procedures have been specified in this General Permit or by the Regional Water Board. All metals shall be reported as total metals. With the exception of analysis conducted by facility operators, all laboratory analyses shall be conducted at a laboratory certified for such analyses by the State Department of Health Services. Facility operators may conduct their own sample analyses if the facility operator has sufficient capability (qualified employees, laboratory equipment, etc.) to adequately perform the test procedures.

11. *Inactive Mining Operations*

Inactive mining operations are defined in Attachment 1 of this General Permit. Where comprehensive site compliance evaluations, non-storm water discharge visual observations, storm water discharge visual observations, and storm water sampling are impracticable, facility operators of inactive mining operations may instead obtain certification once every three years by a Registered Professional Engineer that an SWPPP has been prepared for the facility and is being implemented in accordance with the requirements of this General Permit. By means of these certifications, the

Registered Professional Engineer having examined the facility and being familiar with the provisions of this General Permit shall attest that the SWPPP has been prepared in accordance with good engineering practices. Facility operators of mining operations who cannot obtain a certification because of noncompliance must notify the appropriate Regional Water Board and, upon request, the local agency which receives the storm water discharge.

12. *Sampling and Analysis* Exemptions and Reductions

A facility operator who qualifies for sampling and analysis exemptions, as described below in Section B.12.a.i., or who qualifies for reduced sampling and analysis, as described below in Section B.12.b., must submit the appropriate certifications and required documentation to the Regional Water Boards prior to the wet season (October 1) and recertify as part of the Annual Report submittal. A facility operator that qualifies for either the Regional Water Board or local agency certification programs, as described below in Section B.12.a.ii. and iii., shall submit certification and documentation in accordance with the requirements of those programs. Facility operators who provide certifications in accordance with this Section are still required to comply with all other monitoring program and reporting requirements. Facility operators shall prepare and submit their certifications using forms and instructions provided by the State Water Board, Regional Water Board, or local agency or shall submit their information on a form that contains equivalent information. Facility operators whose facility no longer meets the certification conditions must notify the Regional Water Boards (and local agency) within 30 days and immediately comply with the Section B.5. sampling and analysis requirements. Should a Regional Water Board (or local agency) determine that a certification does not meet the conditions set forth below, facility operators must immediately comply with the Section B.5. sampling and analysis requirements.

a. Sampling and Analysis Exemptions

A facility operator is not required to collect and analyze samples in accordance with Section B.5. if the facility operator meets all of the conditions of one of the following certification programs:

i. No Exposure Certification (NEC)

This exemption is designed primarily for those facilities where all industrial activities are conducted inside buildings and where all materials stored and handled are not exposed to storm water.

To qualify for this exemption, facility operators must certify that their facilities meet all of the following conditions:

(1) All prohibited non-storm water discharges have been eliminated or otherwise permitted.

(2) All authorized non-storm water discharges have been identified and addressed in the SWPPP.

(3) All areas of past exposure have been inspected and cleaned, as appropriate.

(4) All significant materials related to industrial activity (including waste materials) are not exposed to storm water or authorized non-storm water discharges.

(5) All industrial activities and industrial equipment are not exposed to storm water or authorized non-storm water discharges.

(6) There is no exposure of storm water to significant materials associated with industrial activity through other direct or indirect pathways such as from industrial activities that generate dust and particulates.

(7) There is periodic re-evaluation of the facility to ensure conditions (1), (2), (4), (5), and (6) above are continuously met. At a minimum, re-evaluation shall be conducted once a year.

ii. Regional Water Board Certification Programs

The Regional Water Board may grant an exemption to the Section B.5. Sampling and Analysis Requirements if it determines a facility operator has met the conditions set forth in a Regional Water Board certification program. Regional Water Board certification programs may include conditions to (1) exempt facility operators whose facilities infrequently discharge storm water to waters of the United States, and (2) exempt facility operators that demonstrate compliance with the terms and conditions of this General Permit.

iii. Local Agency Certifications

A local agency may develop a local agency certification program. Such programs must be approved by the Regional Water Board. An approved local agency program may either grant an exemption

from the Section B.5. Sampling and Analysis Requirements or reduce the frequency of sampling if it determines that a facility operator has demonstrated compliance with the terms and conditions of this General Permit.

b. Sampling and Analysis Reduction

i. A facility operator may reduce the number of sampling events required to be sampled for the remaining term of this General Permit if the facility operator provides certification that the following conditions have been met:

(1) The facility operator has collected and analyzed samples from a minimum of six storm events from all required drainage areas;

(2) All prohibited non-storm water discharges have been eliminated or otherwise permitted;

(3) The facility operator demonstrates compliance with the terms and conditions of the General Permit for the previous two years (i.e., completed Annual Reports, performed visual observations, implemented appropriate BMPs, etc.);

(4) The facility operator demonstrates that the facility's storm water discharges and authorized non-storm water discharges do not contain significant quantities of pollutants; and

(5) Conditions (2), (3), and (4) above are expected to remain in effect for a minimum of one year after filing the certification.

ii. Unless otherwise instructed by the Regional Water Board, facility operators shall collect and analyze samples from two additional storm events during the remaining term of this General Permit in accordance with Table C below. Facility operators shall collect samples of the first storm event of the wet season. Facility operators that do not collect samples from the first storm event of the wet season shall collect samples from another storm event during the same wet season. Facility operators that do not collect a sample in a required wet season shall collect the sample from another storm event in the next wet season. Facility operators shall explain in the Annual Report why the first storm

event of a wet season was not sampled or a sample was not taken from any storm event in accordance with the Table C schedule.

Table C
REDUCED MONITORING SAMPLING SCHEDULE

Facility Operator Filing Sampling Reduction Certification By	Samples Shall be Collected and Analyzed in These Wet Seasons	
	Sample 1	Sample 2
Sept. 1, 1997	Oct. 1, 1997-May 31, 1998	Oct. 1, 1999-May 31, 2000
Sept. 1, 1998	Oct. 1, 1998-May 31, 1999	Oct. 1, 2000-May 31, 2001
Sept. 1, 1999	Oct. 1, 1999-May 31, 2000	Oct. 1, 2001-May 31, 2002
Sept. 1, 2000	Oct. 1, 2000-May 31, 2001	Oct. 1, 2002-May 31, 2003
Sept. 1, 2001	Oct. 1, 2001-May 31, 2002	Oct. 1, 2003-May 31, 2004

13. *Records*

Records of all storm water monitoring information and copies of all reports (including the Annual Reports) required by this General Permit shall be retained for a period of at least five years. These records shall include:

a. The date, place, and time of site inspections, sampling, visual observations, and/or measurements;

b. The individual(s) who performed the site inspections, sampling, visual observations, and or measurements;

c. Flow measurements or estimates (if required by Section B.6);

d. The date and approximate time of analyses;

e. The individual(s) who performed the analyses;

f. Analytical results, method detection limits, and the analytical techniques or methods used;

g. Quality assurance/quality control records and results;

h. Non-storm water discharge inspections and visual observations and storm water discharge visual observation records (see Sections B.3. and 4.);

i. Visual observation and sample collection exception records (see Section B.5.a, 7.d, 8, and 12.b.ii.);

j. All calibration and maintenance records of on-site instruments used;

k. All Sampling and Analysis Exemption and Reduction certifications and supporting documentation (see Section B.12);

l. The records of any corrective actions and follow-up activities that resulted from the visual observations.

14. *Annual Report*

All facility operators shall submit an Annual Report by July 1 of each year to the Executive Officer of the Regional Water Board responsible for the area in which the facility is located and to the local agency (if requested).

The report shall include a summary of visual observations and sampling results, an evaluation of the visual observation and sampling and analysis results, laboratory reports, the Annual Comprehensive Site Compliance Evaluation Report required in Section A.9., an explanation of why a facility did not implement any activities required by the General Permit (if not already included in the Evaluation Report), and records specified in Section B.13.i. The method detection limit of each analytical parameter shall be included. Analytical results that are less than the method detection limit shall be reported as "less than the method detection limit." The Annual Report shall be signed and certified in accordance with Standard Provisions 9. and 10. of Section C of this General Permit. Facility operators shall prepare and submit their Annual Reports using the annual report forms provided by the State Water Board or Regional Water Board or shall submit their information on a form that contains equivalent information.

15. *Group Monitoring*

Facility operators may participate in group monitoring as described below. A facility operator that participates in group monitoring shall develop and implement a written site-specific SWPPP and monitoring program in accordance with the General Permit and must satisfy any group monitoring requirements. Group monitoring shall be subject to the following requirements:

a. A group monitoring plan (GMP) shall be developed and implemented by a group leader representing a group of similar facility operators regulated by this General Permit or by a local agency which holds an NPDES permit (local agency permittee) for a municipal separate storm sewer system. GMPs with participants that discharge

storm water within the boundaries of a single Regional Water Board shall be approved by that Regional Water Board. GMPs with participants that discharge storm water within the boundaries of multiple Regional Water Boards shall be approved by the State Water Board. The State Water Board and/or Regional Water Board(s) may disapprove a facility's participation in a GMP or require a GMP participant to conduct additional monitoring activities.

b. At least two samples from each GMP participant shall be collected and analyzed in accordance with Section B.5. over the five-year period of this General Permit. The two sample minimum applies to new and existing members. The group leader or local agency permittee shall schedule sampling to meet the following conditions: (i) to evenly distribute the sample collection over the five-year term of this General Permit, and (ii) to collect the two samples at each participant's facility in different and non-consecutive wet seasons. New participants who join in Years 4 and 5 of this General Permit are not subject to Condition (ii) above. Group leaders shall explain in the annual Group Evaluation Report why any scheduled samples were not collected and reschedule the sampling so that all required samples are collected during the term of this General Permit.

c. The group leader or local agency permittee must have the appropriate resources to develop and implement the GMP. The group leader or local agency permittee must also have the authority to terminate any participant who is not complying with this General Permit and the GMP.

d. The group leader or local agency permittee is responsible for:

i. Developing, implementing, and revising the GMP;

ii. Developing and submitting an annual Group Evaluation Report to the State Water Board and/or Regional Water Board by August 1 of each year that includes:

(1) An evaluation and summary of all group monitoring data,

(2) An evaluation of the overall performance of the GMP participants in complying with this General Permit and the GMP,

(3) Recommended baseline and site-specific BMPs that should be considered by each participant based upon Items (1) and (2) above, and

(4) A copy of each evaluation report and recommended BMPs as required in Section B.15.d.v. below.

iii. Recommending appropriate BMPs to reduce or prevent pollutants associated with industrial activities in storm water discharges and authorized non-storm water discharges;

iv. Assisting each participant in completing their Annual Comprehensive Site Compliance Evaluation and Annual Report;

v. Conducting a minimum of two on-site inspections of each participant's facility (it is recommended that these inspections be scheduled during the Annual Comprehensive Site Compliance Evaluation) during the term of this General Permit to evaluate the participant's compliance with this General Permit and the GMP, and to recommend any additional BMPs necessary to achieve compliance with this General Permit. Participants that join in Years 4 and 5 shall be scheduled for one evaluation. A copy of the evaluation and recommended BMPs shall be provided to the participants;

vi. Submitting a GMP (or revisions, as necessary), to the appropriate Regional Water Board(s) and State Water Board no later than September 1, 1997 (or August 1 in subsequent years). Once approved, a group leader or local agency permittee shall submit a letter of intent by August 1 of each year to continue the approved GMP. The letter of intent must include a roster of participants, participant's Waste Discharge Identification number (WDID#), updated sampling schedules, and any other revisions to the GMP;

vii. Revising the GMP as instructed by the Regional Water Board or the State Water Board; and

viii. Providing the State Water Board and/or Regional Water Board with quarterly updates of any new or deleted participants and corresponding changes in the sampling and inspection schedule.

e. The GMP shall:

i. Identify the participants of the GMP by name, location, and WDID number;

ii. Include a narrative description summarizing the industrial activities of participants of the GMP and

explain why the participants, as a whole, have sufficiently similar industrial activities and BMPs to be covered by a group monitoring plan;

iii. Include a list of typical potential pollutant sources associated with the group participant's facilities and recommended baseline BMPs to prevent or reduce pollutants associated with industrial activity in the storm water discharges and authorized non-storm water discharges;

iv Provide a five-year sampling and inspection schedule in accordance with Subsections b. and d.v. above.

v. Identify the pollutants associated with industrial activity that shall be analyzed at each participant's facility in accordance with Section B.5. The selection of these pollutants shall be based upon an assessment of each facility's potential pollutant sources and likelihood that pollutants associated with industrial activity will be present in storm water discharges and authorized non-storm water discharges in significant quantities.

f. Sampling and analysis shall be conducted in accordance with the applicable requirements of this Section.

g. Unless otherwise instructed by the Regional Water Board or the State Water Board Executive Director, the GMPs shall be implemented at the beginning of the wet season (October 1).

h. All participants in an approved GMP that have not been selected to sample in a particular wet season are required to comply with all other monitoring program and reporting requirements of this Section including the submittal of an Annual Report by July 1 of each year to the appropriate Regional Water Board.

i. If any GMP includes participants which are subject to Federal storm water effluent limitation guidelines, each of those participants must perform the monitoring described in Section B.6. and submit the results of the monitoring to the appropriate Regional Water Board in the facility operator's Annual Report.

j. GMPs and Group Evaluation Reports should be prepared in accordance with State Water Board (or Regional Water Board) guidance.

k. GMP participants may receive sampling credits in accordance with the following conditions:

i. Current or prior participants (group participants) of approved GMPs, who have not collected and analyzed the six samples necessary to qualify for the Section B.7.b.i.(1) Sampling and Analysis Reduction, may substitute credit earned through participation in a GMP for up to four of the six required samples. Credits for GMP participation shall be calculated as follows:

(1) Credits may only be earned in years of participation where the GMP participant was not scheduled to sample and the GMP was approved.

(2) One credit will be earned for each year of valid GMP participation.

(3) One additional credit may be earned for each year the overall GMP sample collection performance is greater than 75 percent.

ii. GMP participants substituting credit as calculated above shall provide proof of GMP participation and certification that all the conditions in Section B.12.b.i. have been met. GMP participants substituting credits in accordance with Section B.15.k.i.(3) shall also provide GMP sample collection performance documentation.

iii. GMP participants that qualify for Sampling and Analysis Reduction and have collected and analyzed one or more samples after October 1, 1997 shall only be required to collect one additional sample during the remainder of this General Permit. The sample shall be collected in accordance with the "Sample 2" schedule in Table C of this Section.

n. Group leaders shall furnish, within 60 days of receiving a request from the State Water Board or Regional Water Board, any GMP information and documentation necessary to verify the Section B.15.k. sampling credits. Group leaders may also provide this information and documentation to the group participants.

. *Watershed Monitoring Option*

Regional Water Boards may approve proposals to substitute watershed monitoring for some or all of the requirements of this Section if the Regional Water Board finds that the watershed monitoring will provide substantially similar monitoring information in evaluating facility operator compliance with the requirements of this General Permit.

TABLE D
ADDITIONAL ANALYTICAL PARAMETERS

Subsector	SIC	Activity Represented	Parameter:
SECTOR A. TIMBER PRODUCTS			
A1	2421	General Sawmills and Planing Mills	COD;TSS;Zr
A2	2491	Wood Preserving	As;Cu
A3	2411	Log Storage and Handling	TSS
A4	2426	Hardwood Dimension and Flooring Mills	COD;TSS
A4	2429	Special Product Sawmills, Not Elsewhere Classified	COD;TSS
A4	243X	Millwork, Veneer, Plywood, and Structural Wood	COD;TSS
A4		(except 2434--Wood Kitchen Cabinet Manufacturers)	
A4	244X	Wood Containers	COD;TSS
A4	245X	Wood Buildings and Mobile Homes	COD;TSS
A4	2493	Reconstituted Wood Products	COD;TSS
A4	2499	Wood Products, Not Elsewhere Classified	
SECTOR B. PAPER AND ALLIED PRODUCTS MANUFACTURING			
B1	261X	Pulp Mills	
B2	262X	Paper Mills	
B3	263X	Paperboard Mills	COD
B4	265X	Paperboard Containers and Boxes	
B5	267X	Converted Paper and Paperboard Products, Except Containers and Boxes	
SECTOR C. CHEMICAL AND ALLIED PRODUCTS MANUFACTURING			
C1	281X	Industrial Inorganic Chemicals	Al;Fe;N+N
C2	282X	Plastics Materials and Synthetic Resins, Synthetic Rubber, Cellulosic, and Other Manmade Fibers Except Glass	Zn
C4	284X	Soaps, Detergents, and Cleaning Preparations; Perfumes, Cosmetics, and Other Toilet Preparations	N+N;Zn
C5	285X	Paints, Varnishes, Lacquers, Enamels, and Allied Products	
C6	286X	Industrial Organic Chemicals	
C7	287X	Nitrogenous and Phosphatic Basic Fertilizers, Mixed Fertilizer, Pesticides, and Other Agricultural Chemicals	Fe;N+N;Pb;Zn:P
C8	289X	Miscellaneous Chemical Products	
	3952	Inks and Paints, Including China Painting Enamels, India Ink, (limited to list) Drawing Ink, Platinum Paints for Burnt Wood or Leather Work, Paints for China Painting, Artist's Paints, and Artist's Watercolors	
SECTOR D. ASPHALT PAVING/ROOFING MATERIALS MANUFACTURERS AND LUBRICANT MANUFACTURERS			
D1	X	Asphalt Paving and Roofing Materials	TSS
D2	2992	Lubricating Oils and Greases	

Parameter Names

Al - Aluminum	Cd - Cadmium	Cu - Copper	Mg - Magnesium	BOD - Biochemical Oxygen Demand
As - Arsenic	CN - Cyanide	Fe - Iron	Ag - Silver	N + N - Nitrate & Nitrite Nitrogen
NH_3- Ammonia	Hg - Mercury	P - Phosphorus	Se - Selenium	Pb - Lead
Zn - Zinc	TSS -Total Suspended Solids	COD - Chemical Oxygen Demand		

ubsector	SIC	Activity Represented	Parameters
ECTOR E. GLASS, CLAY, CEMENT, CONCRETE, AND GYPSUM PRODUCT MANUFACTURING			
1	3211	Flat Glass	
1	322X	Glass and Glassware, Pressed or Blown	
1	323X	Glass Products Made of Purchased Glass	
2	3241	Hydraulic Cement	
3	325X	Structural Clay Products	Al
3	326X	Pottery and Related Products	Al
3	3297	Non-Clay Refractories	Al
4	327X	Concrete, Gypsum, and Plaster Products (Except Lime) (except 3274).	TSS:Fe
4	3295	Minerals and Earths, Ground, or Otherwise Treated	TSS;Fe
ECTOR F. PRIMARY METALS			
1	331X	Steel Works, Blast Furnaces, Rolling & Finishing Mill	Al;Zn
2	332X	Iron and Steel Foundries	Al;TSS;Cu;Fe;Zn
3	333X	Primary Smelting and Refining of Nonferrous Metals	
4	334X	Secondary Smelting and Refining of Nonferrous Metals	
5	335X	Rolling, Drawing, and Extruding of Nonferrous Metals	Cu;Zn
6	336X	Nonferrous Foundries (Castings)	Cu;Zn
7	339X	Miscellaneous Primary Metal Products	
ECTOR G. METAL MINING (ORE MINING AND DRESSING) EXCEPT INACTIVE METAL IINING ACTIVITIES ON FEDERAL LANDS WHERE AN OPERATOR CANNOT BE IDENTIFIED			
1	101X	Iron Ores	
2	102X	Copper Ores	TSS;COD;N+N
3	103X	Lead and Zinc Ores	
4	104X	Gold and Silver Ores	
5	106X	Ferroalloy Ores, Except Vanadium	
6	108X	Metal Mining Services	
7	109X	Miscellaneous Metal Ores	
ECTOR H. COAL MINES AND COAL MINING-RELATED FACILITIES			
A	12XX	Coal Mines and Coal Mining-Related Facilities	TSS;Al;Fe
ECTOR I. COAL MINES AND COAL MINING-RELATED FACILITIES			
1	131X	Crude Petroleum and Natural Gas	
2	132X	Natural Gas Liquids	
3	138X	Oil and Gas Field Services	
ECTOR J. MINERAL MINING AND DRESSING EXCEPT INACTIVE MINERAL MINING ACTIVITIES OCCURRING ON FEDERAL LANDS WHERE AN OPERATOR CANNOT BE IDENTIFIED			
1	141X	Dimension Stone	TSS
1	142X	Crushed and Broken Stone, Including Rip Rap	TSS
1	148X	Nonmetallic Minerals, Except Fuels	TSS
2	144X	Sand and Gravel	TSS;N+N
3	145X	Clay, Ceramic, and Refractory Materials	
4	147X	Chemical and Fertilizer Mineral Mining	
4	149X	Miscellaneous Nonmetallic Minerals, Except Fuels	

Subsector	SIC	Activity Represented	Parameters
SECTOR K. HAZARDOUS WASTE TREATMENT STORAGE OR DISPOSAL FACILITIES			
NA	4953	Hazardous Waste Treatment Storage or Disposal	NH_3;Mg;COD;As Cd;CN;Pb Hg;Se;Ag
SECTOR L. LANDFILLS AND LAND APPLICATION SITES			
NA	4953	Landfills and Land Application Sites That Receive or Have Received Industrial Wastes, Except Inactive Landfills or Land Applications Sites Occurring on Federal Lands Where an Operator Cannot be Identified	TSS;Fe
SECTOR M. AUTOMOBILE SALVAGE YARDS			
NA	5015	Facilities Engaged in Dismantling or Wrecking Used Motor Vehicles for Parts Recycling or Resale and for Scrap	TSS;Fe;Pb;Al
SECTOR N. SCRAP RECYCLING FACILITIES			
NA	5093	Processing, Reclaiming, and Wholesale Distribution of Scrap and Waste Materials	TSS;Fe;Pb Al;Cu;Zn;COD
SECTOR O. STEAM ELECTRIC GENERATING FACILITIES			
NA	4911	Steam Electric Power Generating Facilities	Fe
SECTOR P. LAND TRANSPORTATION FACILITIES THAT HAVE VEHICLE AND EQUIPMENT MAINTENANCE SHOPS AND/OR EQUIPMENT CLEANING OPERATIONS			
P1	40XX	Railroad Transportation	
P2	41XX	Local and Highway Passenger Transportation	
P3	42XX	Motor Freight Transportation and Warehousing	
P4	43XX	United States Postal Service	
P5	5171	Petroleum Bulk Stations and Terminals	
SECTOR Q. WATER TRANSPORTATION FACILITIES THAT HAVE VEHICLE (VESSEL) & EQUIPMENT MAINTENANCE SHOPS AND/OR EQUIPMENT CLEANING OPERATIONS			
NA	44XX	Water Transportation	Al;Fe;Pb;Zn
SECTOR R. SHIP AND BOAT BUILDING OR REPAIRING YARDS			
NA	373X	Ship and Boat Building or Repairing Yards	
SECTOR S. AIR TRANSPORTATION FACILITIES			
NA	45XX	Air Transportation Facilities That Have Vehicle Maintenance Ships, Material Handing Facilities, Equipment Cleaning Operations, or Airport and/or Aircraft Deicing/Anti-icing Operations	BOD;COD;NH_3;pH

ubsector	SIC	Activity Represented	Parameters
ECTOR T. TREATMENT WORKS			
IA	4952	Treatment Works Treating Domestic Sewage or Any Other Sewage Sludge or Wastewater Treatment Device or System Used in the Storage, treatment, recycling, or Reclamation of Municipal or Domestic Sewage with a Design Flow of 1.0 MGD or More or Required to Have an Approved Pretreatment Program	
ECTOR U. FOOD AND KINDRED PRODUCTS			
I1	201X	Meat Products	
I2	202X	Dairy Products	
I3	203X	Canned, Frozen and Preserved Fruits, Vegetables and Food Specialties	
I4	204X	Grain Mill Products	TSS
I5	205X	Bakery Products	
I6	206X	Sugar and Confectionery Products	
I7	207X	Fats and Oils	BOD;COD;TSS;N+N
I8	208X	Beverages	
I9	209X	Miscellaneous Food Preparations and Kindred Products	
IA	21XX	Tobacco Products	
ECTOR V. TEXTILE MILLS, APPAREL, AND OTHER FABRIC PRODUCT MANUFACTURING			
1	22XX	Textile Mill Products	
2	23XX	Apparel and Other Finished Products Made From Fabrics and Similar Materials	
ECTOR W. FURNITURE AND FIXTURES			
A	25XX	Furniture and Fixtures	
A	2434	Wood Kitchen Cabinets	
ECTOR X. PRINTING AND PUBLISHING			
A	2732	Book Printing	
A	2752	Commercial Printing, Lithographic	
A	2754	Commercial Printing, Gravure	
A	2759	Commercial Printing, Nor Elsewhere Classified	
A	2796	Platemaking and Related Services	
ECTOR Y. RUBBER, MISCELLANEOUS PLASTIC PRODUCTS, AND MISC. MANUFACTURING INDUSTRIES			
1	301X	Tires and Inner Tubes	Zn
1	302X	Rubber and Plastics Footwear	Zn
1	305X	Gaskets, Packing, and Sealing Devices and Rubber and Plastics Hose and Belting	Zn
1	306X	Fabricated Rubber Products, Not Elsewhere Classified	Zn
2	308X	Miscellaneous Plastics Products	

Subsector	SIC	Activity Represented	Parameters
Y2	393X	Musical Instruments	
Y2	394X	Dolls, Toys, Games, and Sporting and Athletic Goods	
Y2	395X	Pens, Pencils, and Other Artists' Materials	
Y2	396X	Costume Jewelry, Costume Novelties, Buttons, and Miscellaneous Notions, Except Precious Metal	
Y2	399X	Miscellaneous Manufacturing Industries	
SECTOR Z. LEATHER TANNING AND FINISHING			
NA	311X	Leather Tanning and Finishing	
NA	NA	Facilities that Make Fertilizer Solely From Leather Scraps and Leather Dust	
SECTOR AA. FABRICATED METAL PRODUCTS			
AA1	3429	Hardware, Not Elsewhere Classified	Zn;N+N;Fe;Al
AA1	3441	Fabricated Structural Metal	Zn;N+N;Fe;Al
AA1	3442	Metal Doors, Sash, Frames, Molding, and Trim	Zn;N+N;Fe;Al
AA1	3443	Fabricated Plate Work (Boiler Shops)	Zn;N+N;Fe;Al
AA1	3444	Sheet Metal Work	Zn;N+N;Fe;Al
AA1	3451	Screw Machine Products	Zn;N+N;Fe;Al
AA1	3452	Bolts, Nuts, Screws, Rivets, and Washers	Zn;N+N;Fe;Al
AA1	3462	Iron and Steel Forgings	Zn;N+N;Fe;Al
AA1	3471	Electroplating, Plating, Polishing, Anodizing, and Coloring	Zn;N+N;Fe;Al
	3494	Valves and Pipe Fittings, Not Elsewhere Classified	Zn;N+N;Fe;Al
AA1	3496	Miscellaneous Fabricated Wire Products	Zn;N+N;Fe;Al
AA1	3499	Fabricated Metal Products, Not Elsewhere Classified	Zn;N+N;Fe;Al
AA1	391X	Jewelry, Silverware, and Plated Ware	Zn;N+N;Fe;Al
AA2	3479	Coating, Engraving, and Allied Services	Zn;N+N
SECTOR AB. TRANSPORTATION EQUIPMENT, INDUSTRIAL OR COMMERCIAL MACHINERY			
NA	35XX	Industrial and Commercial Machinery (except Computer and (except 357X) Office Equipment)	
NA	37XX	Transportation Equipment (except Ship and Boat Building and (except 373X) Repairing	
SECTOR AC. ELECTRONIC, ELECTRICAL, PHOTOGRAPHIC, AND OPTICAL GOODS			
NA	36XX	Electronic and Other Electrical Equipment and Components, Except Computer Equipment	
NA	38XX	Measuring, Analyzing, and Controlling Instruments; Photographic, Medical, and Optical Goods; Watches and Clocks	
NA	357X	Computer and Office Equipment	

Section C: STANDARD PROVISIONS

1. Duty to Comply

The facility operator must comply with all of the conditions of this General Permit. Any General Permit noncompliance constitutes a violation of the Clean Water Act (CWA) and the Porter-Cologne Water Quality Control Act and is grounds for (a) enforcement action for (b) General Permit termination, revocation and reissuance, or modification or (c) denial of a General Permit renewal application.

The facility operator shall comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if this General Permit has not yet been modified to incorporate the requirement.

2. General Permit Actions

This General Permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the facility operator for a General Permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any General Permit condition.

If any toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is promulgated under Section 307(a) of the CWA for a toxic pollutant which is present in the discharge and that standard or prohibition is more stringent than any limitation on the pollutant in this General Permit, this General Permit shall be modified or revoked and reissued to conform to the toxic effluent standard or prohibition, and the facility operator so notified.

3. Need to Halt or Reduce Activity not a Defense

It shall not be a defense for a facility operator in an enforcement action that it would have been necessary to halt or reduce the general permitted activity in order to maintain compliance with the conditions of this General Permit.

4. Duty to Mitigate

The facility operator shall take all responsible steps to minimize or prevent any discharge in violation of this General Permit which has a reasonable likelihood of adversely affecting human health or the environment.

5. Proper Operation and Maintenance

The facility operator at all times shall properly operate and maintain any facilities and systems of treatment and control (and related appurtenances) which are installed or used by the facility operator to achieve compliance with the conditions of this General Permit and with the requirements of storm water pollution prevention plans (SWPPPs). Proper operation and maintenance also include adequate laboratory controls and appropriate quality assurance procedures. Proper operation and maintenance may require the operation of backup or auxiliary facilities or similar systems installed by a facility operator when necessary to achieve compliance with the conditions of this General Permit.

6. Property Rights

This General Permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State, or local laws or regulations.

7. Duty to Provide Information

The facility operator shall furnish the Regional Water Quality Control Board (Regional Water Board), State Water Resources Control Board (State Water Board), U.S. Environmental Protection Agency (U.S. EPA), or local storm water management agency, within a reasonable time specified by the agencies, any requested information to determine compliance with this General Permit. The facility operator shall also furnish, upon request, copies of records required to be kept by this General Permit.

8. Inspection and Entry

The facility operator shall allow the Regional Water Board, State Water Board, U.S. EPA, and local storm water management agency, upon the presentation of credentials and other documents as may be required by law, to:

a. Enter upon the facility operator's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this General Permit;

b. Have access to and copy at reasonable times any records that must be kept under the conditions of this General Permit;

c. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment) that are related to or may impact storm water discharge or authorized non-storm water discharge; and

d. Conduct monitoring activities at reasonable times for the purpose of ensuring General Permit compliance.

9. Signatory Requirements

a. All Notices of Intent (NOIs) submitted to the State Water Board shall be signed as follows:

(1) For a corporation: by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (a) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or (b) the manager of the facility if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

(2) For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or

(3) For a municipality, State, Federal, or other public agency: by either a principal executive officer or ranking elected official. The principal executive officer of a Federal agency includes the chief executive officer of the agency or the senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of U.S. EPA).

b. All reports, certifications, or other information required by the General Permit or requested by the Regional Water Board, State Water Board, U.S. EPA, or local storm water management agency shall be signed by a person described above or by a duly authorized representative. A person is a duly authorized representative only if:

(1) The authorization is made in writing by a person described above and retained as part of the SWPPP.

(2) The authorization specifies either an individual or a position having responsibility for the

overall operation of the regulated facility or activity, such as the position of manager, operator, superintendent, or position of equivalent responsibility or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.)

(3) If an authorization is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization must be attached to the SWPPP prior to submittal of any reports, certifications, or information signed by the authorized representative.

10. Certification

Any person signing documents under Provision 9. above shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

11. Reporting Requirements

a. Planned changes: The facility operator shall give advance notice to the Regional Water Board and local storm water management agency of any planned physical alteration or additions to the general permitted facility. Notice is required under this provision only when the alteration or addition could significantly change the nature or increase the quantity of pollutants discharged.

b. Anticipated noncompliance: The facility operator will give advance notice to the Regional Water Board and local storm water management agency of any planned changes at the permitted facility which may result in noncompliance with General Permit requirements.

c. Compliance schedules: Reports of compliance or noncompliance with or any progress reports on interim and final requirements contained in any compliance schedule of this General Permit shall be submitted no later than 14 days following each scheduled date.

d. Noncompliance reporting: The facility operator shall report any noncompliance at the time monitoring reports are submitted. The written submission shall contain (1) a description of the noncompliance and its cause; (2) the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and (3) steps taken or planned to reduce and prevent recurrence of the noncompliance.

12. Oil and Hazardous Substance Liability

Nothing in this General Permit shall be construed to preclude the institution of any legal action or relieve the facility operator from any responsibilities, liabilities, or penalties to which the facility operator is or may be subject under Section 311 of the CWA.

13. Severability

The provisions of this General Permit are severable; and if any provision of this General Permit or the application of any provision of this General Permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this General Permit shall not be affected thereby.

14. Reopener Clause

This General Permit may be modified, revoked, and reissued, or terminated for cause due to promulgation of amended regulations, receipt of U.S. EPA guidance concerning regulated activities, judicial decision, or in accordance with 40 CFR 122.62, 122.63, 122.64, and 124.5. This General Permit may be reopened to modify the provisions regarding authorized non-storm water discharges specified in Section D. Special Conditions.

15. Penalties for Violations of General Permit Conditions.

a. Section 309 of the CWA provides significant penalties for any person who violates a General Permit condition implementing Sections 301, 302, 306, 307 308, 318, or 405 of the CWA, or any General Permit condition or limitation implementing any such section in a General Permit issued under Section 402. Any person who

violates any General Permit condition of this General Permit is subject to a civil penalty not to exceed $25,000 per day of such violation, as well as any other appropriate sanction provided by Section 309 of the CWA.

b. The Porter-Cologne Water Quality Control Act also provides for civil and criminal penalties in some cases greater than those under the CWA.

16. Availability

A copy of this General Permit shall be maintained at the facility and be available at all times to the appropriate facility personnel and to Regional Water Board and local agency inspectors.

17. Transfers

This General Permit is not transferable from one facility operator to another facility operator nor may it be transferred from one location to another location. A new facility operator of an existing facility must submit an NOI in accordance with the requirements of this General Permit to be authorized to discharge under this General Permit.

18. Continuation of Expired General Permit

This General Permit continues in force and effect until a new general permit is issued or the State Water Board rescinds the General Permit. Facility operators authorized to discharge under the expiring general permit are required to file an NOI to be covered by the reissued General Permit.

19. Penalties for Falsification of Reports

Section 309(c)(4) of the CWA provides that any person who knowingly makes any false material statement, representation, or certification in any record or other document submitted or required to be maintained under this General Permit, including reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than $10,000 or by imprisonment for not more than two years, or by both.

FACILITIES COVERED BY THIS GENERAL PERMIT

Industrial facilities include Federal, State, municipally owned, and private facilities from the following categories:

1. FACILITIES SUBJECT TO STORM WATER EFFLUENT LIMITATIONS GUIDELINES, NEW SOURCE PERFORMANCE STANDARDS, OR TOXIC POLLUTANT EFFLUENT STANDARDS (40 Code of Federal Regulations (CFR) SUBCHAPTER N). Currently, categories of facilities subject to storm water effluent limitations guidelines are Cement Manufacturing (40 CFR Part 411), Feedlots (40 CFR Part 412), Fertilizer Manufacturing (40 CFR Part 418), Petroleum Refining (40 CFR Part 419), Phosphate Manufacturing (40 CFR Part 422), Steam Electric (40 CFR Part 423), Coal Mining (40 CFR Part 434), Mineral Mining and Processing (40 CFR Part 436), Ore Mining and Dressing (40 CFR Part 440), and Asphalt Emulsion (40 CFR Part 443).

2. MANUFACTURING FACILITIES: Standard Industrial Classifications (SICs) 24 (except 2434), 26 (except 265 and 267), 28 (except 283 and 285) 29, 311, 32 (except 323), 33, 3441, and 373.

3. OIL AND GAS/MINING FACILITIES: SICs 10 through 14 including active or inactive mining operations (except for areas of coal mining operations meeting the definition of a reclamation area under 40 CFR 434.11(l) because of performance bond issued to the facility by the appropriate Surface Mining Control and Reclamation Act (SMCRA) authority has been released, or except for area of non-coal mining operations which have been released from applicable State or Federal reclamation requirements after December 17, 1990); oil and gas exploration, production, processing, or treatment operations; or transmission facilities that discharge storm water contaminated by contact with or that has come into contact with any overburden, raw material, intermediate products, finished products, by-products, or waste products located on the site of such operations. Inactive mining operations are mined sites that are not being actively mined but which have an identifiable facility operator. Inactive mining sites do not include sites where mining claims are being maintained prior to disturbances associated with the extraction, beneficiation, or processing of mined material; or sites where minimal activities are undertaken for the sole purpose of maintaining a mining claim.

4. HAZARDOUS WASTE TREATMENT, STORAGE, OR DISPOSAL FACILITIES: Includes those operating under interim status or a general permit under Subtitle C of the Federal Resource, Conservation, and Recovery Act (RCRA).

5. LANDFILLS, LAND APPLICATION SITES, AND OPEN DUMPS: Sites that receive or have received industrial waste from any of the facilities covered by this General Permit, sites subject to regulation under Subtitle D of RCRA, and sites that have accepted wastes from construction activities (construction activities include any clearing, grading, or excavation that results in disturbance of five acres or more).

6. RECYCLING FACILITIES: SICs 5015 and 5093. These codes include metal scrapyards, battery reclaimers, salvage yards, motor vehicle dismantlers and wreckers, and recycling facilities that are engaged in assembling, breaking up, sorting, and wholesale distribution of scrap and waste material such as bottles, wastepaper, textile wastes, oil waste, etc.

7. STEAM ELECTRIC POWER GENERATING FACILITIES: Includes any facility that generates steam for electric power through the combustion of coal, oil, wood, etc.

8. TRANSPORTATION FACILITIES: SICs 40, 41, 42 (except 4221-25), 43, 44, 45, and 5171 which have vehicle maintenance shops, equipment cleaning operations, or airport deicing operations. Only those portions of the facility involved in vehicle maintenance (including vehicle rehabilitation, mechanical repairs, painting, fueling, and lubrication) or other operations identified herein that are associated with industrial activity.

9. SEWAGE OR WASTEWATER TREATMENT WORKS: Facilities used in the storage, treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated to the disposal of sewage sludge that are located within the confines of the facility with a design flow of one million gallons per day or more or required to have an approved pretreatment program under 40 CFR Part 403. Not included are farm lands, domestic gardens, or lands used for sludge management where sludge is beneficially reused and which are not physically located in the confines of the facility, or areas that are in compliance with Section 405 of the Clean Water Act.

10. MANUFACTURING FACILITIES WHERE INDUSTRIAL MATERIALS, EQUIPMENT, OR ACTIVITIES ARE <u>EXPOSED</u> TO STORM WATER: SICs 20, 21, 22, 23, 2434, 25, 265, 267, 27, 283, 285, 30, 31 (except 311), 323, 34 (except 3441), 35, 36, 37 (except 373), 38, 39, and 4221-4225.

Attachment 2

STORM WATER CONTACTS FOR THE STATE AND REGIONAL WATER BOARDS

STATE WATER RESOURCES CONTROL BOARD
Division of Water Quality
Attention: Storm Water Permit Unit
P.O. Box 1977
Sacramento, CA 95812-1977
(916) 657-0919 FAX:(916) 657-1011
Contact: Bruce Fujimoto

1)NORTH COAST REGION
Benjamin D. Kor, Executive Officer
5550 Skylane Boulevard, Suite A
Santa Rosa, CA 95403
(707) 576-2220 FAX:(707) 523-0135
Contact: Nathan Quarles

2)SAN FRANCISCO BAY REGION
Loretta Kahn Barsamian, Executive Officer
2101 Webster Street, Suite 500
Oakland, CA 94612
(510) 286-1255 FAX:(510) 286-1380
Contact: Tom Mumley

3)CENTRAL COAST REGION
Roger W. Briggs, Executive Officer
81 Higuera Street, Suite 200
San Luis Obispo, CA 93401-5427
(805) 549-3147 FAX:(805) 543-0397
Contact: Matt Fabry

4)LOS ANGELES REGION
Lawrence P. Kolb, Acting Executive Officer
101 Centre Plaza Drive
Monterey Park, CA 91754-2156
(213) 266-7500 FAX:(213) 266-7600
Contact: Xavier Swamikannu

5S)CENTRAL VALLEY REGION
Sacramento Office
Gary M. Carlton, Executive Officer
3443 Routier Road, Suite A
Sacramento, CA 95827-3098
(916) 255-3000 FAX:(916) 255-3015
Contact: Pamela Barksdale

5R)CENTRAL VALLEY REGION
Redding Branch Office
James C. Pedri, Supervising Engineer
415 Knollcrest Drive
Redding, CA 96002
(916) 224-4849 FAX:(916) 224-4857
Contact: Carole Crowe

5f)CENTRAL VALLEY REGION
Fresno Branch Office
Loren J. Harlow, Assistant Executive Officer
3614 East Ashlan Avenue
Fresno, CA 93726
(209) 445-5116 FAX:(209) 445-5910
Contact: Darrell Evensen

6SLT) LAHONTAN REGION
South Lake Tahoe Office
Harold J. Singer, Executive Officer
2501 Lake Tahoe Boulevard
South Lake Tahoe, CA 96150
(916) 542-5400 FAX:(916) 544-2271
Contact: John Short

6V)LAHONTAN REGION
Victorville Office
Hisam Basqai, Supervising Engineer
15428 Civic Drive, Suite 100
Victorville, CA 92392
(760) 241-6583 FAX:(760) 241-7308
Contact: Tom Rheiner

7)COLORADO RIVER BASIN REGION
Philip Gruenberg, Executive Officer
73-720 Fred Waring Drive, Suite 100
Palm Desert, CA 92260
(760) 346-7491 FAX:(760) 341-6820
Contact: Orlando Gonzalez

8)SANTA ANA REGION
Gerard J. Thibeault, Executive Officer
3737 Main Street, Suite 500
Riverside, CA 92501-3339
(909) 782-4130 FAX:(909) 781-6288
Contact: Michael Adackapara

9)SAN DIEGO REGION
John H. Robertus, Executive Officer
9771 Clairmont Mesa Boulevard, Suite A
San Diego, CA 92124
(619) 467-2952 FAX:(619) 571-6972
Contact: Gloria Fulton

Attachment 3

NOTICE OF INTENT (NOI) INSTRUCTIONS

TO COMPLY WITH STATE WATER RESOURCES CONTROL BOARD WATER QUALITY ORDER NO. 97-03-DWQ NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL PERMIT NO. CAS000001

Who Must Submit

The facility operator must submit an NOI for each industrial facility that is required by U.S. Environmental Protection Agency (U.S.EPA) regulations to obtain a storm water permit. The required industrial facilities are listed in Attachment 1 of the General Permit and are also listed in 40 Code of Federal Regulations Section 122.26(b)(14).

The facility operator is typically the owner of the business or operation where the industrial activities requiring a storm water permit occur. The facility operator is responsible for all permit related activities at the facility.

Where operations have discontinued and significant materials remain on site (such as at closed landfills), the landowner may be responsible for filing an NOI and complying with this General Permit. Landowners may also file an NOI for a facility if the landowner, rather than the facility operator, is responsible for compliance with this General Permit.

How and Where to Apply

The completed NOI form, a site map, and appropriate fee must be mailed to the State Water Resources Control Board (State Water Board) at the following address:

State Water Resources Control Board
Division of Water Quality
P.O. Box 1977
Sacramento, CA 95812-1977
Attn: Storm Water Permitting Unit

Please Note: Do not send the original or copies of the NOI submittal to the Regional Water Quality Control Board (Regional Water Board). The original NOI will be forwarded to the Regional Water Board after processing.

Do not send a copy of your Storm Water Pollution Prevention Plan (SWPPP) with your NOI submittal. Your SWPPP is to be kept on site and made available for review upon request.

When to Apply

Facility operators of existing facilities must file an NOI in accordance with these instructions by March 30, 1992. Facility

operators of new facilities (those beginning operations after March 30, 1992) must file an NOI in accordance with these instructions at least 14 days prior to the beginning of operations.

Once the completed NOI, site map, and appropriate fee have been submitted to the State Water Board, your NOI will be processed and you will be issued a receipt letter with a Waste Discharge Identification (WDID) Number. Please refer to this number when you contact either the State or Regional Water Boards.

Fees

The annual fee is either $250 or $500 depending on the facility location. See page 7 of these directions to determine your fee. Feedlots pay a one time fee of $2,000 for their discharge permit. Checks should be made payable to: SWRCB

The permit fee is waived for facilities that currently pay an annual fee for a National Pollutant Discharge Elimination System (NPDES) permit or Waste Discharge Requirement (WDR) permit (see Section XIII of the NOI).

Change of Information

If the information provided on the NOI or site map changes, you should report the changes to the State Water Board using an NOI form. Section I of the line-by-line instructions includes information regarding changes to the NOI.

Questions

If you have any questions completing the NOI, please call the appropriate Regional Water Board (Attachment 2) or the State Water Board at (916) 657-0919.

NOI LINE-BY-LINE INSTRUCTIONS

Please type or print your responses on the NOI. Please complete the NOI form in its entirety and sign the certification.

Section I--NOI STATUS

Check box "A" if this is a new NOI registration.

Check box "B" if you are reporting changes to the NOI (e.g., new contact person, phone number, mailing address). Include the facility WDID #. Highlight all the information that has been changed.

Please note that a change of information **does not** apply to a change of facility operator or a change in the location of the facility. These changes require a Notice of Termination (NOT) and submittal of a new NOI and annual fee. Contact the State Water Board or Regional Water Boards for more information on the NOT Form and instructions.

Regardless of whether you are submitting a new or revised NOI, you must complete the NOI in its entirety and the NOI must be signed.

Section II--Facility Operator Information

Part A: The facility operator is the legal entity that is responsible for all permit related compliance activities at the facility. In most cases, the facility operator is the owner of the business or operation where the industrial activity occurs. Give the legal name and the address of the person, firm, public organization, or any other entity that is responsible for complying with the General Permit.

Part B: Check the box that indicates the type of operation.

Section III--Facility Site Information

Part A: Enter the facility's official or legal name and provide the address. Facilities that do not have a street address must provide cross-streets or parcel numbers. Do not include a P.O. Box address in Part A.

Part B: Enter the mailing address of the facility if different than Part A. This address may be a P.O. Box.

The contact person should be the plant or site manager who is familiar with the facility and responsible for overseeing compliance of the General Permit requirements.

Part C: Enter the total size of the facility in either acres or square feet. Also include the percentage

of the site that is impervious (areas that water cannot soak into the ground, such as concrete, asphalt, and rooftops).

Part D: Determine the Standard Industrial Classification (SIC) code which best identifies the industrial activity that is taking place at the facility. This information can be obtained by referring to the Standard Industrial Classification Manual prepared by the Federal Office of Management and Budget which is available at public libraries. The code you determine should identify the industrial activity that requires you to submit the NOI. (For example, if the business is high school education and the activity is school bus maintenance, the code you choose would be bus maintenance, not education.) Most facilities have only one code; however, additional spaces are provided for those facilities that have more than one activity.

Part E: Identify the title of the industrial activity that requires you to submit the NOI (e.g., the title of SIC Code 2421 is Sawmills and Planing Mills, General). If you cannot identify the title, provide a description of the regulated activity(s).

Section IV--Address for Correspondence

Correspondence relative to the permit will be mailed occasionally. Check the box which indicates where you would like such correspondence delivered. If you want correspondence sent to another contact person or address different than indicated in Section II or Section III then include the information on an extra sheet of paper.

Section V--Billing Address Information

To continue coverage under the General Permit, the annual fee must be paid. Use this section to indicate where the annual fee invoices should be mailed. Enter the billing address if different than the address given in Sections II or III.

Section VI--Receiving Water Information

Provide the name of the receiving water where storm water discharge flows from your facility. A description of each option is included below.

1. Directly to waters of the United States: Storm water discharges directly from the facility to a river, creek, lake, ocean, etc. Enter the name of the receiving water (e.g., Boulder Creek).

2. Indirectly to waters of the United States: Storm water discharges over adjacent properties or right-of-ways prior to discharging to waters of the United States. Enter the name of the closest receiving water (e.g., Clear Creek).

Section VII--Implementation of Permit Requirements

Parts A and B: Check the boxes that best describe the status of the Storm Water Pollution Prevention Plan (SWPPP) and the Monitoring Program.

Part C: Check yes or no to questions 1 through 4. If you answer no to any question, you need to assign a person to these tasks immediately.

As a permit holder you are required to have an SWPPP and Monitoring Program in place prior to the beginning of facility operations. Failure to do so is in direct violation of the General Permit. Do not send a copy of your SWPPP with your NOI submittal.

Please refer to Sections A and B of the General Permit for additional information regarding the SWPPP and Monitoring Program.

Section VIII--Regulatory Status

In some instances, the facility may be covered under another permit from the State Water Board. If there is a current NPDES or WDR permit for the facility, list the permit number in the space provided (e.g., NPDES Permit CA0000123, WDR No. 96-960). You will not be required to pay the annual fee for the General Permit if you are already paying a fee for an NPDES or WDR permit. If the facility is not covered under a State Water Board permit, then skip to Section IX.

Section IX--Site Map

Provide a "to scale" drawing of the facility and its immediate surroundings. Include as much detail about the site as possible. At a minimum, indicate buildings, material handling and storage areas, roads, names of adjacent streets, storm water discharge points, sample collection points, and a north arrow. Whenever possible limit the map to a standard size sheet of paper (8.5" x 11" or 11" x 17"). **Do not send blueprints** unless you are sending one page and it meets the size limits as defined above.

A location map may also be included, especially in cases where the facility is difficult to find, but are not to be submitted as a substitute for the site map. The location map can be created from local street maps and U.S. Geological Survey (USGS) quadrangle maps, etc.

A revised site map must be submitted whenever there is a significant change in the facility layout (e.g., new building, change in storage locations, boundary change, etc.).

Section X--Certification

This section should be read by the facility operator. The certification provides assurances that the NOI and site map were completed by the facility operator in an accurate and complete fashion and with the knowledge that penalties exist for providing false information. It also requires the Responsible Party to certify that the provisions in the General Permit will be complied with.

The NOI must be signed by:

For a Corporation: a responsible corporate officer (or authorized individual).

For a Partnership or Sole Proprietorship: a general partner or the proprietor, respectively.

For a Municipality, State, or other non-Federal Public Agency: either a principal executive officer or ranking elected official.

For a Federal Agency: either the chief or senior executive officer of the agency.

AREAS OF THE STATE IN WHICH THE $250.00 ANNUAL FEE APPLIES

Alameda County: Except *MIDWAY*

Contra Costa County: Except for the city of *BRENTWOOD*

El Dorado County: The area which drains into LAKE TAHOE

Fresno County: The cities of *CLOVIS* and *FRESNO* (and incorporated islands within the Fresno/Clovis area)

Kern County: The city of *BAKERSFIELD*

Los Angeles County: Except the cities of *AVALON, LANCASTER, PALMDALE; and areas with zip codes 93523, 93534, 93535, 93536, 93543, 93544, 93550, 93551, 93553, 93560, and 93563*

Orange County

Placer County: The area which drains into *Lake Tahoe*

Riverside County: The cities of *AGUANGA, ALBERHILL, ANZA, BANNING, BEAUMONT, CAHUILLA, CALIMESA, CANYON LAKE, CATHEDRAL CITY, CHERRY VALLEY, CHINO, COACHELLA, COLTON, CORONA, DESERT HOT SPRINGS, EDGEMONT, ELSINORE, GILMAN HOT SPRINGS, HEMET, HIGHGROVE, HOMELAND, IDYLLWILD, INDIAN WELLS, INDIO, LA QUINTA, LAKE ELSINORE, LAKELAND VILLAGE, LAKEVIEW, MENIFEE, MIRA LOMA, MORENO, MORENO VALLEY, MOUNTAIN CENTER, MURRIETA, NORCO, NUEVO, PALM DESERT, PALM SPRINGS, PEDLEY, PERRIS, RANCHO MIRAGE, REDLANDS, RIVERSIDE, ROMOLAND, RUBIDOUX, SAGE, SAN JACINTO, SUN CITY, SUNNYMEAD, TEMECULA, THOMAS MTN, WILDOMAR, WINCHESTER, WOODCREST, and VALLE VISTA*

Sacramento County: Except for the city of *ISLETON*

San Bernardino County: The cities of *ALTA LOMA, ANGELUS OAKS, BIG BEAR CITY, BIG BEAR LAKE, BLOOMINGTON, CAJON JUNCTION, CAMP ANGELUS, CHINO, CHINO HILLS, COLTON, CORONA, CUCAMONGA, DEVORE, EAST HIGHLANDS, ETIWANDA, FAWNSKIN, FONTANA, FOREST FALLS, GRAND TERRACE, GUASTI, HIGHLAND, LOMA LINDA, LOS SERRANOS, LYTLE CREEK, MENTONE, MONTCLAIR, MT. BALDY, MUSCOY, NORCO, ONTARIO, POMONA, RANCHO CUCAMONGA, REDLANDS, RIALTO, RUNNING SPRINGS, SAN BERNARDINO, SEVEN OAKS, UPLAND, and YUCAIPA*

San Diego County: Except for the cities of *AGUA CALIENTE SPRINGS, BORREGO, BORREGO SPRINGS, BOULEVARD, DESERT SHORES, DOS CABEZAS, JACUMBA, JULIAN, MOUNTAIN SPRING, OCOTILLO WELLS, and SAN FELIPE*

San Joaquin County: The city of *STOCKTON*

San Mateo County

Santa Clara County: Except for the cities of *BELL STATION, BOLDER CREEK, GILROY, HOLLISTER, MORGAN HILL, SAN FELIPE, SAN MARTIN, SARGENT, and SVEADAL*

Solano County: The cities of *FAIRFIELD* and *SUISUN CITY*

Stanislaus County: The city of *MODESTO*

Ventura County: The cities of *CAMARILLO, FILLMORE, MOORPARK, OJAI, OXNARD, PORT HUENEME, SAN BUENAVENTURA, SANTA PAULA, SIMI VALLEY, and THOUSAND OAKS*

STORM WATER SAMPLING RECORD

APPENDIX H

STORM WATER SAMPLING RECORD

Sampling Date: _____ Sampled By: _____

First Storm of Wet Season (circle one): Y N

Outfall	Outfall Location	Time of Sample	Comments
OF-1	SE corner of facility, discharge from Desilting/Debris Basin 1 to LACOPW culvert 1 and on to the Santa Clara River.		
OF-2E	SE corner of the facility, discharge from Desilting/Debris Basin 2E to LACOPW existing Culvert 2 and & proposed Culvert 2A, and on to the Santa Clara River.		
OF-A	NW corner of facility, discharge from Desilting/Debris Basin A to Bee Canyon and on to the Santa Clara River.		
OF-B	NW corner of facility, discharge from Desilting/Debris Basin B to Bee Canyon and on to the Santa Clara River.		
OF-C	NW corner of facility, discharge from Desilting/Debris Basin C via "blue line" creek to Bee Canyon and on to the Santa Clara River.		
OF-D	SW corner of the facility, discharge from Desilting/Debris Basin D to LACOPW Culvert 4 and on to Santa Clara river.		
OF-F	SW corner facility, discharge from Desilting/Debris Basin F to LACOPW 5 and on to the Santa Clara River.		

Samples are to be analyzed for the following parameters: Total suspended solids (TSS), pH, Specific conductance, Oil and Grease, Nitrate and Nitrite Nitrogen (N+N), and Iron (FE). In addition, if chloride-containing dust palliatives are used at the facility, samples will be analyzed for chloride.

APPENDIX B2

SPILL PREVENTION CONTROL AND COUNTERMEASURES PLAN (West Coast Environmental 1997)

WEST COAST
ENVIRONMENTAL

SPILL PREVENTION, CONTROL, and COUNTERMEASURES PLAN

Transit Mixed Concrete - Soledad Canyon Facility
12101 Soledad Canyon Road
Canyon Country, CA

Draft Plan for Proposed Project
Version 2

Original Issued:	July, 1992
Figures Revised:	June, 1993
Revised:	June, 1997

Prepared For:	Transit Mixed Concrete Company 12101 Soledad Canyon Road Canyon Country, California
Prepared By:	West Coast Environmental 4253 Transport Street, Suite A Ventura, California 93003 (805) 644-7976

TR110-5

4253 Transport St., Suite A
Ventura, California 93003
Phone 805/644-7976
Fax 805/644-5929

SPILL PREVENTION CONTROL & COUNTERMEASURES PLAN

CERTIFICATION STATEMENT

1. Name of facility: Transit Mixed Concrete Company - Soledad Canyon Facility

2. Type of facility: Construction Sand and Gravel Mining and Processing, and Ready Mixed Concrete Production

3. Location of facility: 12101 Soledad Canyon Road
Canyon Country, CA 91351

4. Name and address of owner or operator:

Name	Transit Mixed Concrete Company
Address	1201 W. Gladstone, P.O. Box 575 Azusa, CA 91702-0575 Telephone: 818-812-7955

5. Designated person(s) accountable for oil spill prevention at facility:

Name and title: **Brian Mastin - Environmental Affairs Manager**

To be named - Plant Manager

6. Facility experienced a reportable oil spill event during the twelve months prior to this report or update. (If YES, complete a spill report per Section 6.0). **NO**

MANAGEMENT APPROVAL

This SPCC Plan will be implemented as herein described.

Signature _____

Name To be Named - Plant Manager

CERTIFICATION

I hereby certify that I have examined the facility, and being familiar with the provisions of 40 CFR, Part 112, attest that this SPCC Plan has been prepared in accordance with good engineering practices.

Carolyn Means Casavan
Printed Name of Registered Professional Engineer

(Seal)

_____
Signature of Registered Professional Engineer

Date: _____ Registration No.: 4562 State: CA

TRANSIT MIXED CONCRETE COMPANY- SOLEDAD CANYON FACILITY
SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN

June 1997

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TRANSIT MIXED CONCRETE COMPANY- SOLEDAD CANYON FACILITY
SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN

June 1997

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   - California Storage Statement Format
   - State Regulations (Aboveground Petroleum Storage Act)
   - Federal Regulations (40 CFR Part 112 - Oil Pollution Prevention)

WEST COAST
ENVIRONMENTAL

4253 Transport Street, Suite A
Ventura, California 93003
Phone 805/644-7976
Fax 805/644-5929
main@wcenviro.com

TRANSIT MIXED CONCRETE COMPANY
SOLEDAD CANYON FACILITY

SPILL, PREVENTION, CONTROL, AND COUNTERMEASURE PLAN

June 1997

1.0 EXECUTIVE SUMMARY

This Spill Prevention, Control and Countermeasures Plan (SPCC) has been prepared for a planned facility to be operated by Transit Mixed Concrete Company (TMC) at 12101 Soledad Canyon Road, Los Angeles County, California. The plan has been prepared according to the requirements of 40 CFR, Part 112 and California H&S Code, Chapter 6.67, §25270.

The purpose of the SPCC Plan is to identify procedures and controls for aboveground storage tanks (AST's) that prevent and minimize the release of petroleum products to navigable waters or adjoining shorelines. This plan covers the storage of diesel, hydraulic oil, motor oil, and waste oil in aboveground storage tanks with capacities of greater than 55 gallons. No underground tanks are planned for the facility.

Drum storage of hazardous materials will be covered in detail by the Soledad Canyon Facility Hazardous Materials Management Plan (to be developed during construction). A spill response, containment and clean up plan for hazardous material storage areas has been included in this document to demonstrate planned practices. The type of materials expected include solvents and cleaners.

The SPCC Plan covers all AST's planned for the facility. Because this document has been prepared in the early stages of facility design, some changes are possible before the design is finalized. The SPCC will be amended to reflect any significant changes that may occur as the project is completed.

Contents	No. of Tanks	Size Range
Diesel	2	6,000 - 10,000 gal.
Waste Oil	1	1,000 gal.
Fresh Motor Oil	3	250 - 1,000 gal.
Hydraulic Fluid	1	1,000 gal.

A summary of SPCC requirements appears on the following pages and should be distributed to each supervisor at the location.

SUMMARY OF SPCC REQUIREMENTS
June 1997
To be distributed to personnel at each tank location

The Transit Mixed Concrete Company is required to comply with federal and state regulations regarding Spill Prevention, Control and Countermeasures for all above ground storage tanks (AST) which are used to store fuels and other petroleum products. The purpose of the SPCC plan is to prevent spills from entering storm drains, waterways and soil. The following is a summary of general compliance requirements which relate to the operations. A complete copy of the plan is located in the Plant Manager's office.

Spill Response

The person first noticing a spill should:

1) Shut off all sources of ignition and clear the area.
2) Try to stop the leak and contain the spill if possible to do so safely.
3) Notify your supervisor as soon as possible.
4) Refer to Spill Contingency Plan for further actions.

All spills must be reported to the supervisor. The supervisor will notify the Plant Manager. The Technical Services Manager or the Plant Manager will notify outside agencies.

Leaks and Malfunctions

Any signs of leakage such as staining at fittings, on the underside of the tank or in the containment area must be reported to the Maintenance Supervisor. The Maintenance Supervisor will ensure that leaks are repaired and that oil or oily residues are removed. Malfunctions of valves, pumps, etc. must also be reported to the Maintenance Supervisor.

Rainwater Accumulation

Do not remove rainwater from the containment area. Rainwater accumulation may be removed only by authorized personnel from the Maintenance Department. To have rainwater removed call the Maintenance Supervisor.

Inspection

For each area with an AST, the Maintenance Supervisor will assign someone to inspect the tank and containment area daily for signs of leakage or rainwater accumulation. The containment area should also be kept free of rags, twigs, trash, etc. Report any signs of leakage or other problems to the Maintenance Supervisor.

Changes

Any changes in usage must be reported to the Plant Manager. This includes changing tank contents, adding new tanks, discontinuing use or replacing existing tanks.

Training

Only properly trained personnel should participate in drainage of accumulated rainwater or oversee fuel truck unloading. Notify the Maintenance Supervisor if either operation is required.

Record Keeping

All records (inspections, leaks, inventory, etc.) must be kept on-site for three years.

2.0 GENERAL INFORMATION

2.1 Purpose and General Requirements of Plan

The Soledad Canyon Aggregate and Ready Mixed Concrete Facility Oil Spill Prevention, Control, and Countermeasures (SPCC) Plan has been prepared to meet the requirements of the following:

- Title 40, Code of Federal Regulations (CFR), Part 112;
- California H&S Code, Chapter 6.67, §25270 - Aboveground Petroleum Storage Act (1989);

The purpose of this plan is to identify procedures and controls to prevent accidental releases of petroleum products which are stored above ground and to minimize the impact if a release does occur. The above state and federal regulations are concerned with the prevention and minimization of oil pollution on the shores of, or into, navigable waters of the United States. Included in this SPCC Plan are:

1. Facility, Tank, and Personnel Information.
2. Spill Prevention Measures.
3. Spill Response and Contingency Procedures.
4. Release Notification Procedures.
5. Inspection and Record Keeping Requirements.

Some recommendations are also based on the 1991, Uniform Fire Code, Article 79, Division V - Stationary Tank Storage, Aboveground, Outside of Buildings.

State "Storage Statement": The State of California requires written notification or a Storage Statement from any facility operating Aboveground Storage Tanks (AST) if a single tank exceeds 660 gallons and cumulative capacity is greater than 1,320 gallons. Include the name, address, and contact person for the facility. The Storage Statement is due by July 1, of every even numbered year, beginning with 1990. See Appendix F for format and details on where to file and any applicable fees.

Update Requirements: All additions, changes or deletions made to the SPCC Plan as a result of changes in equipment, policy or regulatory agency requirements must be recorded. The SPCC Plan shall be amended whenever one of the following occurs:

- A spill or leak has occurred and review of the plan by the Environmental Protection Agency (EPA) reveals the need to revise the plan. The SPCC Plan must be submitted to the EPA, with a spill report, within 60 days of a discharge of more than 1,000 gallons into navigable waters. See Section 6.3 for reporting requirements and formats. Notification procedures are further discussed in Section 6.0.

- Whenever there is an AST design, operation, or maintenance change. Amendments shall be implemented no later than six months after changes occur.
- A review and evaluation of the SPCC Plan must be conducted once every three years. Amendments shall be included within six months of review if more effective prevention and control technology will significantly reduce the likelihood of a spill and has been field proven. (per 40 CFR 112.5 (a-c))

No amendment to the SPCC Plan shall be effective unless certified by a Registered Professional Engineer in accordance with 40 CFR 112.3 (d).

Record Keeping: All records (i.e. inspections, leaks, inventory, etc.) must be kept for a minimum of three years.

2.2 Facility Information

Transit Mixed Concrete Company
Soledad Canyon Aggregate and Ready Mixed Concrete Facility
12101 Soledad Canyon Road
Canyon Country, California, 91351
Primary SPCC Contact: Plant Manager

Setting / Distance to Surface Water:

The Soledad Canyon Aggregate and Ready Mixed Concrete Facility is located in Los Angeles County, approximately 30 miles north of Los Angeles near the city of Santa Clarita, California as illustrated in Figure 1. The Soledad Canyon Facility lies in Soledad Canyon adjacent to the Santa Clara River and include portions of Sections 9, and 16, Township 4N, Range 14W. The facility includes 460 acres of land leased from the BLM and 40 acres leased from the C.A. Rasmussen Company. Operations at the site will include: sand and gravel mining, rock processing including crushing and screening, concrete batching, vehicle fueling, and vehicle maintenance.

For the tanks discussed in this plan, spilled material from a major leak which breeches secondary containment would collect in low areas near the tank or flow from the fueling pads into Desilting / Debris Basin 1 or 2 (see the topographic map in Figure 2). However, during the rainy season, spilled material could travel farther and could be discharged to navigable waters (the Santa Clara River). However due to the design of the secondary containment an uncontained spill is unlikely.

2.3 Organizational Responsibilities

The **Plant Manager** will be responsible for:

1. Implementing the SPCC plan and ensuring that it is updated as necessary.
2. Central record keeping for the plan as outlined in Section 4.1.
3. Responding to spills, coordinating cleanup and notifying and interfacing with outside agencies, as necessary.
4. Submitting Storage Statements by July 1, of every even numbered year.
5. Ensuring that all tanks and containment areas are upgraded to meet the standards of the plan.
6. Annual inspections.
7. Ensuring that rainwater is removed promptly and properly handled.
8. Ensuring that personnel have received training appropriate to their responsibilities.

The **Maintenance Supervisor** will be responsible for:

1. Bi-weekly inspections.
2. Tank maintenance, repair, and upgrades.
3. Inspection of the containment systems for rainwater accumulation and removal as necessary.
4. Training personnel in inspection, maintenance, and repair procedures and safety.
5. Maintaining inspection, maintenance/repair, rainwater removal and training records.
6. Ordering fuel.
7. Ensuring that fueling operations are supervised by TMC personnel trained in delivery operations.
8. Maintaining inventories and training records.
9. Reporting inventory discrepancies and unusual events to the Plant Manager.

10. Initial spill response to contain the spill and secure the area.

11. Reporting all spills to the Plant Manager.

2.4 Basic Tank Information

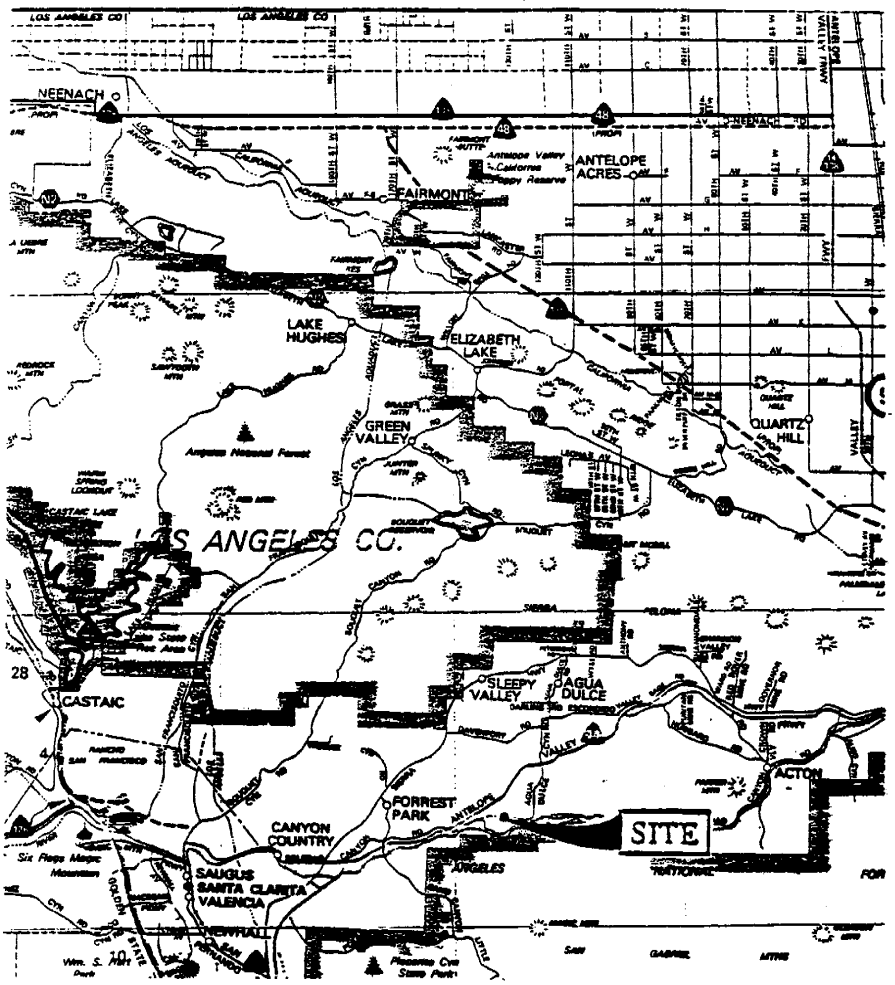
A total of 7 aboveground storage tanks (AST's) will be operated at the location. These tanks require spill prevention, control and countermeasures planning per the California Aboveground Petroleum Storage Act and the Federal Clean Water Act. The tanks are summarized in Table 1, while the approximate location of each tank on the site is illustrated in Figure 2.

Figure 3 illustrates a typical fuel island configuration and Figure 4 indicates the appropriate tank locations at the maintenance building.

TABLE 1: Active Aboveground Storage Tank Summary

Tank No.	Location	Capacity (gallons)	Contents	Year Installed (planned)
FUEL TANKS				
1.0	Main Plant Fuel	10,000	Diesel	1997
2.0	Batch Plant Fuel	6,000	Diesel	1997
WASTE-OIL TANKS				
3.0	Maintenance Building	1,000	Waste-Oil	1997
OTHER ABOVEGROUND TANKS INCLUDED IN SPCC PLAN				
4.0	Maintenance Building	1,000	Fresh Motor Oil	1997
5.0	Maintenance Building	1,000	Fresh Hydraulic Oil	1997
6.0	Main Fueling Island	250	Fresh Motor Oil	1997
7.0	Batch Plant Fueling Island	250	Fresh Motor Oil	1997

As the facility is still in the permitting stage, specific equipment has not been selected yet. Equipment will be selected to conform with this plan and the manufacturer specifications will be included in Appendix D.



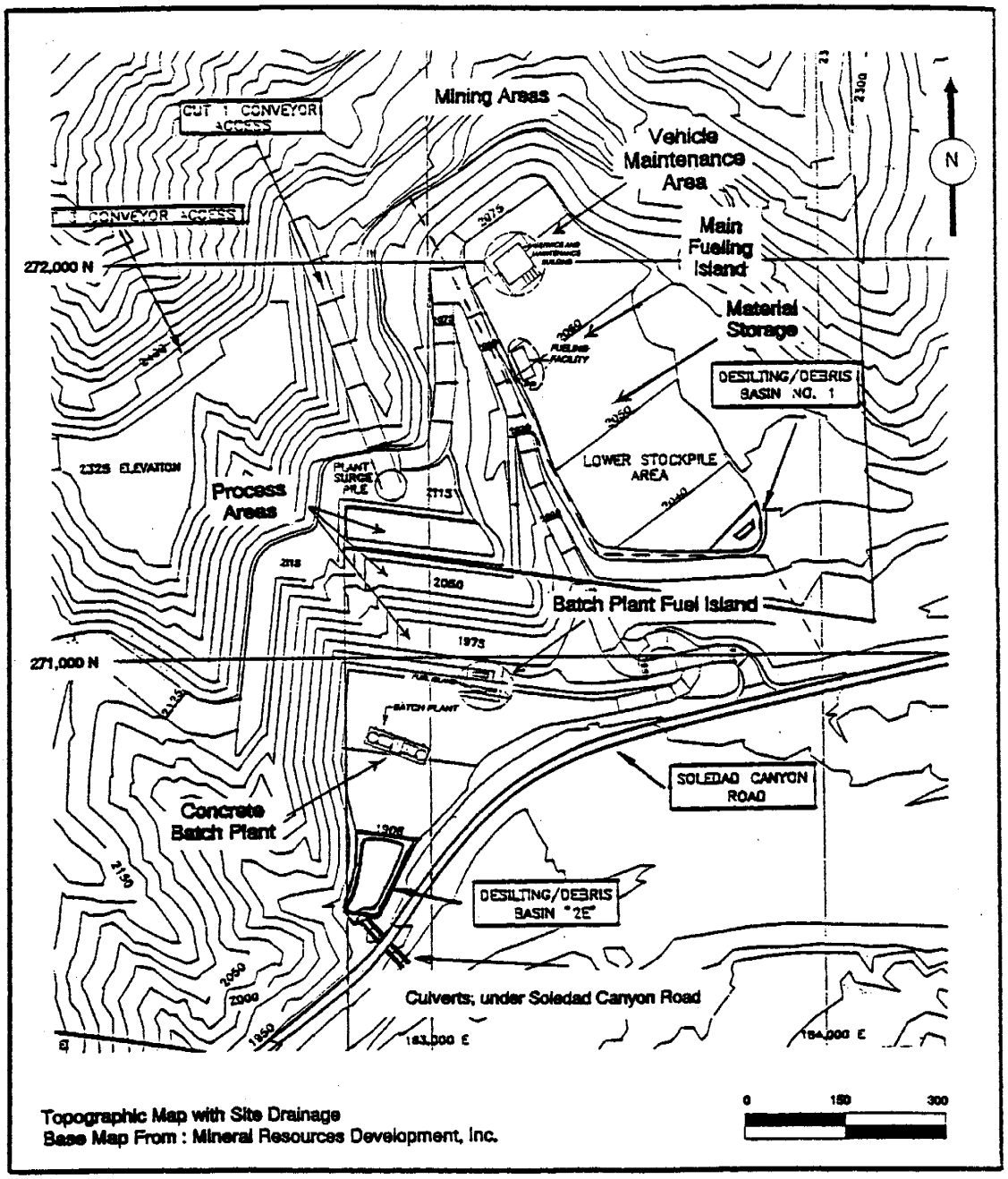
SITE VICINTY MAP

MILES 0 2.5 5 10
KILOMETERS 0 2.5 5 10

Approximate Scale

Drawing Taken From: Thomas Bros. Maps, Page 89, Road Atlas & Driver's Guide, CA.

West Coast Environmental Inc.	Transit Mixed Concrete Company Soledad Canyon Project 12101 Soledad Canyon Road Los Angeles County, CA.	Figure 1 July 1993



Topographic Map with Site Drainage
Base Map From : Mineral Resources Development, Inc.

West Coast Environmental Inc.	Transit Mixed Concrete Company Soledad Canyon Project 12101 Soledad Canyon Road Los Angeles County, CA.	Figure 2 July 1993

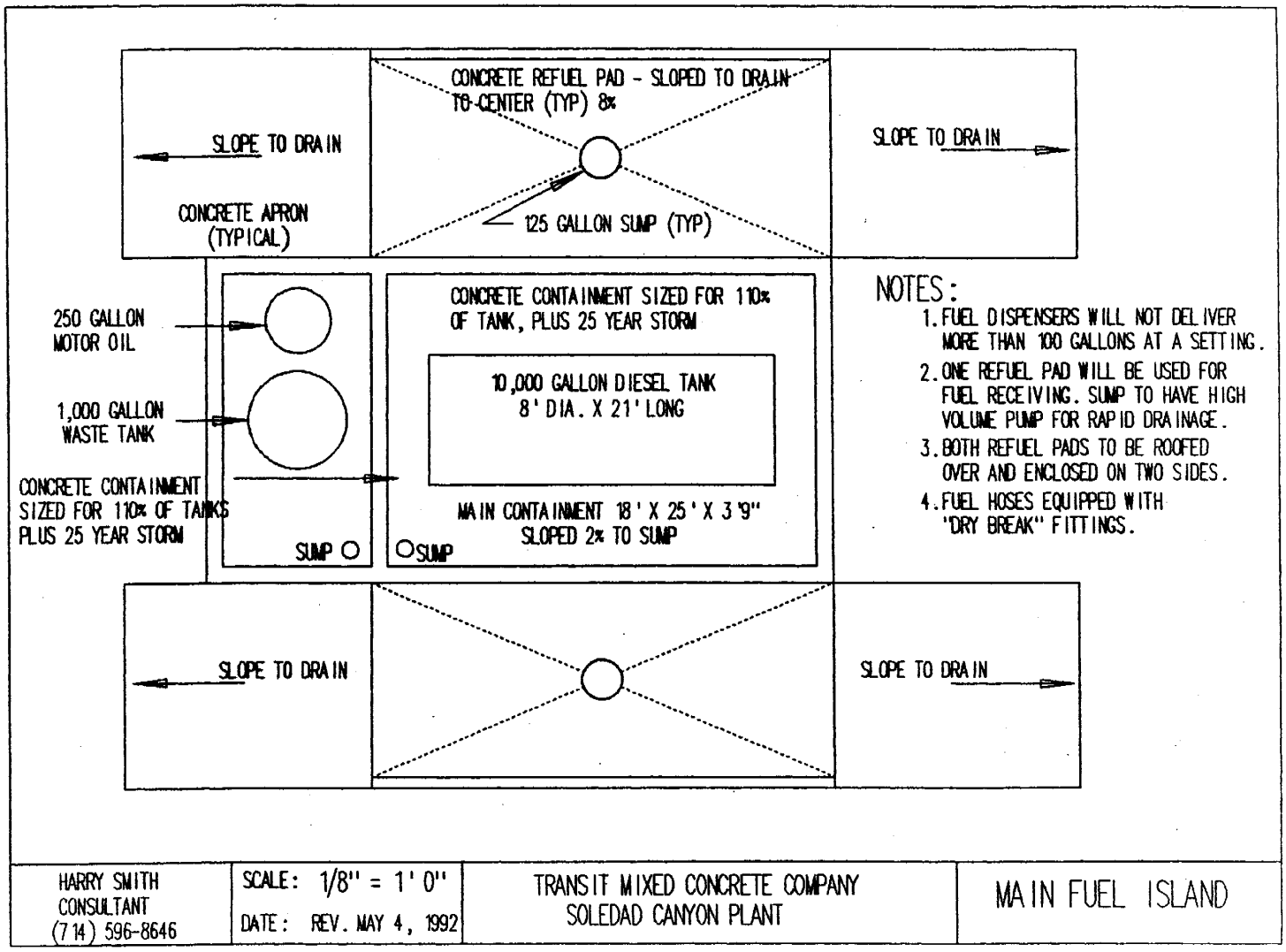
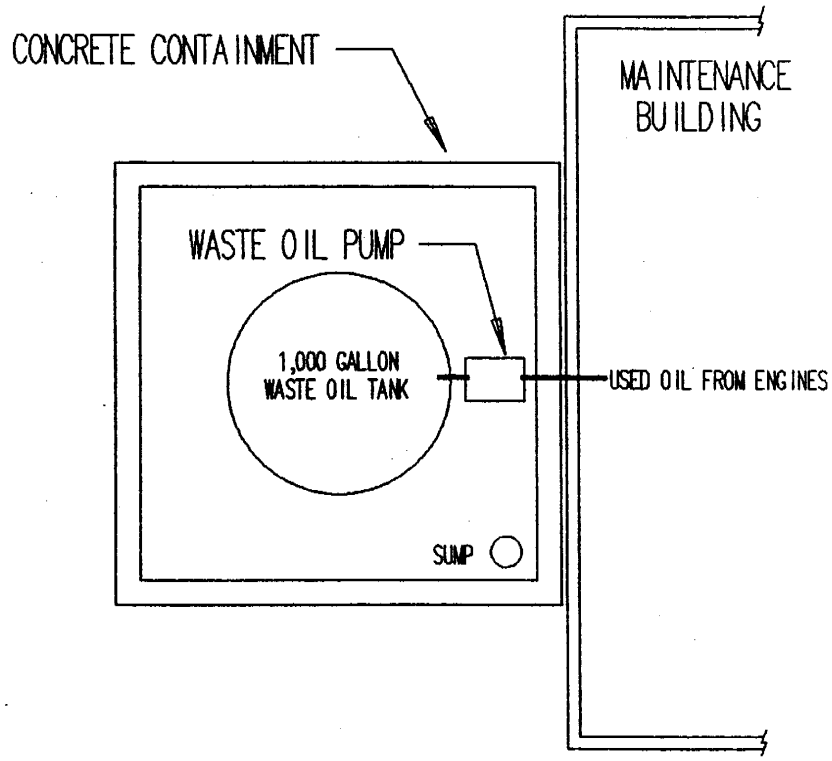


FIGURE 3: Fuel Island Configuration

NOTES:

1. CONTAINMENT SIZED FOR 125% OF TANK CAPACITY PLUS 25 YEAR STORM.
2. USED OIL WILL BE PUMPED DIRECTLY TO THE WASTE OIL TANK FROM ENGINE SUMPS.
3. TANK WILL BE EQUIPPED WITH HIGH LEVEL ALARM.
4. TANK MAY BE ROOFED OVER TO EXCLUDE RAIN WATER. IF NOT, A MANUAL DRAIN WILL BE PROVIDED IN THE CAONTAINMENT.



HARRY SMITH CONSULTANT (714) 596-8646	SCALE: 1/4" = 1' 0" DATE: MAY 13, 1992	TRANSIT MIXED CONCRETE COMPANY SOLEDAD CANYON PLANT	WASTE OIL TANK

FIGURE 4: Waste Oil Tank Configuration

3.0 TANK CONFIGURATION

The following guidelines will be used in the installation of all tanks at the facility. A detailed outline of AST configuration requirements is contained in Appendix E. Figure 3 is a general configuration of the main fuel island. The batch plant fuel island will be similar, however the diesel tank will be smaller (6,000 gallons). Figure 4 shows the configuration of the tanks located at the maintenance building.

3.1 Leak Detection: Leak detection from the primary tank and the secondary containment will be by visual inspection for single-wall, steel tanks. Records will be kept to document the frequency of inspection as described in Section 4.3.

3.2 Spill Containment Design: The following are general guidelines for spill containment system design. The final design must be certified by a registered professional engineer.

Capacity - For open areas which are not protected from rainfall, the capacity of the spill containment system must be equal to the volume of the largest tank, plus enough freeboard to contain a 24 hour, 25 year storm. The current 24 hour, 25 year maximum rainfall for the Soledad Canyon area is 6.67". Therefore, no matter what the area of the containment system, at least 6.67" must be added to the height for rainfall containment. 100% of the largest tank volume plus 7" will be the standard for open systems containing 1-10 tanks. For systems protected from rainfall, the standard will be 120% of the largest tank volume (1-10 tanks). For systems with more than 10 tanks (or drums) the basis for the standard will be 10% of the aggregate or 100% of the largest container, whichever is greater.

Size - The containment system must contain the tank shutoff valve. If the height of the berm prevents easy access to the tank, the tank shutoff valve must be located within reach from outside the berm or an extension handle must be provided. For tanks greater than 5 feet in diameter there must be a distance of 5 feet from the tank sides and of 2 feet from the tank ends to the spill containment walls, to allow for access to the tank.

Materials of Construction - Containment systems may be constructed of poured concrete, concrete floor with concrete block walls or steel. Poured concrete systems must be designed by a registered civil or structural engineer. A concrete block wall system must be sealed with an impermeable coating. Steel systems must be liquid tight and should be coated with a rust prevention coating. All systems must be repaired promptly, when cracks or deterioration occur. Poured concrete systems may be coated to facilitate cleanup in the event of a spill.

Drainage - In order to maximize liquid removal, wherever possible, the floor of the containment system should be graded to an 8" x 8" X 5" sump.

3.3 Signs, Labels, Warnings: A minimum of the following signs and warnings will be in place on each AST or at the AST location. Signs and warnings will vary with the material stored.

		SIGN REQUIRED
Diesel Storage:	1. Contents of the AST:	"DIESEL No.2"
	2. No Smoking Warning:	"NO SMOKING - WITHIN 50 FEET"
	3. Stability Warning:	"COMBUSTIBLE"
	4. NFPA Warning Label:	"H=2, F=2, R=0, S/N"
Waste-Oil:	1. Contents of the AST:	"WASTE-OIL" "HAZARDOUS WASTE"
	2. No Smoking Warning:	"NO SMOKING - WITHIN 50 FEET"
	3. Stability Warning:	"COMBUSTIBLE"
	4. NFPA Warning Label:	"H=1, F=1, R=0, S/N"
	5. Hazardous Waste Label	
Hydraulic-Oil:	1. Contents of the AST:	"HYDRAULIC-OIL"
	2. No Smoking Warning:	"NO SMOKING - WITHIN 50 FEET"
	3. Stability Warning:	"COMBUSTIBLE"
	4. NFPA Warning Label:	"H=1, F=1, R=0, S/N"

The following labels and identifications are recommended:

5. Emergency Shut-Off should be clearly marked.
6. Mark tank "IF TANK LEAKS - CALL XXX-XXXX"
7. Volume of the tank in gallons

Lettering Requirements:

* Letters a minimum of 3" high with a stroke width of ½".
* Gasoline: red letters on white background.
* Diesel : red or black letters on yellow background.
* Waste-oil: may be red on yellow or white on black.
* Hydraulic-oil: may be red on yellow or white on black.

3.4 Valves and Piping: An emergency shut-off valve will be located as close to the tank as possible. Any connections to an AST, located below the normal liquid level, will have control valves located as close to the tank body as practical. External valves and their connections to the tank will be made of steel. Corroded and leaking valves will be repaired or replaced promptly.

Piping will be made of corrosion resistant materials. Long piping runs will be adequately supported and secured to avoid fatigue in the pipe and pipe joints. All piping runs will be protected by traffic crash posts or the containment itself. Corroded or leaking piping will be replaced promptly.

3.5 Fail-Safe Engineering Measures: High level alarms will be installed on tanks which are filled by tanker trucks or by pumps. Measures will also be installed to prevent siphoning, if suction is from the top of the tank. This may be done by installing a fail-closed solenoid valve in the suction line above the maximum liquid level in the tank. The solenoid valve would then be activated "open" only when the fueling pump is on.

3.6 Equipment for Transfer Operations: Tank trucks delivering fuel will be equipped with automatic shutoff overflow nozzles to avoid overfilling spillage.

3.7 Prevention and Response Equipment/Materials: Tanks will be placarded with telephone numbers to call in case of a spill or leak (see Section 3.3 above). Each tank location will be provided with absorbent pigs to contain small spills. Also, sand will be stockpiled in areas adjacent to each tank for use in containing and absorbing any spill that may occur.

3.8 Security Measures: Fencing is not required for each tank location. Crash posts will be installed around AST's and dispensing equipment exposed to traffic to prevent accidents from collisions. Locking filler caps are recommended and adequate lighting will be provided for all tanks.

3.9 Tank Supports and Anchors: Tanks above grade must be securely supported on concrete, masonry, or steel, which can resist fire for 2 hours. Combustible materials such as wood should not be used. The AST must be secured to the support structure and the support structure must be anchored to the containment floor. To minimize corrosion, it is recommended that steel supports be mounted on 1.5 inch high concrete footings to raise the supports above the floor of the containment system. Stairs, platforms, and walkways must also be made of noncombustible material.

All AST support structures will be reviewed for seismic stability by a registered civil or structural engineer and will conform with the applicable UBC regulations as adopted by Los Angeles County for seismic restraint design to prevent spills.

4.0 OPERATIONS AND PROCEDURES

4.1 Record Keeping

Plant Operations - As the central record keeping department, Plant Operations will maintain copies of all pertinent SPCC records, including copies of Maintenance Department records as noted below:

Plans	Copies of updated and outdated plans, a log of plan updates and the plan distribution list.
Changes	A log will be kept of all changes in tank usage, upgrades, replacement or removal of tanks and the addition of new tanks. These changes will be incorporated into the plan as part of the annual update.
Training	Copies of training records for all personnel associated with the plan.
Spills	All spills must be documented. Notification, response, mitigation, analysis and follow up records will be maintained for a period of 3 years.
Fuel Use	Copies of fuel purchase records for monthly totals, spills during deliveries, unusual events and training will be maintained.
Maintenance	Copies of the biweekly inspection reports, training records and the annual repairs and maintenance log.

Maintenance Department - The Maintenance Department will maintain all records relating to fuel deliveries and inventories. Copies will be sent to Plant Operations as noted below.

Daily	Fuel delivery and truck/equipment dispensing logs. Inspection and Preventative Maintenance Records (see Appendix C)
Biweekly	Biweekly inspection logs will be kept for a period of three years, with copies sent to Plant Operations.
Monthly	Inventory and throughput totals, with copies sent to Plant Operations.
Rainwater	A log will be kept regarding rainwater inspections, removal and disposition.
Other	Maintenance will keep a record of any spills during deliveries, inventory discrepancies and other unusual events and a copy sent to Plant Operations.

Training	Records will be kept for each operator showing type of training and dates. Copies should be sent to Plant Operations.
Work requests	Maintenance will maintain copies of completed work requests for tank repairs and preventative maintenance records.
Maintenance	A log will be kept of repairs and maintenance performed on each tank. A copy of the log will be sent to Plant Operations annually.

4.2 Training

Fuel delivery	Fuel receiving and dispensing personnel will receive safety and fuels handling training. A written copy of the training program will be kept with the SPCC plan when completed. Training records will be kept by Plant Operations. Receiving personnel will also request training certification for all drivers delivering fuel to the facility.
Inspections	Inspection personnel will receive training in inspection procedures and fuels safety for above ground tank inspections. Records will be maintained by Maintenance with copies sent to Plant Operations.
Spill response	Maintenance personnel will receive training in initial spill response, fire safety, and spill containment. Plant Operations personnel will receive training in spill response, spill cleanup, hazardous waste disposal, and agency notification requirements. One person on each shift will receive a list of people to notify in case of a spill or problem.
Maintenance	Maintenance personnel will receive training in fuels safety, spill prevention during maintenance operations, and repair and maintenance procedures.

In addition, training should include a review of the following:

- Spill Prevention Control & Countermeasure Plan
- Hazard Identification (MSDS's, etc.)
- Personal Protective Equipment (PPE) and use of response equipment
- Spill response activity training (drills)

4.3 Inspection and Preventative Maintenance Procedures

Biweekly	Above ground fuel tanks will be inspected biweekly for signs of leakage and containment decay (see Biweekly Inspection Log in Appendix C). These inspections will be conducted by the Maintenance Department.
Semi-Annual	Every 6 months, the fuel supply delivery tank trucks should be spot checked for compliance and for accuracy of fuel delivery measurement systems.
Annual	Tanks will be inspected annually, in the month of July (see Annual Inspection Report Form in Appendix C). These inspections will be done by the Maintenance Department. Annual preventative maintenance will be done in the month of June and will include fuel filter replacement, line checks, and alarm testing.
Daily	The supervisor for each area will assign someone to inspect the tank and containment area daily for signs of leakage or rainwater accumulation. The containment area should also be kept free of rags, twigs, etc.

Signs of leakage such as staining at fittings, on the underside of the tank or in the containment area must be reported to the Maintenance Supervisor. The Maintenance Supervisor will ensure that leaks are repaired and that oil or oily residues are removed. Malfunctions of equipment, valves, pumps, etc. should also be reported to the Maintenance Supervisor.

4.4 Rainwater Accumulation

The Maintenance Department will be responsible for having rainwater removed from the tank containment systems. Only trained, authorized personnel will be allowed to remove rainwater. A log will be kept of the removal and disposition of rainwater collected from each tank containment system.

During the rainy season, tank containment systems will be inspected by the Maintenance Department after each rainstorm or daily, as needed. On a normal basis, rainwater will be removed from the containment systems within 24-72 hours of the onset of rain. During heavy rainstorms, rainwater must be removed every 24 hours.

Removal procedures:

If there is no sheen, the rainwater may be discharged to surrounding area. If a drain valve is used, the valve should be closed and locked when discharge is completed. If a pump is to be used, the pump must be clean.

If there is a sheen, the clear rainwater may be discharged to the surrounding area up to the sheen, if it is possible to do so. If a drain valve is used, the valve must be closed and locked when discharge is completed. If a pump is to be used, the pump must be clean. The remaining rainwater must be pumped from the containment area and taken to a separator/storage tank or sent off-site for recycle.

If the tank or containment system shows signs of fuel leakage, the rainwater must be pumped from the containment area and into a separator/storage tank or sent off-site for recycle.

Water contaminated with small amounts of diesel fuel or waste oil may be taken to a portable separator. Water contaminated with significant amounts of diesel fuel or waste oil must be sent off-site for recycle unless otherwise approved by Plant Manager.

All rainwater removal activities must be recorded on the log sheets provided in Appendix C.

5.0 SPILL AND LEAK RESPONSE PROCEDURES AND EQUIPMENT

These spill response procedures provide guidelines for use by those on duty to respond to diesel, motor oil, hydraulic oil, or waste-oil releases. They are not meant to supplant the use of common sense and good judgement during emergencies.

5.1 Response Team Member's Responsibilities

Plan Coordinator: Plant Manager

- In charge of overall incident response.
- Initiates emergency response by calling 911 or other emergency numbers as required.
- Notifies Transit Mixed operations of the incident.
- Coordinates with outside Emergency Response and provides technical information.
- Reports emergency incidents to appropriate agencies.

Alternate Coordinator: Maintenance Supervisor
Alternate Coordinator: Lead operator

- Direct response team activities.
- Insure employee and visitor safety in the event of an evacuation.
- Assume the Plan Coordinator's responsibilities, if he is not available.
- Insure proper handling of waste generated during emergency incidents.

Spill Responders:

- Where safe to do so, close all valves which may stop flow of spill.
- Report spill to Plant Manager or supervisor.
- Contain spill through diking with materials on-hand (sand), if directed to do so.
- Conduct containment and cleanup activities as directed by Plan Coordinator or Alternate Coordinator.

Off-Site Management: Technical Services Manager

- Authorize non-emergency cleanup measures.
- Ensure compliance with applicable federal, state, and local rules and regulations.

5.2 General Spill Response Procedures

In the event of a spill or leak from any of these tanks, the following procedures should be followed where applicable and where safe to do so.

_____ **STOP FLOW** - If it is safe to do so, close the main shutoff valve of the tank or truck and shut off all pumps.

_____ **ALERT OTHERS** in the area to stay clear and shut off all nearby sources of ignition.

_____ **NOTIFY PLANT MANAGER** - As soon as it is safe to do so, notify the Maintenance Manager or Alternate Coordinator, of the incident.

_____ **CONTAIN SPILL** - If spills occur outside the containment area or may be released from the containment area, place sand into position to contain the spill on company property. (Dike runoff channels, etc.)

Once flow is stopped and spill has been contained the following should be done:

_____ **NOTIFY OFFSITE MANAGEMENT** of the spill and the current status of the response.

_____ **NOTIFY APPROPRIATE AGENCIES** of the spill as outlined in Section 6.0.

_____ **PUMP FREE LIQUID** using vacuum trucks and transport to a licensed recycler.

_____ **ANALYZE AND PROPERLY DISPOSE** of contaminated cleanup materials (i.e. sand) as required.

_____ **CLEAN SECONDARY CONTAINMENT** structures as needed to remove any spilled material and properly dispose of rinsate.

5.2.1 Communication Equipment

Facility communications equipment will consist of telephones and company radio to alert and notify personnel and agencies.

5.2.2 Internal Response Equipment

- 3 Front-end loaders, 1 bulldozer, 1 bobcat, haul trucks, and 1 water truck
- Stockpiled sand
- Fire hydrants

5.2.3 External Response Equipment

- Vacuum trucks and fuel tanker trucks as specified in Sections 5.4-5.7.

5.3 Spill Response Implementation Procedures

1. The person discovering the spill will notify their Supervisor.
2. If the spill is serious or involves fire the Supervisor will call 9-1-1 immediately!
3. The Supervisor will notify the Plan Coordinator and take charge until the Plan Coordinator or Alternate Coordinator arrives.
4. The Plan Coordinator or Alternate Coordinator will take charge of the situation.

Plan Coordinator Task Completion Sheet

These tasks will be initiated by the Plan Coordinator during an incident as necessary.
GIVE THIS FORM TO EMERGENCY RESPONDERS UPON ARRIVAL AT THE FACILITY.

Completed

_____ Record date and time incident was reported:
Date:_____
Time:_____

_____ Identify nature and extent of incident:
_____

_____ Activate internal facility alarms or communication systems.

_____ Secure all emergency shut-off valves (as required).

_____ Notify the Fire Department **(Call 911)**.

_____ Designate an employee to direct response units to the incident scene.

_____ Initiate pre-arranged mitigation and evacuation plans.

_____ Account for all evacuated personnel.

_____ Initiate internal company notifications.

_____ Have resource material available for use by responding agencies (maps, drawings, Material Safety Data Sheets, etc.).

_____ Secure the incident scene to include treatment, storage or disposal of hazardous materials or waste involved.

_____ Other actions taken to control the incident:

5.4 Spill Response, Containment, and Cleanup Plan (TANK 1)

Facility TMC Soledad Facility Substance Stored Diesel Fuel

Volume 10,000 gallons Location Main Fuel Island

Secondary containment description: Concrete containment for entire contents of tank and rainfall from a 24 hour, 25 year storm.

Secondary containment cleanup procedure: Have all free liquid pumped out by vacuum truck. Truck usable fuel* to Tank 2 for storage. Send unusable fuel to licensed recycling facility. Wash down secondary containment to a second vacuum truck. This material will be transferred to Tank 3 where a sample will be analyzed to determine the proper disposal method. (*Note: Fuel should be checked for water or dirt contamination before transferring to Tank 2.)

Oil Cleanup Contingency Plan

Potential contamination site: River Santa Clara River

CLEANUP MATERIAL	LOCATION	RESPONSE TIME **
Stockpiled Sand	on-site	immediate
CLEANUP EQUIPMENT		
Loader / Dozer	on-site	immediate
Trucks	on-site	immediate

Contractors or other agencies (cleanup-"CU" and/or disposal-"D" - identify)

CONTRACTOR		
Martin Environmental Services (805) 287-3737 - CU/D	Newhall, CA	½ hour
Ecology Control - CU/D (800) 262-1900	Torrance, CA	1 -1/2 hours
Black Gold - CU/D (805) 981-4616	Oxnard, CA	1-1/2 to 2 hours

** The time it takes from initial notification until mobilization at spill.

5.5 Spill Response, Containment, and Cleanup Plan (TANK 2)

Facility TMC Soledad Facility Substance Stored Diesel

Volume 6,000 gallons Location Batch Plant Fuel Island

Secondary containment description: Concrete containment for entire contents of tank and rainfall from a 24 hour, 25 year storm.

Secondary containment cleanup procedure: Have all free liquid pumped out by vacuum truck. Truck usable fuel* to Tank 1 for storage. Send unusable fuel to licensed recycling facility. Wash down secondary containment to a second vacuum truck. This material will be transferred to Tank 3 where a sample will be analyzed to determine the proper disposal method. (*Note: Fuel should be checked for water or dirt contamination before transferring to Tank 1.)

Oil Cleanup Contingency Plan

Potential contamination site: River Santa Clara River

CLEANUP MATERIAL	LOCATION	RESPONSE TIME **
Stockpiled Sand	on-site	immediate
CLEANUP EQUIPMENT		
Loader / Dozer	on-site	immediate
Trucks	on-site	immediate
CONTRACTOR		
Martin Environmental Services (805) 287-3737 - CU/D	Newhall, CA	½ hour
Ecology Control - CU/D (800) 262-1900	Torrance, CA	1-1/2 hours
Black Gold - CU/D (805) 981-4616	Oxnard, CA	1-1/2 to 2 hours

** The time it takes from initial notification until mobilization at spill.

5.6 Spill Response, Containment, and Cleanup Plan (TANK 3)

Facility TMC Soledad Facility Substance Stored Waste Oil

Volume 1,000 gallons Location Maintenance Building

Secondary containment description: Concrete containment for entire contents of largest tank and rainfall from a 24 hour, 25 year storm.

Secondary containment cleanup procedure: Have all free liquid pumped out by vacuum truck. Wash down secondary containment to a second vacuum truck. Send waste oil and wash down water to licensed recycling facility.

Oil Cleanup Contingency Plan

Potential contamination site: River Santa Clara River

CLEANUP MATERIAL	LOCATION	RESPONSE TIME **
Stockpiled Sand	on-site	immediate
CLEANUP EQUIPMENT		
Loader / Dozer	on-site	immediate
Trucks	on-site	immediate

Contractors or other agencies (cleanup-"CU" and/or disposal-"D" - identify)

CONTRACTOR		
Martin Environmental Services (805) 287-3737 - CU/D	Newhall, CA	½ hour
Ecology Control - CU/D (800) 262-1900	Torrance, CA	1-1/2 hours
Black Gold Industries - CU/D (805) 981-4616	Oxnard, CA	1-1/2 to 2 hours

** The time it takes from initial notification until mobilization at spill.

5.7 Spill Response, Containment, and Cleanup Plan (TANKS 4 & 5)

Facility TMC Soledad Facility Substance Stored Fresh Motor and Hydraulic Oil

Volume 1,000 gallons each Location Maintenance Building

Secondary containment description: Concrete containment for entire contents of the largest tank w/ rainfall from a 24 hour, 25 year storm.

Secondary containment cleanup procedure: Have all free liquid pumped out by vacuum truck. Reuse product that has not been contaminated. Send unusable oil to licensed recycling facility. Wash down secondary containment to a second vacuum truck. This material will be transferred to Tank 3 where a sample will be analyzed to determine the proper disposal method.

Oil Cleanup Contingency Plan

Potential contamination site: River Santa Clara River

CLEANUP MATERIAL	LOCATION	RESPONSE TIME **
Stockpiled Sand	on-site	immediate
CLEANUP EQUIPMENT		
Loader / Dozer	on-site	immediate
Trucks	on-site	immediate

Contractors or other agencies (cleanup-"CU" and/or disposal-"D" - identify)

CONTRACTOR		
Martin Environmental Services (805) 287-3737 - CU/D	Newhall, CA	½ hour
Ecology Control - CU/D (800) 262-1900	Torrance, CA	1 ½ hours
Black Gold Industries - CU/D (805) 981-4616	Oxnard, CA	1-1/2 to 2 hours

** The time it takes from initial notification until mobilization at spill.

5.8 Spill Response, Containment, and Cleanup Plan (TANKS 6 & 7)

Facility TMC Soledad Facility Substance Stored Fresh Motor Oil

Volume 1,000 gallons each Location Main and Batch Plant Fuel Islands

Secondary containment description: Concrete containment for entire contents of the largest tank and rainfall from a 24 hour, 25 year storm.

Secondary containment cleanup procedure: Have all free liquid pumped out by vacuum truck. Reuse product that has not been contaminated. Send unusable oil to licensed recycling facility. Wash down secondary containment to a second vacuum truck. This material will be transferred to Tank 3 where a sample will be analyzed to determine the proper disposal method.

Oil Cleanup Contingency Plan

Potential contamination site: River Santa Clara River

CLEANUP MATERIAL	LOCATION	RESPONSE TIME **
Stockpiled Sand	on-site	immediate
CLEANUP EQUIPMENT		
Loader / Dozer	on-site	immediate
Trucks	on-site	immediate

Contractors or other agencies (cleanup-"CU" and/or disposal-"D" - identify)

CONTRACTOR		
Martin Environmental Services (805) 287-3737 - CU/D	Newhall, CA	½ hour
Ecology Control - CU/D (800) 262-1900	Torrance, CA	1-1/2 hours
Black Gold Industries - CU/D (805) 981-4616	Oxnard, CA	1-1/2 to 2 hours

** The time it takes from initial notification until mobilization at spill.

5.9 Spill Response, Containment, and Cleanup Plan (Hazardous Material Storage)

Facility TMC Soledad Facility Substance Stored Solvents and Cleaners

Volume 55 gallon DOT drum Location Maintenance Building

Secondary containment description: Concrete containment for entire contents of the largest tank or 10 % of the aggregate in the storage area, whichever is greater, w/ rainfall from a 24 hour, 25 year storm if exposed to rainfall.

Secondary containment cleanup procedure: Identify material spilled. Inform the Plant Manager immediately so proper clean up and disposal options can be selected.

Cleanup Contingency Plan

Potential contamination site: River Santa Clara River

CLEANUP MATERIAL	LOCATION	RESPONSE TIME **
Stockpiled Sand	on-site	immediate
CLEANUP EQUIPMENT		
Loader / Dozer	on-site	immediate
Trucks	on-site	immediate

Contractors or other agencies (cleanup-"CU" and/or disposal-"D" - identify)

CONTRACTOR		
Martin Environmental Services (805) 287-3737 - CU/D	Newhall, CA	½ hours
Ecology Control - CU/D (800) 262-1900	Torrance, CA	1-1/2 hours
Black Gold Industries - CU/D (805) 981-4616	Oxnard, CA	1-1/2 to 2 hours

** The time it takes from initial notification until mobilization at spill.

6.0 NOTIFICATION PROCEDURES

6.1 Release Notification Agency: Phone List

It is the responsibility of the Plant Manager to report any release outside the secondary containment or threatened release of a hazardous material to local, state, and federal regulatory agencies as necessary.

If there has been a release of one barrel (42 gallons) or more, of petroleum products to soil, immediately notify:

Local Fire Department, (L. A. County):		911 or (805) 269-1919
Los Angeles County Environmental Health:		(213) 974-7831
	or	(213) 881-4000
State Office of Emergency Services:		(800) 852-7550 (24-hr)
	or	(916) 262-1621 (24-hr)

In addition, the following agencies should be notified if the spill enters or threatens navigable waters via storm drains, drainage channels, etc. (For follow-up reporting of spills see Sections 6.3 and 6.4).

U.S. Environmental Protection Agency, Region IX Waste Management Division (Spill Line)	(415) 744-2000 (24-hr)
State Regional Water Quality Control Board (Los Angeles Region 4-John Bishop) (Spills impacting state or federal waters including drinking water aquifers.)	(213) 266-7538
Department of Toxic Substance Control (Cal-EPA) (for waste-oil spills)	(916) 324-1826
National Response Center	(800) 424-8802 (24-hr)
U.S. Department of Fish and Game (spills impacting wildlife)	(916) 653-7664

6.2 Information to be Included in Oral Notification

When reporting to government agencies is required, notification should be made as soon as possible and at the latest, within 24 hours. Below is a suggested format for oral notification. Document all reports to regulatory agencies.

1. Give your name, company and position.

2. Ask the name, agency, and position of person you have contacted and note the time of your call. Write this information down.

3. Give the date and time of the spill:
   a. Time or estimated time spill began.
   b. Duration of spill or if it is continuing.
   c. Location of spill.

4. Give extent of spill:
   a. Materials spilled (i.e., diesel fuel, waste oil)
   b. Volume or estimated volume spilled.
   c. Has spill entered storm drain or navigable waters? Potential for?

5. Give response measures taken:
   a. For containment.
   b. For cleanup.
   c. Has the source been stopped?

6. Weather:
   a. Raining?
   b. Air temperature?
   c. Wind speed and direction?

7. Extent of any injures.

8. Stay on line until all questions are answered.

6.3 Spill Follow-up Report (per Federal regulations 40 CFR 112.4)

Written notification to the EPA must be made for any discharge of more than 1,000 gallons of petroleum products into or upon navigable waters or adjoining shorelines of the United States in a single spill event. The report must be made within 60 days to:

Regional Administrator (415) 744-2000 (24-hr)
Environmental Protection Agency
Region IX
San Francisco, CA

Reports Should Include:

1 - Name of the Facility;
2 - Name(s) of the owner or operator of the facility;
3 - Location of the facility;
4 - Date and year of initial facility operation;
5 - Maximum storage or handling capacity of the facility and normal daily throughput;
6 - Description of the facility, including maps, flow diagrams, and topographical maps;
7 - A complete copy of the SPCC Plan with any amendments;
8 - The cause(s) of such spill, including a failure analysis of the system or subsystem in which the failure occurred;
9 - The corrective actions and/or countermeasures taken, including an adequate description of equipment repairs and/or replacements;
10 - Additional prevention measures taken or contemplated to minimize the possibility of recurrence;
11 - Such other information as the (EPA) Regional Administrator may reasonably require pertinent to the Plan or spill event.

A complete copy of all information should also be sent to the State agency in charge of water pollution control:

Los Angeles Regional
Water Quality Control Board
101 Centre Plaza Drive
Monterey Park, CA 91754-2156

6.4 Spill Follow-up Report (per State Regulations)

According to applicable California laws and regulations (Aboveground Petroleum Storage Act, Porter-Cologne Act, and CCR Title 22 - Section 67145) a petroleum spill of 42 gallons (one barrel) or more must be reported immediately per Sections 6.1 of this plan. Additional written notification may also be required, within 15 days, by the Local Administering Agency, California Environmental Protection Agency (former Department of Health Services) and the Regional Water Board following the incident. That report should include but may not be limited to:

1 - Name of the Facility;
2 - Name(s) of the owner or operator of the facility;
3 - Location of the facility;
4 - Date, time, and type of incident;
5 - Name and quantity of material(s) involved;
6 - An assessment of actual or potential hazards to human health or the environment, where this is applicable;
7 - Estimated quantity and disposition of recovered material that resulted from the incident;
8 - Method of cleanup implemented to date and proposed cleanup actions.

6.5 SPCC Plan Follow-up

Supervisory personnel will review the cause of the release and determine any contingencies necessary to prevent a repeat of the incident. These contingencies will then be implemented and the appropriate sections of the SPCC Plan updated and amended.

REVISION AND AMENDMENT RECORD

APPENDIX A

SOLEDAD CANYON FACILITY
SPCC PLAN - REVISION AND AMENDMENT RECORD
June 1997

Record all additions, changes or deletions made to the SPCC Plan as a result of changes in equipment, policy or regulatory agency requirements. The SPCC Plan shall be amended whenever there is a facility design change. Amendments shall be implemented no later than six months after changes occur. A review and evaluation of the SPCC Plan must be conducted once every three years. Amendments shall be included within six months of review if more effective prevention and control technology will significantly reduce the likelihood of a spill and has been field proven. (40 CFR 112.5 (a-c))

No amendment to the SPCC Plan shall be effective unless certified by a Professional Engineer in accordance with 40 CFR 112.3 (d). See the following pages for a record of past certifications.

Date of Amendment	Section Amended	
7/92	All Sections -	Original Spill Plan
6/93	Figures Revised	
6/97	All Sections -	Updated

SPCC PLAN DISTRIBUTION LIST

APPENDIX B

SOLEDAD CANYON FACILITY
SPCC PLAN DISTRIBUTION LIST
June 1997

DEPARTMENT	TITLE	NO. OF COPIES	PHONE NO.
Operations	Plant Manager SPCC Coordinator		
Maintenance	Maintenance Supervisor		
Headquarters	Environmental Affairs Manager	1	(818) 812-7955
Fire Dept.	Fire Dept.(may want a copy)		(818) 269-1919
Other	L.A. County CUP App.	1	

INSPECTION AND LOG SHEETS

APPENDIX C

BI-WEEKLY INSPECTION FORM

Inspection and Preventative Maintenance Procedures for Aboveground Storage Tanks

All aboveground fuel storage tanks will be inspected bi-weekly for signs of leakage and containment decay. These inspections will be done by the maintenance department.

Inspection Date_____ Inspector _____

Tank	Gals.	Tank, Piping Valves	Containment Condition	Rainwater < 1"	Comments
ACTIVE FUEL TANKS					
Main Plant Fueling	10,000				
Batch Plant Fueling	6,000				
WASTE-OIL TANKS					
Maintenance Shop	1,000				
OTHER ABOVE GROUND TANKS					
Batch Plant Motor Oil	250				
Main Plant Motor Oil	1,000				
Maintenance Building Motor Oil	1,000				
Maintenance Building Hydraulic Oil	1,000				

Signs of leakage must be reported to the Maintenance Supervisor for immediate repair and/or additional investigation.

RAINWATER DRAINAGE REPORT FORM

Removal procedures: MUST BE CONDUCTED BY AUTHORIZED PERSONNEL **ONLY**

If there is no sheen, the rainwater may be discharged to surrounding area. If a drain valve is used, the valve must be closed and locked when discharge is completed. If a pump is to be used, the pump must be clean.

If there is a sheen, the clear rainwater may be discharged to the surrounding area up to the sheen, if it is possible to do so. If a drain valve is used, the valve must be closed and locked when discharge is completed. If a pump is to be used, the pump must be clean. The remaining rainwater must be pumped from the containment area and taken to a separator/holding tank or sent off-site for recycle.

If the tank or containment system shows signs of fuel leakage, the rainwater must be pumped from the containment area and taken off-site for recycle/disposal.

Tank Number	Date of Discharge	Estimated Amount Discharged (gals)	Condition of Fluid (color, odor, sheen)	Disposition of Fluid

ANNUAL INSPECTION REPORT FORM

Tank Number:_____

Refer to Section 3, of the SPCC Plan for configuration standards.

Date Inspected:_____

TANK

Tank Capacity:_____ **Tank Contents:**_____ **Type:**_____

Tank Dimensions: [diameter and length]

Signs / Markings: ☐ Contents ☐ NFPA Labels ☐ Flammable ☐ No Smoking ☐ _____

Support Structure: Type _____ ☐ Structure anchored ☐ Tank secured

Fuel Level Gauging: ☐ Visual ☐ Stick ☐ Gauge ☐ Alarms ☐ Cutoffs

Associated Piping/Valves: ☐ Valve next to tank ☐ Filter Condition _____

Comments/Overall Condition:

CONTAINMENT

Containment Dimensions: [h x w x l]

Containment Type: ☐ Berm with contiguous floor ☐ Steel secondary tank

Containment Valves: ☐ No ☐ Yes Type/Location_____

Structures/Security: ☐ Roof ☐ Crash Posts ☐ Fence ☐ Lighting ☐_____

Closest Drainage: ☐ Canal ☐ Storm Drain ☐ Ditch **Distance:** > 25' < 25'

Comments/Condition:

OTHER

Signs of Leakage: ☐ NO ☐ YES Description:

Additional comments on the condition of any of the above or other observations:

Debris or wood in containment?

Standing water/liquids?

Recommended Actions:

1. _____
2. _____
3. _____
4. _____

Compare results with Section 3, Tank Configuration.

TANK MANUFACTURER SPECIFICATIONS AND DRAWINGS

APPENDIX D

Tank Manufacturer Specifications and Drawings To Be Supplied Prior To Construction

AST CONFIGURATION REQUIREMENTS

APPENDIX E

Proper Aboveground Storage Tank Configuration:

An ideal AST configuration is provided to meet the requirements of the following laws and regulations governing aboveground tanks storing petroleum material stored at Soledad Canyon facility (i.e. Number 2 Diesel, Gasoline, and lubricating oils). Please note that these standards may not apply to every tank and every type of liquid stored.

- Federal Regulations: 40 CFR, Part 112 - Oil Pollution Prevention
- California H&S Code, Chapter 6.67, Section 25270 - Aboveground Petroleum Storage Act (1989)
- Uniform Fire Code 1991 - Article 79, Division V -Stationary Tank Storage, Aboveground, Outside of Buildings

A. Tank Configuration and Spill Prevention Measures

1. Tank Construction

a. Good engineering standards and materials
- Tank materials must be compatible with liquid stored.
- Tanks shall be of a shape or type consistent with sound engineering design.

2. Supports, Foundations, and Anchorage

a. Tanks at Grade
- AST shall rest on ground or foundation of concrete masonry, piling, or steel.
- Minimize corrosion in any part of the tank.

b. Tanks above Grade
- Securely supported on concrete, masonry, or protected steel.
- Supports shall have fire resistance of 2 hours.
- Design structures to established engineering principles of mechanics considering flooding and seismic shock (per requirements of UBC 1988 as adopted by Los Angeles County).
- Stairs, platforms, and walkways must be noncombustible.

3. Drainage Control and Diking (Secondary Containment Systems)

a. Protect adjacent tanks, adjoining property, and waterways.

b. Predict the direction, flow rate, and quantities spilled from equipment failure.

c. Natural or man-made drainage systems shall include:
- slope of not less than one percent.
- drain to an impound or catchment basin with CAPACITY to hold volume

of the largest tank plus 24 hours of rain from a 25 year storm.

d. Diked areas
   - CAPACITY to hold volume of the largest tank plus 24 hours of rain from a 25 year storm.
   - WALLS shall be earth, steel, concrete, or solid masonry to be liquid tight and withstand full hydrostatic head.
   - HEIGHT of the wall shall be less than 6 feet unless provisions are made for emergency access to tank and valves with safe egress from the diked enclosure.
   - minimum distance from the tank and the toe of the interior wall should be 5 feet from the sides and 2 feet from the ends of the tank.
   - keep diked areas free of combustible materials

e. If Drainage and Diking is impracticable then:
   - A strong Spill Contingency Plan must be provided and;
   - Present a written commitment of manpower, equipment and money.

4. Piping and Valves

a. Piping and valve materials
   - made of noncorrosive materials
   - No aluminum , copper, brass, or cast iron should be used.

b. Piping
   - Piping should be supported and protected from damage.
   - Piping should be secured.
   - Piping through diked walls should be designed to prevent stresses from settlement or fire exposure.

c. Tank Valves
   - Connections to an AST, located below the normal liquid level shall have control valves located as close to the tank body as practical.
   - External valves and their connections to the tank shall be made of steel.

d. Containment Valves
   - Containment areas should be restrained by manually activated bypass valves (no flapper valves).
   - Bypass valves are to remain closed except for water drainage under supervision (see rainwater drainage).

e. Tank Connections and Venting
   - Connections while filling shall have check valves for automatic protection against back flow.
   - AST's greater than 1,000-gallon capacity must be vented to prevent the development of vacuum, pressure, and back flow of vapor or liquid.
   - Connections through which liquid normally flows should have valves located as close to the shell as practical.
   - Connections through which liquid does not normally flow shall be liquid tight with valve (locking), plug, or blind.

- Manual gauging openings (for Flammable liquids) should have vapor-tight caps and should remain closed.

5. **Leak Detection (Inspection and Fail-Safe Measures)**
   a. Monitor leaks from primary tank to secondary containment.
   b. Visual inspection of tank
      - Must be able to see entire primary tank.
      - Gauge liquid levels in the tank.
      - Develop written procedures for Inspections and keep records documenting inspections.
   c. Visual inspection of containment
      - Must be able to see entire containment interior.
      - Monitor for water accumulation.
      - Develop written procedures for Inspections and keep records documenting inspections.
   d. Non-Visual inspection of tank
      - Establish monitoring program which shall be approved by the RWQCB. Owner/Operator should designate a schedule for monitoring and sample locations.
      - Non-visual devices can include:
        - High liquid level alarms
        - Pump cutoff devices
        - Communications/alarm system (visual or audible)
        - Liquid level indicators (gauges, etc,)
        - Develop written procedures for Inspections and keep records documenting inspections.
   e. Non-Visual inspection of containment
      - If due to size, location, contents, or containment system a tank failure may impact surface waters as determined by the RWQCB, do either:
        - Install system to detect releases
        - Any discharge from facility to surface waters through a monitored valve.
      - 16 degrees API or lighter may have to:
        - install groundwater monitoring
        - tank foundation leak detection
        - tank water bottom monitoring
        - use other methods
      - Report positive detections to RWQCB within 72 hours.

6. **Signs and Warnings for Tank**
   a. Tanks should be clearly labeled with contents and hazard ID's.
      - National Fire Protection Association system identifies health, fire and

reactive hazards.

- Label "DANGER - FLAMMABLE LIQUIDS" and "NO SMOKING - WITHIN 25 FEET" for flammables.
- Letters should be red on white background, at least 3" high with ½" stroke width.
- Lettering should be in English and/or symbols.

b. Emergency shutoff valves should be clearly labeled.

7. Security Measures

a. Facilities with AST's should be:
   - Fenced, with gates locked or guarded.
   - Crash post or fence should protect tank and containment from vehicles.

b. Drain valves
   - Where outward flow to the surface is possible valves should be locked closed when not operating or on standby.

c. Pumps should be locked "off" or inaccessible to unauthorized persons.

d. Loading/unloading connections should be securely capped.

e. Lighting should consider:
   - discovery of spills when dark.
   - prevention of spills by vandalism or accident.

AST REGULATIONS

APPENDIX F

California Storage Statement Format

California Aboveground Petroleum Storage Act

40 CFR Part 112 - Oil Pollution Prevention

CALIFORNIA STORAGE STATEMENT FORMAT
For Aboveground Petroleum Storage

Owners and Operators of AST's with a single tank capacity of 660 gallons or a cumulative storage capacity of greater than 1,320 gallons must file a Storage Statement.

The reporting date is July 1, of every even numbered year, beginning with 1990.

Mail statement to:

State Water Resources Control Board
P.O. Box 100
Sacramento, CA 95801

Attention: Accounting

RE: Storage Statement for Aboveground Petroleum Storage Tank Facilities

Facility:	Transit Mixed Concrete Company Soledad Canyon Rock Facility 12101 Soledad Canyon Road Los Angeles County, California
Primary Contact:	Plant Manager (805) ___-____
10,000-gallon Tanks:	There are no tanks exceeding 10,000 gallons in operation.
Fees:	A fee of $50 is enclosed for a facility with storage capacity between 10,000 and 100,000 gallons. The check is payable to "SWRCB" and has the phrase "aboveground tank" written on the check.

responsible for introducing a chemical known to the state to cause cancer or reproductive toxicity into the consumer product in question. *(Added by Initiative Measure, Nov. 4, 1986.)*

Library References

Health and Environment ⟹25.7(4), (5).
C.J.S. Health and Environment § 106 et seq.

§ 25249.12. Implementation

The Governor shall designate a lead agency and such other agencies as may be required to implement the provisions of this chapter including this section. Each agency so designated may adopt and modify regulations, standards, and permits as necessary to conform with and implement the provisions of this chapter and to further its purposes. *(Added by Initiative Measure, Nov. 4, 1986.)*

Library References

Health and Environment ⟹25.7(17).
C.J.S. Health and Environment § 113 et seq.

§ 25249.13. Preservation of existing rights, obligations and penalties

Nothing in this chapter shall alter or diminish any legal obligation otherwise required in common law or by statute or regulation, and nothing in this chapter shall create or enlarge any defense in any action to enforce such legal obligation. Penalties and sanctions imposed under this chapter shall be in addition to any penalties or sanctions otherwise prescribed by law. *(Added by Initiative Measure, Nov. 4, 1986.)*

Library References

Statutes ⟹222, 223.
C.J.S. Statutes § 363 et seq.

§§ 25250 to 25250.25.

For §§ 25250 to 25250.25, see Article 13 in Chapter 6.5, ante.

CHAPTER 6.67. ABOVEGROUND STORAGE OF PETROLEUM

Section

25270. Legislative findings and declarations.
25270.1. Short title.
25270.2. Definitions.
25270.3. Tank facilities subject to this chapter; exception.
25270.4. Administration of chapter.
25270.5. Inspection schedule; periodic inspections; spill prevention control and countermeasure plan; duties of owners and operators.
25270.6. Storage statements; fees.
25270.7. Monitoring programs; reports of positive findings; exception.
25270.8. Notice of spill or release of crude oil.
25270.9. Use of funds for cleanup or abatement efforts; liability of tank facility owner or operator for expenses.
25270.10. Publication of research needs; awarding of grants.
25270.11. Environmental Protection Trust Fund; use of money.
25270.12. Violations of chapter; civil penalties; injunctions.
25270.13. Effect on local ordinances.

§ 25270. Legislative findings and declarations

The Legislature finds and declares all of the following:

(a) There are 65,000 or more aboveground tanks in the state which hold a variety of dangerous substances which may pose minor to very serious threats to the environment and the public.

(b) Aboveground storage tanks have been found to leak and spill into the ground and water, causing major contamination problems. In one event alone, in Martinez, California, during April 1988, an estimated 400,000 gallons of crude oil were spilled into sensitive marshes, Suisun Bay, and the Bay Delta Estuary, causing major damage to the ecosystem in the area.

(c) Among the causes for environmental damage resulting from aboveground tanks are leaks and spills from tanks due to advanced age, defects in design or installation, human error, and equipment failure.

(d) While there exists a statewide program for determining the amount and type of hazardous substances being stored in underground tanks, there does not exist a similar program to commence to address the problems posed by aboveground tanks.

(e) The ability to reduce the incidence and damage from hazardous spills and leaks depends upon preventive steps taken by industry and monitoring agencies. The federal government, which has traditionally monitored aboveground tank installations, is presently experiencing a severe budget and personnel shortage devoted to the function of inspecting aboveground tanks.

(f) The health of California's people, wildlife, fish, and vegetation depend upon a clean environment.

(g) It is necessary to protect the state's people and natural resources by establishing a program of inspecting aboveground petroleum storage tanks. *(Added by Stats. 1989, c. 1383, § 1.)*

§ 25270.1. Short title

This chapter shall be known and may be cited as the Aboveground Petroleum Storage Act. *(Added by Stats. 1989, c. 1383, § 1.)*

§ 25270.2. Definitions

For purposes of this chapter, the following definitions apply:

(a) "Board" means the State Water Resources Control Board.

(b) "Fund" means the Environmental Protection Trust Fund established pursuant to Section 25271.

(c) "Crude oil or its fractions" means crude petroleum or all products in liquid form derived from petroleum.

(d) "Operator" means the person responsible for the overall operation of a tank facility.

(e) "Owner" means the person who owns the tank facility or part of the tank facility.

(f) "Person" means an individual, trust, firm, joint stock company, corporation, including a government

corporation, partnership, or association. "Person" also includes any city, county, district, the University of California, the California State University, the state, any department or agency thereof, and the United States, to the extent authorized by federal law.

(g) "Regional board" means a California regional water quality control board.

(h) "Release" means any spilling, leaking, pumping, pouring, emitting, emptying, discharging, escaping, leaching, or disposing into the environment.

(i) "Storage" or "store" means the containment, handling, or treatment of crude oil or its fractions, for any period of time, including on a temporary basis.

(j) "Storage tank" means any aboveground tank or container used for the storage of crude oil or its fractions. "Storage tank" does not include any of the following:

(1) A pressure vessel or boiler which is subject to Part 6 (commencing with Section 7620) of Division 5 of the Labor Code.

(2) A storage tank containing hazardous waste, as defined in subdivision (g) of Section 25316, if the person owning or operating the storage tank has been issued a hazardous waste facilities permit for the storage tank by the department.

(3) An aboveground oil production tank which is subject to Section 3106 of the Public Resources Code.

(k) "Tank facility" means any one, or combination of, aboveground storage tanks, including any piping which is integral to the tank, which contains crude oil or its fractions and which is used by a single business entity at a single location or site. For purposes of this chapter, a pipe is integrally related to an aboveground storage tank if the pipe is connected to the tank and meets any of the following:

(1) The pipe is within the dike or containment area.

(2) The pipe is connected to the first flange or valve after the piping exits the containment area.

(3) The pipe is connected to the first flange or valve on the exterior of the tank, if state or federal law does not require a containment area. *(Added by Stats. 1989, c. 1383, § 1.)*

§ 25270.3. Tank facilities subject to this chapter; exception

(a) Except as provided in subdivision (b), a tank facility is subject to this chapter if either of the following conditions apply:

(1) The tank facility is subject to the oil pollution prevention regulations specified in Part 112 (commencing with Section 112.1) of Subchapter D of Chapter I of Title 40 of the Code of Federal Regulations.

(2) (A) The tank facility has a storage capacity of 10,000 gallons or more of crude oil or its fractions.

(B) Notwithstanding subparagraph (A), a tank facility located on a farm, nursery, logging site, or construction site is not subject to the requirements of subdivision (c) of Section 25270.5 if no storage tank at the location exceeds 20,000 gallons and the cumulative storage capacity of the tank facility does not exceed 100,000 gallons.

(b) This chapter does not apply to any tank facility, or portion of a tank facility, subject to Section 3106 of the Public Resources Code. *(Added by Stats. 1989, c. 1383, § 1.)*

§ 25270.4. Administration of chapter

The board and the regional board shall administer this chapter with regard to a tank facility, or a portion of a tank facility, which is subject to Part 112 (commencing with Section 112.1) of Subchapter D of Chapter I of Title 40 of the Code of Federal Regulations, except for that portion of a tank facility associated with the production of oil, which shall be supervised by the Division of Oil and Gas of the Department of Conservation pursuant to Section 3106 of the Public Resources Code. *(Added by Stats. 1989, c. 1383, § 1.)*

§ 25270.5. Inspection schedule; periodic inspections; spill prevention control and countermeasure plan; duties of owners and operators

(a) By January 1, 1991, the board shall adopt a schedule for the inspection of tank facilities subject to this chapter. In adopting this schedule, the board shall give special attention to those tank facilities which are near navigable waters, potable water supplies, or sensitive ecosystems, such as wetlands and marshes.

(b) Each regional board shall conduct periodic inspections of each storage tank at a tank facility in accordance with the schedule determined by the board pursuant to subdivision (a) for compliance with the spill prevention and countermeasure plan.

(c) Except as provided in subparagraph (B) of paragraph (2) of subdivision (a) of Section 25270.3, each owner or operator of a storage tank at a tank facility subject to this chapter shall, by January 1, 1991, prepare a spill prevention control and countermeasure plan prepared in accordance with the guidelines contained in Part 112 of Title 40 of the Code of Federal Regulations. Each owner or operator specified in this subdivision shall conduct periodic inspections of the storage tanks to assure compliance with Section 112.7 of Title 40 of the Code of Federal Regulations. In implementing the spill prevention control and countermeasure plan, each owner or operator specified in this subdivision shall fully comply with the latest version of the regulations contained in Part 112 of Title 40 of the Code of Federal Regulations.

(d) The owner or operator of a tank facility specified in subparagraph (B) of paragraph (2) of subdivision (a) of Section 25270.3 shall take all of the following actions:

(1) Conduct daily visual inspections of any tank storing crude oil or its fractions.

(2) Allow the regional board to conduct periodic inspections of the tank facility.

(3) Install a secondary means of containment for the entire contents of the largest tank at the tank facility, plus sufficient space for precipitation, if the regional board determines this installation is necessary for the protection of the waters of the state. *(Added by Stats. 1989, c. 1383, § 1.)*

§ 25270.6. Storage statements; fees

(a) On or before July 1, 1990, and on or before July 1 of every two years thereafter, each owner or operator of a tank facility subject to this chapter shall file with the board a storage statement which shall identify the name and address of the tank facility, a contact person for the tank facility and the location, size, age, and contents of each tank that exceeds 10,000 gallons in capacity and which holds a substance containing at least 5 percent of crude oil or its fractions. A copy of a statement submitted previously pursuant to this section may be submitted in lieu of a new storage statement if no new or used storage tanks have been added to the facility or if no significant modifications have been made. For purposes of this section, a significant modification includes, but is not limited to, altering existing storage tanks or changing spill prevention or containment methods.

(b) Each storage statement submitted pursuant to subdivision (a) shall be accompanied by a fee in accordance with the following schedule:

Total Tank Facility Storage Capacity	Per Facility Fee
10,000–100,000 gallons	$ 50
100,001–1,000,000 gallons	100
1,000,001–10,000,000 gallons	200
10,000,001–100,000,000 gallons	500
100,000,001 or more gallon	1,000

(c) The fees collected pursuant to this section shall be deposited in the fund until the total sum in the fund equals seven million five hundred thousand dollars ($7,500,000) in any one year.

If fees in excess of seven million five hundred thousand dollars ($7,500,000) are collected by the board, a pro rata share of the excess shall be returned to the owners or operators who paid the fee, or at the option of the owner or operator, credited to their account for a subsequent year. Expenses recovered pursuant to Section 25270.9, and penalties collected pursuant to Section 25270.12, shall not be available for return or credit to owners or operators pursuant to this subdivision. The board shall annually revise the sum of seven million five hundred thousand dollars ($7,500,000) to reflect the change in the cost of living in the state. *(Added by Stats. 1989, c. 1383, § 1.)*

§ 25270.7. Monitoring programs; reports of positive findings; exception

(a) Except as provided in subdivision (d), the owner or operator of a tank facility which meets the requirement of subdivision (b) or (c) shall establish and maintain a monitoring program pursuant to subdivision (b) or (c), as applicable, which shall be approved by the regional board, to detect releases to the soil and water, including both groundwater and surface water. The owner or operator shall establish the required monitoring program within 180 days after preparing the spill prevention control and countermeasure plan required by subdivision (c) of Section 25270.5 or, in the case of tanks described in subparagraph (B) of paragraph (2) of subdivision (a) of Section 25270.3, within 180 days after the initial filing of a storage statement required by Section 25270.6. The owner or operator subject to this section shall designate a schedule for monitoring and the sample locations, which shall be approved by the regional board. The owner or operator shall make the monitoring results available to the regional board and the Department of Fish and Game.

(b) Each owner or operator of a tank facility subject to this chapter which, because of the tank location, tank size, characteristics of the petroleum being stored or the spill containment system, has the potential to impact surface waters or sensitive ecosystems, as determined by the regional board, shall do either of the following:

(1) Install and maintain a system, approved by the regional board, to detect releases into surface waters or sensitive ecosystems.

(2) If any discharge from a tank facility flows, or would reasonably be expected to flow, to surface waters or a sensitive ecosystem, allow a drainage valve to be opened and remain open only during the presence of an individual who visually observes the discharge.

(c) Each owner or operator of a tank facility subject to this chapter which, because of the tank facility location, tank size, or characteristics of the crude oil or its fractions being stored (16 degrees API or lighter), has the potential to impact the beneficial uses of the groundwater, as determined by the regional board, and which is not required to have a groundwater monitoring program at the tank facility pursuant to any other federal, state, or local law, shall do any of the following:

(1) Install a tank facility groundwater monitoring system which will detect releases of crude oil or its fractions into the groundwater, as approved by the regional board.

(2) Install and maintain a tank foundation design which will provide for early detection of releases of crude oil or its fractions before reaching the groundwater, as approved by the regional board.

(3) Implement a tank water bottom monitoring system and maintain a schedule which includes a log or other record which will identify or indicate releases of crude oil or its fractions before reaching the groundwater, as approved by the regional board.

(4) Use other methods which will detect releases of crude oil or its fractions into or before reaching the groundwater, as approved by the regional board.

(d) Tank owners or operators shall report all positive findings from the detection systems required by subdivision (c) to the appropriate regional board within 72 hours after learning of the finding.

(e) This section does not apply to any tank whose exterior surface, including connecting piping, and the floor directly beneath the tank, can be monitored by direct viewing. *(Added by Stats. 1989, c. 1383, § 1.)*

§ 25270.8. Notice of spill or release of crude oil

Each owner or operator of a tank facility shall immediately, upon discovery, notify the county and the city, if any, in which the tank facility is located, of occurrence of a spill or other release of one barrel (42 gallons) or more of crude oil or its fractions which is required to be reported to the Office of Emergency Services pursuant to subdivision (g) of Section 13272 of the Water Code. *(Added by Stats. 1989, c. 1383, § 1.)*

§ 25270.9. Use of funds for cleanup or abatement efforts; liability of tank facility owner or operator for expenses

The board, the regional board, and the Department of Fish and Game may use funds appropriated pursuant to Section 25270.11 to oversee the cleanup or abatement efforts, or to cause cleanup or abatement efforts, in the event of a release from a storage tank at a tank facility.

The reasonable expenses of the board, the regional board, and the Department of Fish and Game incurred in overseeing or contracting for cleanup or abatement efforts which result from a leak or spill at a tank facility are a charge against the owner or operator of the tank facility. Expenses reimbursable to a public agency under this section are a debt of the tank facility owner or operator, and shall be collectible in the same manner as in the case of an obligation under contract, express or implied. The expenses recovered pursuant to this section shall be deposited in the fund. *(Added by Stats. 1989, c. 1383, § 1.)*

§ 25270.10. Publication of research needs; awarding of grants

(a) The board and the regional board shall periodically submit to the University of California, and publish in the State Contracts Register, a list or description of those areas of research needed by the state and private industry to better assess soil and water contamination by leaking storage tanks.

(b) The board may award grants on a competitive bid basis, to qualified persons to conduct research in areas determined pursuant to subdivision (a). *(Added by Stats. 1989, c. 1383, § 1.)*

§ 25270.11. Environmental Protection Trust Fund; use of money.

(a) There is hereby established in the State Treasury the Environmental Protection Trust Fund. The money in the fund is available for expenditure by the board, upon appropriation by the Legislature, for the following purposes:

(1) Inspections of tank facilities.

(2) Training of inspectors of tank facilities.

(3) Oversight of, or causing, the cleanup or abatement of a release pursuant to Section 25270.9, including transfer to the regional board, or the Department of Fish and Game for this purpose.

(4) Awarding of research grants pursuant to Section 25270.10.

(5) To reimburse local and state agencies for reasonable costs incurred in responding to, overseeing the cleanup or abatement of, or causing cleanup or abatement efforts of, an accident or disaster involving an aboveground storage tank spill or release. Any local or state agency, except the board, which receives from the fund full reimbursement for these costs shall transfer to the board its right to recover costs from the owner or operator of the affected tank facility.

(6) To provide for the long-term rehabilitation and maintenance of affected wetlands and other natural resources affected by storage tank releases. The owner, manager, or custodian of adversely affected wetlands or other natural resources adversely affected by an aboveground storage tank spill or release may submit a claim for consideration by the board for funding to provide long-term rehabilitation and maintenance of those wetlands or other natural resources.

(7) To administer this chapter.

(b) All of the following shall be deposited in the fund:

(1) Fees collected pursuant to Section 25270.6.

(2) Expenses recovered pursuant to Section 25270.9.

(3) Penalties collected pursuant to Section 25270.12.

(4) Amounts transferred pursuant to Section 3 of the act adding this chapter.

(c) The money in the fund shall be expended only for spills or releases which occur on or after January 1, 1990, except that the portion of the money in the fund derived from Section 3 of the act which enacted this section, which is collected and due the state, may be expended in connection with expenses incurred as a result of any spill of crude oil exceeding 20,000 gallons which occurred in April, 1988, from one or more facilities located in the County of Contra Costa or surrounding counties. Any reimbursement for costs associated with the spill, for which penalties were collected and appropriated under Section 3 of that act, shall not exceed the total penalty collected and transferred to the fund pursuant to Section 3 of that act.

(d) If a state or local agency obtains full funding for abatement or cleanup of a spill or release from a source

other than the fund for a purpose authorized by this chapter, that agency is not eligible to receive money from the fund pursuant to this section. Otherwise, nothing in this bill is intended to nullify any other existing provision of law. *(Added by Stats.1989, c. 1383, § 1.)*

§ 25270.12. Violations of chapter; civil penalties; injunctions

(a) Any owner or operator of a tank facility who fails to file a storage report pursuant to subdivision (a) of Section 25270.6, to submit the fee required by subdivision (b) of Section 25270.6, to establish the monitoring system required by Section 25270.7, to report spills as required by subdivision (e) of Section 25270.7 or by Section 25270.8, or otherwise to comply with the requirements of this chapter is subject to a civil penalty of not more than five thousand dollars ($5,000) for each day on which the violation continues. If the owner or operator commits a second or subsequent violation, a civil penalty of not more than ten thousand dollars ($10,000) for each day on which the violation continues may be imposed.

(b) The civil penalties provided by this section may be assessed and recovered in a civil action brought by the board, the regional board, or the Attorney General.

(c) The board, the regional board, or the Attorney General may seek to enjoin, in any court of competent jurisdiction, any person believed to be in violation of this chapter.

(d) The penalties collected pursuant to this chapter shall be deposited in the fund.

(e) The penalties specified in this section are in addition to any other penalties provided by law. *(Added by Stats.1989, c. 1383, § 1.)*

§ 25270.13. Effect on local ordinances

This chapter does not preempt local storage tank ordinances, in effect as of August 16, 1989, which meet or exceed the standards prescribed by this chapter. *(Added by Stats.1989, c. 1383, § 1.)*

CHAPTER 6.7. UNDERGROUND STORAGE OF HAZARDOUS SUBSTANCES

Section

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Cross References

Hazardous waste control, grounds for denial, suspension or revocation of permits, registration or certificates, see § 25186.

Loans for replacing, removing, or upgrading of underground storage tanks, applicants subject to regulations of this chapter, see Government Code § 15399.12.

Public records, definition as including information relating to this chapter, see § 25152.5.

Library References

Health and Environment ⇐25.5(5.5), (9), (10), 25(7).
C.J.S. Health and Environment §§ 65 et seq., 91 et seq.

STATE OF CALIFORNIA PETE WILSON, Governor

STATE WATER RESOURCES CONTROL BOARD
DIVISION OF CLEAN WATER PROGRAMS
2014 T STREET, SUITE 130
P.O. BOX 944212
SACRAMENTO, CA 94244-2120
(916) 739-2670
FAX (916) 739-2300

INFORMATION ON THE ABOVEGROUND PETROLEUM STORAGE ACT

The Aboveground Petroleum Storage Act is a new State Law effective January 1, 1990. In general, the law requires owners or operators of aboveground petroleum storage tanks to file a storage statement and pay a fee by July 1, 1990, take specific action to prevent spills, and in certain instances implement a groundwater monitoring program. This law does not apply to that portion of a tank facility associated with the production of oil and regulated by the State Division of Oil and Gas of the Department of Conservation.

The requirements of the law are briefly described below. For copies of the law and applicable federal regulations, please call (916) 739-2670.

STORAGE STATEMENT AND FEE

On or before July 1, 1990, and every two years thereafter, owners and operators of aboveground petroleum storage tank facilities with a single tank capacity greater than 660 gallons, or with a cumulative storage capacity of greater than 1,320 gallons, must file a storage statement with the State Water Resources Control Board with the following information:

1. Name and address of the tank facility
2. A contact person for the tank facility
3. For each tank that exceeds 10,000 gallons in capacity and which holds a substance containing at least five percent of crude oil or its fractions:
    a. Location (on the facility)
    b. Size (in gallons)
    c. Age (in years)
    d. Contents (types of petroleum product)

Owners and operators of tank facilities with a storage capacity of 10,000 gallons or greater must also submit a fee with the storage statement according to the following schedule:

Total Tank Facility Storage Capacity	Per Facility Fee
10,000 - 100,000 gallons	$ 50
100,001 - 1,000,000 gallons	100
1,000,001 - 10,000,000 gallons	200
10,000,001 - 100,000,000 gallons	500
100,000,001 or more gallons	1,000

Checks should be made payable to "SWRCB" and the phrase "aboveground tank" should be written on the check.

Storage statements and fees should be mailed to:

State Water Resources Control Board
P. O. Box 100
Sacramento, CA 95801

Attention: Accounting

SPILL PREVENTIVE MEASURES

Farms, Nurseries, Logging Sites, Construction Sites

For these businesses, the following actions must be taken if the total aboveground storage capacity at the facility site is less than 100,000 gallons or if individual storage tanks at the facilty are less than 20,000 gallons:

1. Conduct daily visual inspections of any tank storing crude oil or its fractions;

2. Allow the Regional Water Quality Control Board (Regional Board) to conduct periodic inspections of the tank facility;

3. Install a secondary means of containment for the entire contents of the largest tank at the facility, plus sufficient space for rainfall, if the Regional Board determines this installation is necessary for the protection of the waters of the State.

All Other Tank Facilities

Owners and operators of farms, nursuries, logging sites, and construction sites with greater storage capacities than described above, and all other tank facilities regulated by this law shall copy with the following:

1. Spill Prevention Control and Countermeasure Plan

   By January 1, 1991, prepare and implement a "spill prevention control and countermeasure (SPCC) plan" in accordance with the guidelines contained in Part 112 of Title 40 of the Code of Federal Regulations. Note that since these Federal regulations have been in effect since 1976, all the facilities subject to the new State law should already have implemented SPCC plans.

2. Monitoring Requirements

   If the appropriate Regional Board has determined that a discharge from an aboveground tank facility will affect either surface waters or sensitive ecosystems or groundwater, the owner or operator shall establish a monitoring program as described below within 180 days after preparing a spill prevention control and countermeasures plan:

   A. Where Discharge May Affect Surface Waters or a Sensitive Ecosystem

      The owner or operator shall do either of the following:

      (1) Allow a drainage valve to be opened and remain open only during the presence of an individual who visually observes the discharge.

      (2) Install and maintain a system approved by the Regional Board, to detect release into surface waters or sensitive ecosystems.

   B. Where Discharge May Affect Groundwater

      Owners and operators of tank facilities storing crude oil fractions 16 degrees API or lighter and which are not required to have a groundwater monitoring program pursuant to any other Federal, State, or local law, shall do any of the following:

      (1) Install a system as approved by the Regional Board to detect release to groundwater;

      (2) Install and maintain a tank foundation design as approved by the Regional Board which will provide for early detection of release;

(3) Implement and maintain a tank bottom monitoring system as approved by the Regional Board which will identify or indicate releases before reaching groundwater; and

(4) Use other methods as approved by the Regional Board to detect releases before reaching groundwater.

Any positive finding from groundwater monitoring systems must be reported to the appropriate Regional Board within 72 hours after learning of the positive finding. The above monitoring requirements for both surface waters and groundwaters do not apply if the tank exterior surface and connecting piping and the floor directly beneath the tank can be monitored by direct viewing.

REPORTING IN CASE OF SPILL

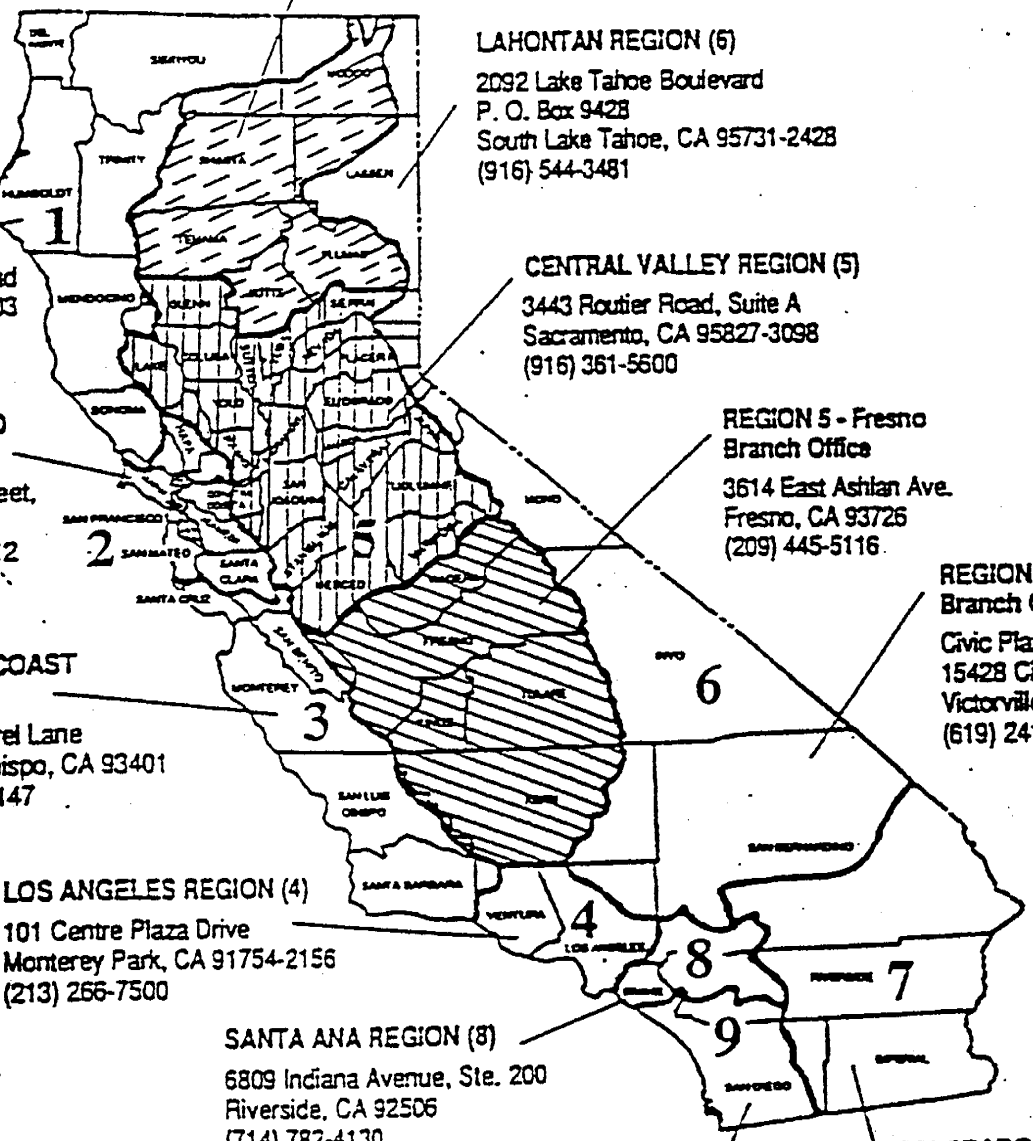
Each owner or operator of a tank facility must immedately, upon discovery, notify the county and the city in which the tank facility is located, of any spill or release of one barrel (42 gallons) or more into any waters of the State.

CIVIL PENALITIES

Violations of any requirement of this law are subject to a civil penalty of $5,000 per day of violation. Second offenses are subject to a $10,000 civil penalty of per day.

STATE WATER RESOURCES CONTROL BOARD
P. O. Box 100, Sacramento, CA 95801

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARDS



REGION 5 - Redding Branch Office
415 Knollcrest Drive
Redding, CA 96002
(916) 224-4845

LAHONTAN REGION (6)
2092 Lake Tahoe Boulevard
P. O. Box 9428
South Lake Tahoe, CA 95731-2428
(916) 544-3481

NORTH COAST REGION (1)
1440 Guerneville Road
Santa Rosa, CA 95403
(707) 576-2220

CENTRAL VALLEY REGION (5)
3443 Routier Road, Suite A
Sacramento, CA 95827-3098
(916) 361-5600

SAN FRANCISCO BAY REGION (2)
1800 Harrison Street,
Suite. 700
Oakland, CA 94612
(415) 464-1255

REGION 5 - Fresno Branch Office
3614 East Ashlan Ave.
Fresno, CA 93726
(209) 445-5116

REGION 6 - Victorville Branch Office
Civic Plaza
15428 Civic Drive, Suite 100
Victorville, CA 92392-2359
(619) 241-6583

CENTRAL COAST REGION (3)
1102-A Laurel Lane
San Luis Obispo, CA 93401
(805) 549-3147

LOS ANGELES REGION (4)
101 Centre Plaza Drive
Monterey Park, CA 91754-2156
(213) 266-7500

SANTA ANA REGION (8)
6809 Indiana Avenue, Ste. 200
Riverside, CA 92506
(714) 782-4130

SAN DIEGO REGION (9)
9771 Clairemont Mesa Blvd.
Suite. B
San Diego, CA 92124
(619) 265-5114

COLORADO RIVER BASIN REGION (7)
73-271 Highway 111,
Suite. 21
Palm Desert, CA 92260
(619) 346-7491

projects, or studies relating to the prevention, control, or abatement of oil pollution.

[61 FR 7421, Feb. 28, 1996]

§ 110.6 Notice.

Any person in charge of a vessel or of an onshore or offshore facility shall, as soon as he or she has knowledge of any discharge of oil from such vessel or facility in violation of section 311(b)(3) of the Act, immediately notify the National Response Center (NRC) (800-424-8802; in the Washington, DC metropolitan area, 202-426-2675). If direct reporting to the NRC is not practicable, reports may be made to the Coast Guard or EPA predesignated On-Scene Coordinator (OSC) for the geographic area where the discharge occurs. All such reports shall be promptly relayed to the NRC. If it is not possible to notify the NRC or the predesignated OCS immediately, reports may be made immediately to the nearest Coast Guard unit, provided that the person in charge of the vessel or onshore or offshore facility notifies the NRC as soon as possible. The reports shall be made in accordance with such procedures as the Secretary of Transportation may prescribe. The procedures for such notice are set forth in U.S. Coast Guard regulations, 33 CFR part 153, subpart B and in the National Oil and Hazardous Substances Pollution Contingency Plan, 40 CFR part 300, subpart E.

(Approved by the Office of Management and Budget under the control number 2050-0046)

[52 FR 10719, Apr. 2, 1987. Redesignated and amended at 61 FR 7421, Feb. 28, 1996; 61 FR 14032, Mar. 29, 1996]

PART 112—OIL POLLUTION PREVENTION

Sec.

112.1 General applicability.
112.2 Definitions.
112.3 Requirements for preparation and implementation of Spill Prevention Control and Countermeasure Plans.
112.4 Amendment of SPCC Plans by Regional Administrator.
112.5 Amendment of Spill Prevention Control and Countermeasure Plans by owners or operators.
112.7 Guidelines for the preparation and implementation of a Spill Prevention Control and Countermeasure Plan.
112.20 Facility response plans.
112.21 Facility response training and drills/exercises.

APPENDIX A TO PART 112—MEMORANDUM OF UNDERSTANDING BETWEEN THE SECRETARY OF TRANSPORTATION AND THE ADMINISTRATOR OF THE ENVIRONMENTAL PROTECTION AGENCY
APPENDIX B TO PART 112—MEMORANDUM OF UNDERSTANDING AMONG THE SECRETARY OF THE INTERIOR, SECRETARY OF TRANSPORTATION, AND ADMINISTRATOR OF THE ENVIRONMENTAL PROTECTION AGENCY
APPENDIX C TO PART 112—SUBSTANTIAL HARM CRITERIA
APPENDIX D TO PART 112—DETERMINATION OF A WORST CASE DISCHARGE PLANNING VOLUME
APPENDIX E TO PART 112—DETERMINATION AND EVALUATION OF REQUIRED RESPONSE RESOURCES FOR FACILITY RESPONSE PLANS
APPENDIX F TO PART 112—FACILITY-SPECIFIC RESPONSE PLAN

AUTHORITY: 33 U.S.C. 1321 and 1361; E.O. 12777 (October 18, 1991), 3 CFR, 1991 Comp., p. 351.

SOURCE: 38 FR 34165, Dec. 11, 1973, unless otherwise noted.

§ 112.1 General applicability.

(a) This part establishes procedures, methods and equipment and other requirements for equipment to prevent the discharge of oil from non-transportation-related onshore and offshore facilities into or upon the navigable waters of the United States or adjoining shorelines.

(b) Except as provided in paragraph (d) of this section, this part applies to owners or operators of non-transportation-related onshore and offshore facilities engaged in drilling, producing, gathering, storing, processing, refining, transferring, distributing or consuming oil and oil products, and which, due to their location, could reasonably be expected to discharge oil in harmful quantities, as defined in part 110 of this chapter, into or upon the navigable waters of the United States or adjoining shorelines.

(c) As provided in section 313 (86 Stat. 875) departments, agencies, and instrumentalities of the Federal government are subject to these regulations to the

same extent as any person, except for the provisions of § 112.6.

(d) This part does not apply to:

(1) Facilities, equipment or operations which are not subject to the jurisdiction of the Environmental Protection Agency, as follows:

(i) Onshore and offshore facilities, which, due to their location, could not reasonably be expected to discharge oil into or upon the navigable waters of the United States or adjoining shorelines. This determination shall be based solely upon a consideration of the geographical, locational aspects of the facility (such as proximity to navigable waters or adjoining shorelines, land contour, drainage, etc.) and shall exclude consideration of manmade features such as dikes, equipment or other structures which may serve to restrain, hinder, contain, or otherwise prevent a discharge of oil from reaching navigable waters of the United States or adjoining shorelines; and

(ii) Equipment or operations of vessels or transportation-related onshore and offshore facilities which are subject to authority and control of the Department of Transportation, as defined in the Memorandum of Understanding between the Secretary of Transportation and the Administrator of the Environmental Protection Agency, dated November 24, 1971, 36 FR 24000.

(2) Those facilities which, although otherwise subject to the jurisdiction of the Environmental Protection Agency, meet both of the following requirements:

(i) The underground buried storage capacity of the facility is 42,000 gallons or less of oil, and

(ii) The storage capacity, which is not buried, of the facility is 1,320 gallons or less of oil, provided no single container has a capacity in excess of 660 gallons.

(e) This part provides for the preparation and implementation of Spill Prevention Control and Countermeasure Plans prepared in accordance with § 112.7, designed to complement existing laws, regulations, rules, standards, policies and procedures pertaining to safety standards, fire prevention and pollution prevention rules, so as to form a comprehensive balanced Federal/State spill prevention program to minimize the potential for oil discharges. Compliance with this part does not in any way relieve the owner or operator of an onshore or an offshore facility from compliance with other Federal, State or local laws.

[38 FR 34165, Dec. 11, 1973, as amended at 41 FR 12657, Mar. 26, 1976]

§ 112.2 Definitions.

For the purposes of this part:

Adverse weather means the weather conditions that make it difficult for response equipment and personnel to cleanup or remove spilled oil, and that will be considered when identifying response systems and equipment in a response plan for the applicable operating environment. Factors to consider include significant wave height as specified in Appendix E to this part, as appropriate, ice conditions, temperatures, weather-related visibility, and currents within the area in which the systems or equipment are intended to function.

Complex means a facility possessing a combination of transportation-related and non-transportation-related components that is subject to the jurisdiction of more than one Federal agency under section 311(j) of the Clean Water Act.

Contract or other approved means: (1) A written contractual agreement with an oil spill removal organization(s) that identifies and ensures the availability of the necessary personnel and equipment within appropriate response times; and/or

(2) A written certification by the owner or operator that the necessary personnel and equipment resources, owned or operated by the facility owner or operator, are available to respond to a discharge within appropriate response times; and/or

(3) Active membership in a local or regional oil spill removal organization(s) that has identified and ensures adequate access through such membership to necessary personnel and equipment to respond to a discharge within appropriate response times in the specified geographic areas; and/or

(4) Other specific arrangements approved by the Regional Administrator upon request of the owner or operator.

Discharge includes but is not limited to, any spilling, leaking, pumping,

pouring, emitting, emptying or dumping. For purposes of this part, the term *discharge* shall not include any discharge of oil which is authorized by a permit issued pursuant to section 13 of the River and Harbor Act of 1899 (30 Stat. 1121, 33 U.S.C. 407), or sections 402 or 405 of the FWPCA Amendments of 1972 (86 Stat. 816 *et seq.*, 33 U.S.C. 1251 *et seq.*).

Fish and wildlife and sensitive environments means areas that may be identified by either their legal designation or by evaluations of Area Committees (for planning) or members of the Federal On-Scene Coordinator's spill response structure (during responses). These areas may include wetlands, National and State parks, critical habitats for endangered/threatened species, wilderness and natural resource areas, marine sanctuaries and estuarine reserves, conservation areas, preserves, wildlife areas, wildlife refuges, wild and scenic rivers, recreational areas, national forests, Federal and State lands that are research national areas, heritage program areas, land trust areas, and historical and archeological sites and parks. These areas may also include unique habitats such as: aquaculture sites and agricultural surface water intakes, bird nesting areas, critical biological resource areas, designated migratory routes, and designated seasonal habitats.

Injury means a measurable adverse change, either long- or short-term, in the chemical or physical quality or the viability of a natural resource resulting either directly or indirectly from exposure to a discharge of oil, or exposure to a product of reactions resulting from a discharge of oil.

Maximum extent practicable means the limitations used to determine oil spill planning resources and response times for on-water recovery, shoreline protection, and cleanup for worst case discharges from onshore non- transportation-related facilities in adverse weather. It considers the planned capability to respond to a worst case discharge in adverse weather, as contained in a response plan that meets the requirements in § 112.20 or in a specific plan approved by the Regional Administrator.

The term *navigable waters* of the United States means *navigable waters* as defined in section 502(7) of the FWPCA, and includes:

(1) All navigable waters of the United States, as defined in judicial decisions prior to passage of the 1972 Amendments to the FWPCA (Pub. L. 92-500), and tributaries of such waters;

(2) Interstate waters;

(3) Intrastate lakes, rivers, and streams which are utilized by interstate travelers for recreational or other purposes; and

(4) Intrastate lakes, rivers, and streams from which fish or shellfish are taken and sold in interstate commerce.

Navigable waters do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.

Offshore facility means any facility of any kind located in, on, or under any of the navigable waters of the United States, which is not a transportation-related facility.

Oil means oil of any kind or in any form, including, but not limited to petroleum, fuel oil, sludge, oil refuse and oil mixed with wastes other than dredged spoil.

Oil Spill Removal Organization means an entity that provides oil spill response resources, and includes any for-profit or not-for-profit contractor, cooperative, or in-house response resources that have been established in a geographic area to provide required response resources.

Onshore facility means any facility of any kind located in, on, or under any land within the United States, other than submerged lands, which is not a transportation-related facility.

Owner or operator means any person owning or operating an onshore facility or an offshore facility, and in the case of any abandoned offshore facility, the person who owned or operated such facility immediately prior to such abandonment.

Person includes an individual, firm, corporation, association, and a partnership.

Regional Administrator, means the Regional Administrator of the Environmental Protection Agency, or his designee, in and for the Region in which the facility is located.

Spill event means a discharge of oil into or upon the navigable waters of the United States or adjoining shorelines in harmful quantities, as defined at 40 CFR part 110.

Transportation-related and *non-transportation-related* as applied to an onshore or offshore facility, are defined in the Memorandum of Understanding between the Secretary of Transportation and the Administrator of the Environmental Protection Agency, dated November 24, 1971, 36 FR 24080.

United States means the States, the District of Columbia, the Commonwealth of Puerto Rico, the Canal Zone, Guam, American Samoa, the Virgin Islands, and the Trust Territory of the Pacific Islands.

Vessel means every description of watercraft or other artificial contrivance used, or capable of being used as a means of transportation on water, other than a public vessel.

Worst case discharge for an onshore non-transportation-related facility means the largest foreseeable discharge in adverse weather conditions as determined using the worksheets in Appendix D to this part.

[38 FR 34165, Dec. 11, 1973, as amended at 58 FR 45039, Aug. 25, 1993; 59 FR 34097, July 1, 1994]

§ 112.3 Requirements for preparation and implementation of Spill Prevention Control and Countermeasure Plans.

(a) Owners or operators of onshore and offshore facilities in operation on or before the effective date of this part that have discharged or, due to their location, could reasonably be expected to discharge oil in harmful quantities, as defined in 40 CFR part 110, into or upon the navigable waters of the United States or adjoining shorelines, shall prepare a Spill Prevention Control and Countermeasure Plan (hereinafter "SPCC Plan"), in writing and in accordance with § 112.7. Except as provided for in paragraph (f) of this section, such SPCC Plan shall be prepared within six months after the effective date of this part and shall be fully implemented as soon as possible, but not later than one year after the effective date of this part.

(b) Owners or operators of onshore and offshore facilities that become operational after the effective date of this part, and that have discharged or could reasonably be expected to discharge oil in harmful quantities, as defined in 40 CFR part 110, into or upon the navigable waters of the United States or adjoining shorelines, shall prepare an SPCC Plan in accordance with § 112.7. Except as provided for in paragraph (f) of this section, such SPCC Plan shall be prepared within six months after the date such facility begins operations and shall be fully implemented as soon as possible, but not later than one year after such facility begins operations.

(c) Owners or operators of onshore and offshore mobile or portable facilities, such as onshore drilling or workover rigs, barge mounted offshore drilling or workover rigs, and portable fueling facilities shall prepare and implement an SPCC Plan as required by paragraphs (a), (b) and (d) of this section. The owners or operators of such facility need not prepare a new SPCC Plan each time the facility is moved to a new site. The SPCC Plan may be a general plan, prepared in accordance with § 112.7, using good engineering practice. When the mobile or portable facility is moved, it must be located and installed using the spill prevention practices outlined in the SPCC Plan for the facility. No mobile or portable facility subject to this regulation shall operate unless the SPCC Plan has been implemented. The SPCC Plan shall only apply while the facility is in a fixed (non-transportation) operating mode.

(d) No SPCC Plan shall be effective to satisfy the requirements of this part unless it has been reviewed by a Registered Professional Engineer and certified to by such Professional Engineer. By means of this certification the engineer, having examined the facility and being familiar with the provisions of this part, shall attest that the SPCC Plan has been prepared in accordance with good engineering practices. Such certification shall in no way relieve

the owner or operator of an onshore or offshore facility of his duty to prepare and fully implement such Plan in accordance with § 112.7, as required by paragraphs (a), (b) and (c) of this section.

(e) Owners or operators of a facility for which an SPCC Plan is required pursuant to paragraph (a), (b) or (c) of this section shall maintain a complete copy of the Plan at such facility if the facility is normally attended at least 8 hours per day, or at the nearest field office if the facility is not so attended, and shall make such Plan available to the Regional Administrator for on-site review during normal working hours.

(f) *Extensions of time.* (1) The Regional Administrator may authorize an extension of time for the preparation and full implementation of an SPCC Plan beyond the time permitted for the preparation and implementation of an SPCC Plan pursuant to paragraph (a), (b) or (c) of this section where he finds that the owner or operator of a facility subject to paragraphs (a), (b) or (c) of this section cannot fully comply with the requirements of this part as a result of either nonavailability of qualified personnel, or delays in construction or equipment delivery beyond the control and without the fault of such owner or operator or their respective agents or employees.

(2) Any owner or operator seeking an extension of time pursuant to paragraph (f)(1) of this section may submit a letter of request to the Regional Administrator. Such letter shall include:

(i) A complete copy of the SPCC Plan, if completed;

(ii) A full explanation of the cause for any such delay and the specific aspects of the SPCC Plan affected by the delay;

(iii) A full discussion of actions being taken or contemplated to minimize or mitigate such delay;

(iv) A proposed time schedule for the implementation of any corrective actions being taken or contemplated, including interim dates for completion of tests or studies, installation and operation of any necessary equipment or other preventive measures.

In addition, such owner or operator may present additional oral or written statements in support of his letter of request.

(3) The submission of a letter of request for extension of time pursuant to paragraph (f)(2) of this section shall in no way relieve the owner or operator from his obligation to comply with the requirements of § 112.3 (a), (b) or (c). Where an extension of time is authorized by the Regional Administrator for particular equipment or other specific aspects of the SPCC Plan, such extension shall in no way affect the owner's or operator's obligation to comply with the requirements of § 112.3 (a), (b) or (c) with respect to other equipment or other specific aspects of the SPCC Plan for which an extension of time has not been expressly authorized.

[38 FR 34165, Dec. 11, 1973, as amended at 41 FR 12657, Mar. 26, 1976]

§ 112.4 Amendment of SPCC Plans by Regional Administrator.

(a) Notwithstanding compliance with § 112.3, whenever a facility subject to § 112.3 (a), (b) or (c) has: Discharged more than 1,000 U.S. gallons of oil into or upon the navigable waters of the United States or adjoining shorelines in a single spill event, or discharged oil in harmful quantities, as defined in 40 CFR part 110, into or upon the navigable waters of the United States or adjoining shorelines in two spill events, reportable under section 311(b)(5) of the FWPCA, occurring within any twelve month period, the owner or operator of such facility shall submit to the Regional Administrator, within 60 days from the time such facility becomes subject to this section, the following:

(1) Name of the facility;

(2) Name(s) of the owner or operator of the facility;

(3) Location of the facility;

(4) Date and year of initial facility operation;

(5) Maximum storage or handling capacity of the facility and normal daily throughput;

(6) Description of the facility, including maps, flow diagrams, and topographical maps;

(7) A complete copy of the SPCC Plan with any amendments;

(8) The cause(s) of such spill, including a failure analysis of system or subsystem in which the failure occurred;

(9) The corrective actions and/or countermeasures taken, including an adequate description of equipment repairs and/or replacements;

(10) Additional preventive measures taken or contemplated to minimize the possibility of recurrence;

(11) Such other information as the Regional Administrator may reasonably require pertinent to the Plan or spill event.

(b) Section 112.4 shall not apply until the expiration of the time permitted for the preparation and implementation of an SPCC Plan pursuant to § 112.3 (a), (b), (c) and (f).

(c) A complete copy of all information provided to the Regional Administrator pursuant to paragraph (a) of this section shall be sent at the same time to the State agency in charge of water pollution control activities in and for the State in which the facility is located. Upon receipt of such information such State agency may conduct a review and make recommendations to the Regional Administrator as to further procedures, methods, equipment and other requirements for equipment necessary to prevent and to contain discharges of oil from such facility.

(d) After review of the SPCC Plan for a facility subject to paragraph (a) of this section, together with all other information submitted by the owner or operator of such facility, and by the State agency under paragraph (c) of this section, the Regional Administrator may require the owner or operator of such facility to amend the SPCC Plan if he finds that the Plan does not meet the requirements of this part or that the amendment of the Plan is necessary to prevent and to contain discharges of oil from such facility.

(e) When the Regional Administrator proposes to require an amendment to the SPCC Plan, he shall notify the facility operator by certified mail addressed to, or by personal delivery to, the facility owner or operator, that he proposes to require an amendment to the Plan, and shall specify the terms of such amendment. If the facility owner or operator is a corporation, a copy of such notice shall also be mailed to the registered agent, if any, of such corporation in the State where such facility is located. Within 30 days from receipt of such notice, the facility owner or operator may submit written information, views, and arguments on the amendment. After considering all relevant material presented, the Regional Administrator shall notify the facility owner or operator of any amendment required or shall rescind the notice. The amendment required by the Regional Administrator shall become part of the Plan 30 days after such notice, unless the Regional Administrator, for good cause, shall specify another effective date. The owner or operator of the facility shall implement the amendment of the Plan as soon as possible, but not later than six months after the amendment becomes part of the Plan, unless the Regional Administrator specifies another date.

(f) An owner or operator may appeal a decision made by the Regional Administrator requiring an amendment to an SPCC Plan. The appeal shall be made to the Administrator of the United States Environmental Protection Agency and must be made in writing within 30 days of receipt of the notice from the Regional Administrator requiring the amendment. A complete copy of the appeal must be sent to the Regional Administrator at the time the appeal is made. The appeal shall contain a clear and concise statement of the issues and points of fact in the case. It may also contain additional information from the owner or operator, or from any other person. The Administrator or his designee may request additional information from the owner or operator, or from any other person. The Administrator or his designee shall render a decision within 60 days of receiving the appeal and shall notify the owner or operator of his decision.

[38 FR 34165, Dec. 11, 1973, as amended at 41 FR 12658, Mar. 26, 1976]

§ 112.5 Amendment of Spill Prevention Control and Countermeasure Plans by owners or operators.

(a) Owners or operators of facilities subject to § 112.3 (a), (b) or (c) shall amend the SPCC Plan for such facility in accordance with § 112.7 whenever there is a change in facility design, construction, operation or maintenance which materially affects the facility's potential for the discharge of

oil into or upon the navigable waters of the United States or adjoining shore lines. Such amendments shall be fully implemented as soon as possible, but not later than six months after such change occurs.

(b) Notwithstanding compliance with paragraph (a) of this section, owners and operators of facilities subject to § 112.3 (a), (b) or (c) shall complete a review and evaluation of the SPCC Plan at least once every three years from the date such facility becomes subject to this part. As a result of this review and evaluation, the owner or operator shall amend the SPCC Plan within six months of the review to include more effective prevention and control technology if: (1) Such technology will significantly reduce the likelihood of a spill event from the facility, and (2) if such technology has been field-proven at the time of the review.

(c) No amendment to an SPCC Plan shall be effective to satisfy the requirements of this section unless it has been certified by a Professional Engineer in accordance with § 112.3(d).

§ 112.7 Guidelines for the preparation and implementation of a Spill Prevention Control and Countermeasure Plan.

The SPCC Plan shall be a carefully thought-out plan, prepared in accordance with good engineering practices, and which has the full approval of management at a level with authority to commit the necessary resources. If the plan calls for additional facilities or procedures, methods, or equipment not yet fully operational, these items should be discussed in separate paragraphs, and the details of installation and operational start-up should be explained separately. The complete SPCC Plan shall follow the sequence outlined below, and include a discussion of the facility's conformance with the appropriate guidelines listed:

(a) A facility which has experienced one or more spill events within twelve months prior to the effective date of this part should include a written description of each such spill, corrective action taken and plans for preventing recurrence.

(b) Where experience indicates a reasonable potential for equipment failure (such as tank overflow, rupture, or leakage), the plan should include a prediction of the direction, rate of flow, and total quantity of oil which could be discharged from the facility as a result of each major type of failure.

(c) Appropriate containment and/or diversionary structures or equipment to prevent discharged oil from reaching a navigable water course should be provided. One of the following preventive systems or its equivalent should be used as a minimum:

(1) Onshore facilities:

(i) Dikes, berms or retaining walls sufficiently impervious to contain spilled oil;

(ii) Curbing;

(iii) Culverting, gutters or other drainage systems;

(iv) Weirs, booms or other barriers;

(v) Spill diversion ponds;

(vi) Retention ponds;

(vii) Sorbent materials.

(2) Offshore facilities:

(i) Curbing, drip pans;

(ii) Sumps and collection systems.

(d) When it is determined that the installation of structures or equipment listed in § 112.7(c) to prevent discharged oil from reaching the navigable waters is not practicable from any onshore or offshore facility, the owner or operator should clearly demonstrate such impracticability and provide the following:

(1) A strong oil spill contingency plan following the provision of 40 CFR part 109.

(2) A written commitment of manpower, equipment and materials required to expeditiously control and remove any harmful quantity of oil discharged.

(e) In addition to the minimal prevention standards listed under § 112.7(c), sections of the Plan should include a complete discussion of conformance with the following applicable guidelines, other effective spill prevention and containment procedures (or, if more stringent, with State rules, regulations and guidelines):

(1) *Facility drainage (onshore); (excluding production facilities).* (i) Drainage from diked storage areas should be restrained by valves or other positive means to prevent a spill or other excessive leakage of oil into the drainage system or inplant effluent treatment system, except where plan systems are designed to handle such leakage. Diked areas may be emptied by pumps or ejectors; however, these should be manually activated and the condition of the accumulation should be examined before starting to be sure no oil will be discharged into the water.

(ii) Flapper-type drain valves should not be used to drain diked areas. Valves used for the drainage of diked areas should, as far as practical, be of manual, open-and-closed design. When plant drainage drains directly into water courses and not into wastewater treatment plants, retained storm water should be inspected as provided in paragraphs (e)(2)(iii) (B), (C) and (D) of this section before drainage.

(iii) Plant drainage systems from undiked areas should, if possible, flow into ponds, lagoons or catchment basins, designed to retain oil or return it to the facility. Catchment basins should not be located in areas subject to periodic flooding.

(iv) If plant drainage is not engineered as above, the final discharge of all in-plant ditches should be equipped with a diversion system that could, in the event of an uncontrolled spill, return the oil to the plant.

(v) Where drainage waters are treated in more than one treatment unit, natural hydraulic flow should be used. If pump transfer is needed, two "lift" pumps should be provided, and at least one of the pumps should be permanently installed when such treatment is continuous. In any event, whatever techniques are used facility drainage systems should be adequately engineered to prevent oil from reaching navigable waters in the event of equipment failure or human error at the facility.

(2) *Bulk storage tanks (onshore); (excluding production facilities).* (i) No tank should be used for the storage of oil unless its material and construction are compatible with the material stored and conditions of storage such as pressure and temperature, etc.

(ii) All bulk storage tank installations should be constructed so that a secondary means of containment is provided for the entire contents of the largest single tank plus sufficient freeboard to allow for precipitation. Diked areas should be sufficiently impervious to contain spilled oil. Dikes, containment curbs, and pits are commonly employed for this purpose, but they may not always be appropriate. An alternative system could consist of a complete drainage trench enclosure arranged so that a spill could terminate and be safely confined in an inplant catchment basin or holding pond.

(iii) Drainage of rainwater from the diked area into a storm drain or an effluent discharge that empties into an open water course, lake, or pond, and bypassing the in-plant treatment system may be acceptable if:

(A) The bypass valve is normally sealed closed.

(B) Inspection of the run-off rain water ensures compliance with applicable water quality standards and will not cause a harmful discharge as defined in 40 CFR part 110.

(C) The bypass valve is opened, and resealed following drainage under responsible supervision.

(D) Adequate records are kept of such events.

(iv) Buried metallic storage tanks represent a potential for undetected spills. A new buried installation should be protected from corrosion by coatings, cathodic protection or other effective methods compatible with local soil conditions. Such buried tanks should at least be subjected to regular pressure testing.

(v) Partially buried metallic tanks for the storage of oil should be avoided, unless the buried section of the shell is adequately coated, since partial burial in damp earth can cause rapid corrosion of metallic surfaces, especially at the earth/air interface.

(vi) Aboveground tanks should be subject to periodic integrity testing, taking into account tank design (floating roof, etc.) and using such techniques as hydrostatic testing, visual inspection or a system of non-destructive shell thickness testing. Comparison records should be kept where appropriate, and tank supports and foundations should be included in these inspections. In addition, the outside of the tank should frequently be observed by operating personnel for signs of deterioration, leaks which might cause a

spill, or accumulation of oil inside diked areas.

(vii) To control leakage through defective internal heating coils, the following factors should be considered and applied, as appropriate.

(A) The steam return or exhaust lines from internal heating coils which discharge into an open water course should be monitored for contamination, or passed through a settling tank, skimmer, or other separation or retention system.

(B) The feasibility of installing an external heating system should also be considered.

(viii) New and old tank installations should, as far as practical, be fail-safe engineered or updated into a fail-safe engineered installation to avoid spills. Consideration should be given to providing one or more of the following devices:

(A) High liquid level alarms with an audible or visual signal at a constantly manned operation or surveillance station; in smaller plants an audible air vent may suffice.

(B) Considering size and complexity of the facility, high liquid level pump cutoff devices set to stop flow at a predetermined tank content level.

(C) Direct audible or code signal communication between the tank gauger and the pumping station.

(D) A fast response system for determining the liquid level of each bulk storage tank such as digital computers, telepulse, or direct vision gauges or their equivalent.

(E) Liquid level sensing devices should be regularly tested to insure proper operation.

(ix) Plant effluents which are discharged into navigable waters should have disposal facilities observed frequently enough to detect possible system upsets that could cause an oil spill event.

(x) Visible oil leaks which result in a loss of oil from tank seams, gaskets, rivets and bolts sufficiently large to cause the accumulation of oil in diked areas should be promptly corrected.

(xi) Mobile or portable oil storage tanks (onshore) should be positioned or located so as to prevent spilled oil from reaching navigable waters. A secondary means of containment, such as dikes or catchment basins, should be furnished for the largest single compartment or tank. These facilities should be located where they will not be subject o periodic flooding or washout.

(3) *Facility transfer operations, pumping, and in-plant process (onshore); (excluding production facilities).* (i) Buried piping installations should have a protective wrapping and coating and should be cathodically protected if soil conditions warrant. If a section of buried line is exposed for any reason, it should be carefully examined for deterioration. If corrosion damage is found, additional examination and corrective action should be taken as indicated by the magnitude of the damage. An alternative would be the more frequent use of exposed pipe corridors or galleries.

(ii) When a pipeline is not in service, or in standby service for an extended time the terminal connection at the transfer point should be capped or blank-flanged, and marked as to origin.

(iii) Pipe supports should be properly designed to minimize abrasion and corrosion and allow for expansion and contraction.

(iv) All aboveground valves and pipelines should be subjected to regular examinations by operating personnel at which time the general condition of items, such as flange joints, expansion joints, valve glands and bodies, catch pans, pipeline supports, locking of valves, and metal surfaces should be assessed. In addition, periodic pressure testing may be warranted for piping in areas where facility drainage is such that a failure might lead to a spill event.

(v) Vehicular traffic granted entry into the facility should be warned verbally or by appropriate signs to be sure that the vehicle, because of its size, will not endanger above ground piping.

(4) *Facility tank car and tank truck loading/unloading rack (onshore).* (i) Tank car and tank truck loading/unloading procedures should meet the minimum requirements and regulation established by the Department of Transportation.

(ii) Where rack area drainage does not flow into a catchment basin or treatment facility designed to handle spills, a quick drainage system should be used for tank truck loading and unloading areas. The containment system should be designed to hold at least maximum capacity of any single compartment of a tank car or tank truck loaded or unloaded in the plant.

(iii) An interlocked warning light or physical barrier system, or warning signs, should be provided in loading/unloading areas to prevent vehicular departure before complete disconnect of flexible or fixed transfer lines.

(iv) Prior to filling and departure of any tank car or tank truck, the lowermost drain and all outlets of such vehicles should be closely examined for leakage, and if necessary, tightened, adjusted, or replaced to prevent liquid leakage while in transit.

(5) *Oil production facilities (onshore)*—(i) *Definition.* An onshore production facility may include all wells, flowlines, separation equipment, storage facilities, gathering lines, and auxiliary non-transportation-related equipment and facilities in a single geographical oil or gas field operated by a single operator.

(ii) *Oil production facility (onshore) drainage.* (A) At tank batteries and central treating stations where an accidental discharge of oil would have a reasonable possibility of reaching navigable waters, the dikes or equivalent required under §112.7(c)(1) should have drains closed and sealed at all times except when rainwater is being drained. Prior to drainage, the diked area should be inspected as provided in paragraphs (e)(2)(iii) (B), (C), and (D) of this section. Accumulated oil on the rainwater should be picked up and returned to storage or disposed of in accordance with approved methods.

(B) Field drainage ditches, road ditches, and oil traps, sumps or skimmers, if such exist, should be inspected at regularly scheduled intervals for accumulation of oil that may have escaped from small leaks. Any such accumulations should be removed.

(iii) *Oil production facility (onshore) bulk storage tanks.* (A) No tank should be used for the storage of oil unless its material and construction are compatible with the material stored and the conditions of storage.

(B) All tank battery and central treating plant installations should be provided with a secondary means of containment for the entire contents of the largest single tank if feasible, or alternate systems such as those outlined in §112.7(c)(1). Drainage from undiked areas should be safely confined in a catchment basin or holding pond.

(C) All tanks containing oil should be visually examined by a competent person for condition and need for maintenance on a scheduled periodic basis. Such examination should include the foundation and supports of tanks that are above the surface of the ground.

(D) New and old tank battery installations should, as far as practical, be fail-safe engineered or updated into a fail-safe engineered installation to prevent spills. Consideration should be given to one or more of the following:

(*1*) Adequate tank capacity to assure that a tank will not overfill should a pumper/gauger be delayed in making his regular rounds.

(*2*) Overflow equalizing lines between tanks so that a full tank can overflow to an adjacent tank.

(*3*) Adequate vacuum protection to prevent tank collapse during a pipeline run.

(*4*) High level sensors to generate and transmit an alarm signal to the computer where facilities are a part of a computer production control system.

(iv) *Facility transfer operations, oil production facility (onshore).* (A) All above ground valves and pipelines should be examined periodically on a scheduled basis for general condition of items such as flange joints, valve glands and bodies, drip pans, pipeline supports, pumping well polish rod stuffing boxes, bleeder and gauge valves.

(B) Salt water (oil field brine) disposal facilities should be examined often, particularly following a sudden change in atmospheric temperature to detect possible system upsets that could cause an oil discharge.

(C) Production facilities should have a program of flowline maintenance to prevent spills from this source. The program should include periodic examinations, corrosion protection, flowline replacement, and adequate records, as appropriate, for the individual facility.

(6) *Oil drilling and workover facilities (onshore).* (i) Mobile drilling or

workover equipment should be positioned or located so as to prevent spilled oil from reaching navigable waters.

(ii) Depending on the location, catchment basins or diversion structures may be necessary to intercept and contain spills of fuel, crude oil, or oily drilling fluids.

(iii) Before drilling below any casing string or during workover operations, a blowout prevention (BOP) assembly and well control system should be installed that is capable of controlling any well head pressure that is expected to be encountered while that BOP assembly is on the well. Casing and BOP installations should be in accordance with State regulatory agency requirements.

(7) *Oil drilling, production, or workover facilities (offshore).* (i) Definition: "An oil drilling, production or workover facility (offshore)" may include all drilling or workover equipment, wells, flowlines, gathering lines, platforms, and auxiliary nontransportation-related equipment and facilities in a single geographical oil or gas field operated by a single operator.

(ii) Oil drainage collection equipment should be used to prevent and control small oil spillage around pumps, glands, valves, flanges, expansion joints, hoses, drain lines, separators, treaters, tanks, and allied equipment. Drains on the facility should be controlled and directed toward a central collection sump or equivalent collection system sufficient to prevent discharges of oil into the navigable waters of the United States. Where drains and sumps are not practicable oil contained in collection equipment should be removed as often as necessary to prevent overflow.

(iii) For facilities employing a sump system, sump and drains should be adequately sized and a spare pump or equivalent method should be available to remove liquid from the sump and assure that oil does not escape. A regular scheduled preventive maintenance inspection and testing program should be employed to assure reliable operation of the liquid removal system and pump start-up device. Redundant automatic sump pumps and control devices may be required on some installations.

(iv) In areas where separators and treaters are equipped with dump valves whose predominant mode of failure is in the closed position and pollution risk is high, the facility should be specially equipped to prevent the escape of oil. This could be accomplished by extending the flare line to a diked area if the separator is near shore, equipping it with a high liquid level sensor that will automatically shut-in wells producing to the separator, parallel redundant dump valves, or other feasible alternatives to prevent oil discharges.

(v) Atmospheric storage or surge tanks should be equipped with high liquid level sensing devices or other acceptable alternatives to prevent oil discharges.

(vi) Pressure tanks should be equipped with high and low pressure sensing devices to activate an alarm and/or control the flow or other acceptable alternatives to prevent oil discharges.

(vii) Tanks should be equipped with suitable corrosion protection.

(viii) A written procedure for inspecting and testing pollution prevention equipment and systems should be prepared and maintained at the facility. Such procedures should be included as part of the SPCC Plan.

(ix) Testing and inspection of the pollution prevention equipment and systems at the facility should be conducted by the owner or operator on a scheduled periodic basis commensurate with the complexity, conditions and circumstances of the facility or other appropriate regulations.

(x) Surface and subsurface well shut-in valves and devices in use at the facility should be sufficiently described to determine method of activation or control, e.g., pressure differential, change in fluid or flow conditions, combination of pressure and flow, manual or remote control mechanisms. Detailed records for each well, while not necessarily part of the plan should be kept by the owner or operator.

(xi) Before drilling below any casing string, and during workover operations a blowout preventer (BOP) assembly and well control system should be installed that is capable of controlling any well-head pressure that is expected

to be encountered while that BOP assembly is on the well. Casing and BOP installations should be in accordance with State regulatory agency requirements.

(xii) Extraordinary well control measures should be provided should emergency conditions, including fire, loss of control and other abnormal conditions, occur. The degree of control system redundancy should vary with hazard exposure and probable consequences of failure. It is recommended that surface shut-in systems have redundant or "fail close" valving. Subsurface safety valves may not be needed in producing wells that will not flow but should be installed as required by applicable State regulations.

(xiii) In order that there will be no misunderstanding of joint and separate duties and obligations to perform work in a safe and pollution free manner, written instructions should be prepared by the owner or operator for contractors and subcontractors to follow whenever contract activities include servicing a well or systems appurtenant to a well or pressure vessel. Such instructions and procedures should be maintained at the offshore production facility. Under certain circumstances and conditions such contractor activities may require the presence at the facility of an authorized representative of the owner or operator who would intervene when necessary to prevent a spill event.

(xiv) All manifolds (headers) should be equipped with check valves on individual flowlines.

(xv) If the shut-in well pressure is greater than the working pressure of the flowline and manifold valves up to and including the header valves associated with that individual flowline, the flowline should be equipped with a high pressure sensing device and shut-in valve at the wellhead unless provided with a pressure relief system to prevent over pressuring.

(xvi) All pipelines appurtenant to the facility should be protected from corrosion. Methods used, such as protective coatings or cathodic protection, should be discussed.

(xvii) Sub-marine pipelines appurtenant to the facility should be adequately protected against environmental stresses and other activities such as fishing operations.

(xviii) Sub-marine pipelines appurtenant to the facility should be in good operating condition at all times and inspected on a scheduled periodic basis for failures. Such inspections should be documented and maintained at the facility.

(8) *Inspections and records.* Inspections required by this part should be in accordance with written procedures developed for the facility by the owner or operator. These written procedures and a record of the inspections, signed by the appropriate supervisor or inspector, should be made part of the SPCC Plan and maintained for a period of three years.

(9) *Security (excluding oil production facilities).* (i) All plants handling, processing, and storing oil should be fully fenced, and entrance gates should be locked and/or guarded when the plant is not in production or is unattended.

(ii) The master flow and drain valves and any other valves that will permit direct outward flow of the tank's content to the surface should be securely locked in the closed position when in non-operating or non-standby status.

(iii) The starter control on all oil pumps should be locked in the "off" position or located at a site accessible only to authorized personnel when the pumps are in a non-operating or non-standby status.

(iv) The loading/unloading connections of oil pipelines should be securely capped or blank-flanged when not in service or standby service for an extended time. This security practice should also apply to pipelines that are emptied of liquid content either by draining or by inert gas pressure.

(v) Facility lighting should be commensurate with the type and location of the facility. Consideration should be given to: (A) Discovery of spills occurring during hours of darkness, both by operating personnel, if present, and by non-operating personnel (the general public, local police, etc.) and (B) prevention of spills occurring through acts of vandalism.

(10) *Personnel, training and spill prevention procedures.* (i) Owners or operators are responsible for properly instructing their personnel in the operation and maintenance of equipment to prevent the discharges of oil and applicable pollution control laws, rules and regulations.

(ii) Each applicable facility should have a designated person who is accountable for oil spill prevention and who reports to line management.

(iii) Owners or operators should schedule and conduct spill prevention briefings for their operating personnel at intervals frequent enough to assure adequate understanding of the SPCC Plan for that facility. Such briefings should highlight and describe known spill events or failures, malfunctioning components, and recently developed precautionary measures.

§ 112.20 Facility response plans.

(a) The owner or operator of any non-transportation-related onshore facility that, because of its location, could reasonably be expected to cause substantial harm to the environment by discharging oil into or on the navigable waters or adjoining shorelines shall prepare and submit a facility response plan to the Regional Administrator, according to the following provisions:

(1) For the owner or operator of a facility in operation on or before February 18, 1993 who is required to prepare and submit a response plan under 33 U.S.C. 1321(j)(5), the Oil Pollution Act of 1990 (Pub. L. 101-380, 33 U.S.C. 2701 *et seq.*) requires the submission of a response plan that satisfies the requirements of 33 U.S.C. 1321(j)(5) no later than February 18, 1993.

(i) The owner or operator of an existing facility that was in operation on or before February 18, 1993 who submitted a response plan by February 18, 1993 shall revise the response plan to satisfy the requirements of this section and resubmit the response plan or updated portions of the response plan to the Regional Administrator by February 18, 1995.

(ii) The owner or operator of an existing facility in operation on or before February 18, 1993 who failed to submit a response plan by February 18, 1993 shall prepare and submit a response plan that satisfies the requirements of this section to the Regional Administrator before August 30, 1994.

(2) The owner or operator of a facility in operation on or after August 30, 1994 that satisfies the criteria in paragraph (f)(1) of this section or that is notified by the Regional Administrator pursuant to paragraph (b) of this section shall prepare and submit a facility response plan that satisfies the requirements of this section to the Regional Administrator.

(i) For a facility that commenced operations after February 18, 1993 but prior to August 30, 1994, and is required to prepare and submit a response plan based on the criteria in paragraph (f)(1) of this section, the owner or operator shall submit the response plan or updated portions of the response plan, along with a completed version of the response plan cover sheet contained in Appendix F to this part, to the Regional Administrator prior to August 30, 1994.

(ii) For a newly constructed facility that commences operation after August 30, 1994, and is required to prepare and submit a response plan based on the criteria in paragraph (f)(1) of this section, the owner or operator shall submit the response plan, along with a completed version of the response plan cover sheet contained in Appendix F to this part, to the Regional Administrator prior to the start of operations (adjustments to the response plan to reflect changes that occur at the facility during the start-up phase of operations must be submitted to the Regional Administrator after an operational trial period of 60 days).

(iii) For a facility required to prepare and submit a response plan after August 30, 1994, as a result of a planned change in design, construction, operation, or maintenance that renders the facility subject to the criteria in paragraph (f)(1) of this section, the owner or operator shall submit the response plan, along with a completed version of the response plan cover sheet contained in Appendix F to this part, to the Regional Administrator before the portion of the facility undergoing change commences operations (adjustments to the response plan to reflect

changes that occur at the facility during the start-up phase of operations must be submitted to the Regional Administrator after an operational trial period of 60 days).

(iv) For a facility required to prepare and submit a response plan after August 30, 1994, as a result of an unplanned event or change in facility characteristics that renders the facility subject to the criteria in paragraph (f)(1) of this section, the owner or operator shall submit the response plan, along with a completed version of the response plan cover sheet contained in Appendix F to this part, to the Regional Administrator within six months of the unplanned event or change.

(3) In the event the owner or operator of a facility that is required to prepare and submit a response plan uses an alternative formula that is comparable to one contained in Appendix C to this part to evaluate the criterion in paragraph (f)(1)(ii)(B) or (f)(1)(ii)(C) of this section, the owner or operator shall attach documentation to the response plan cover sheet contained in Appendix F to this part that demonstrates the reliability and analytical soundness of the alternative formula.

(b)(1) The Regional Administrator may at any time require the owner or operator of any non-transportation-related onshore facility to prepare and submit a facility response plan under this section after considering the factors in paragraph (f)(2) of this section. If such a determination is made, the Regional Administrator shall notify the facility owner or operator in writing and shall provide a basis for the determination. If the Regional Administrator notifies the owner or operator in writing of the requirement to prepare and submit a response plan under this section, the owner or operator of the facility shall submit the response plan to the Regional Administrator within six months of receipt of such written notification.

(2) The Regional Administrator shall review plans submitted by such facilities to determine whether the facility could, because of its location, reasonably be expected to cause significant and substantial harm to the environment by discharging oil into or on the navigable waters or adjoining shorelines.

(c) The Regional Administrator shall determine whether a facility could, because of its location, reasonably be expected to cause significant and substantial harm to the environment by discharging oil into or on the navigable waters or adjoining shorelines, based on the factors in paragraph (f)(3) of this section. If such a determination is made, the Regional Administrator shall notify the owner or operator of the facility in writing and:

(1) Promptly review the facility response plan;

(2) Require amendments to any response plan that does not meet the requirements of this section;

(3) Approve any response plan that meets the requirements of this section; and

(4) Review each response plan periodically thereafter on a schedule established by the Regional Administrator provided that the period between plan reviews does not exceed five years.

(d)(1) The owner or operator of a facility for which a response plan is required under this part shall revise and resubmit revised portions of the response plan within 60 days of each facility change that materially may affect the response to a worst case discharge, including:

(i) A change in the facility's configuration that materially alters the information included in the response plan;

(ii) A change in the type of oil handled, stored, or transferred that materially alters the required response resources;

(iii) A material change in capabilities of the oil spill removal organization(s) that provide equipment and personnel to respond to discharges of oil described in paragraph (h)(5) of this section;

(iv) A material change in the facility's spill prevention and response equipment or emergency response procedures; and

(v) Any other changes that materially affect the implementation of the response plan.

(2) Except as provided in paragraph (d)(1) of this section, amendments to personnel and telephone number lists included in the response plan and a

change in the oil spill removal organization(s) that does not result in a material change in support capabilities do not require approval by the Regional Administrator. Facility owners or operators shall provide a copy of such changes to the Regional Administrator as the revisions occur.

(3) The owner or operator of a facility that submits changes to a response plan as provided in paragraph (d)(1) or (d)(2) of this section shall provide the EPA-issued facility identification number (where one has been assigned) with the changes.

(4) The Regional Administrator shall review for approval changes to a response plan submitted pursuant to paragraph (d)(1) of this section for a facility determined pursuant to paragraph (f)(3) of this section to have the potential to cause significant and substantial harm to the environment.

(e) If the owner or operator of a facility determines pursuant to paragraph (a)(2) of this section that the facility could not, because of its location, reasonably be expected to cause substantial harm to the environment by discharging oil into or on the navigable waters or adjoining shorelines, the owner or operator shall complete and maintain at the facility the certification form contained in Appendix C to this part and, in the event an alternative formula that is comparable to one contained in Appendix C to this part is used to evaluate the criterion in paragraph (f)(1)(ii)(B) or (f)(1)(ii)(C) of this section, the owner or operator shall attach documentation to the certification form that demonstrates the reliability and analytical soundness of the comparable formula and shall notify the Regional Administrator in writing that an alternative formula was used.

(f)(1) A facility could, because of its location, reasonably be expected to cause substantial harm to the environment by discharging oil into or on the navigable waters or adjoining shorelines pursuant to paragraph (a)(2) of this section, if it meets any of the following criteria applied in accordance with the flowchart contained in Attachment C-I to Appendix C to this part:

(i) The facility transfers oil over water to or from vessels and has a total oil storage capacity greater than or equal to 42,000 gallons; or

(ii) The facility's total oil storage capacity is greater than or equal to 1 million gallons, and one of the following is true:

(A) The facility does not have secondary containment for each aboveground storage area sufficiently large to contain the capacity of the largest aboveground oil storage tank within each storage area plus sufficient freeboard to allow for precipitation;

(B) The facility is located at a distance (as calculated using the appropriate formula in Appendix C to this part or a comparable formula) such that a discharge from the facility could cause injury to fish and wildlife and sensitive environments. For further description of fish and wildlife and sensitive environments, see Appendices I, II, and III of the "Guidance for Facility and Vessel Response Plans: Fish and Wildlife and Sensitive Environments" (see Appendix E to this part, section 10, for availability) and the applicable Area Contingency Plan prepared pursuant to section 311(j)(4) of the Clean Water Act;

(C) The facility is located at a distance (as calculated using the appropriate formula in Appendix C to this part or a comparable formula) such that a discharge from the facility would shut down a public drinking water intake; or

(D) The facility has had a reportable oil spill in an amount greater than or equal to 10,000 gallons within the last 5 years.

(2)(i) To determine whether a facility could, because of its location, reasonably be expected to cause substantial harm to the environment by discharging oil into or on the navigable waters or adjoining shorelines pursuant to paragraph (b) of this section, the Regional Administrator shall consider the following:

(A) Type of transfer operation;

(B) Oil storage capacity;

(C) Lack of secondary containment;

(D) Proximity to fish and wildlife and sensitive environments and other areas determined by the Regional Administrator to possess ecological value;

(E) Proximity to drinking water intakes;

(F) Spill history; and

(G) Other site-specific characteristics and environmental factors that the Regional Administrator determines to be relevant to protecting the environment from harm by discharges of oil into or on navigable waters or adjoining shorelines.

(ii) Any person, including a member of the public or any representative from a Federal, State, or local agency who believes that a facility subject to this section could, because of its location, reasonably be expected to cause substantial harm to the environment by discharging oil into or on the navigable waters or adjoining shorelines may petition the Regional Administrator to determine whether the facility meets the criteria in paragraph (f)(2)(i) of this section. Such petition shall include a discussion of how the factors in paragraph (f)(2)(i) of this section apply to the facility in question. The RA shall consider such petitions and respond in an appropriate amount of time.

(3) To determine whether a facility could, because of its location, reasonably be expected to cause significant and substantial harm to the environment by discharging oil into or on the navigable waters or adjoining shorelines, the Regional Administrator may consider the factors in paragraph (f)(2) of this section as well as the following:

(i) Frequency of past spills;

(ii) Proximity to navigable waters;

(iii) Age of oil storage tanks; and

(iv) Other facility-specific and Region-specific information, including local impacts on public health.

(g)(1) All facility response plans shall be consistent with the requirements of the National Oil and Hazardous Substance Pollution Contingency Plan (40 CFR part 300) and applicable Area Contingency Plans prepared pursuant to section 311(j)(4) of the Clean Water Act. The facility response plan should be coordinated with the local emergency response plan developed by the local emergency planning committee under section 303 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (42 U.S.C. 11001 et seq.). Upon request, the owner or operator should provide a copy of the facility response plan to the local emergency planning committee or State emergency response commission.

(2) The owner or operator shall review relevant portions of the National Oil and Hazardous Substances Pollution Contingency Plan and applicable Area Contingency Plan annually and, if necessary, revise the facility response plan to ensure consistency with these plans.

(3) The owner or operator shall review and update the facility response plan periodically to reflect changes at the facility.

(h) A response plan shall follow the format of the model facility-specific response plan included in Appendix F to this part, unless an equivalent response plan has been prepared to meet State or other Federal requirements. A response plan that does not follow the specified format in Appendix F to this part shall have an emergency response action plan as specified in paragraphs (h)(1) of this section and be supplemented with a cross-reference section to identify the location of the elements listed in paragraphs (h)(2) through (h)(10) of this section. To meet the requirements of this part, a response plan shall address the following elements, as further described in Appendix F to this part:

(1) *Emergency response action plan.* The response plan shall include an emergency response action plan in the format specified in paragraphs (h)(1)(i) through (viii) of this section that is maintained in the front of the response plan, or as a separate document accompanying the response plan, and that includes the following information:

(i) The identity and telephone number of a qualified individual having full authority, including contracting authority, to implement removal actions;

(ii) The identity of individuals or organizations to be contacted in the event of a discharge so that immediate communications between the qualified individual identified in paragraph (h)(1) of this section and the appropriate Federal officials and the persons providing response personnel and equipment can be ensured;

(iii) A description of information to pass to response personnel in the event of a reportable spill;

(iv) A description of the facility's response equipment and its location;

(v) A description of response personnel capabilities, including the duties of persons at the facility during a response action and their response times and qualifications;

(vi) Plans for evacuation of the facility and a reference to community evacuation plans, as appropriate;

(vii) A description of immediate measures to secure the source of the discharge, and to provide adequate containment and drainage of spilled oil; and

(viii) A diagram of the facility.

(2) *Facility information.* The response plan shall identify and discuss the location and type of the facility, the identity and tenure of the present owner and operator, and the identity of the qualified individual identified in paragraph (h)(1) of this section.

(3) *Information about emergency response.* The response plan shall include:

(i) The identity of private personnel and equipment necessary to remove to the maximum extent practicable a worst case discharge and other discharges of oil described in paragraph (h)(5) of this section, and to mitigate or prevent a substantial threat of a worst case discharge (To identify response resources to meet the facility response plan requirements of this section, owners or operators shall follow Appendix E to this part or, where not appropriate, shall clearly demonstrate in the response plan why use of Appendix E of this part is not appropriate at the facility and make comparable arrangements for response resources);

(ii) Evidence of contracts or other approved means for ensuring the availability of such personnel and equipment;

(iii) The identity and the telephone number of individuals or organizations to be contacted in the event of a discharge so that immediate communications between the qualified individual identified in paragraph (h)(1) of this section and the appropriate Federal official and the persons providing response personnel and equipment can be ensured;

(iv) A description of information to pass to response personnel in the event of a reportable spill;

(v) A description of response personnel capabilities, including the duties of persons at the facility during a response action and their response times and qualifications;

(vi) A description of the facility's response equipment, the location of the equipment, and equipment testing;

(vii) Plans for evacuation of the facility and a reference to community evacuation plans, as appropriate;

(viii) A diagram of evacuation routes; and

(ix) A description of the duties of the qualified individual identified in paragraph (h)(1) of this section, that include:

(A) Activate internal alarms and hazard communication systems to notify all facility personnel;

(B) Notify all response personnel, as needed;

(C) Identify the character, exact source, amount, and extent of the release, as well as the other items needed for notification;

(D) Notify and provide necessary information to the appropriate Federal, State, and local authorities with designated response roles, including the National Response Center, State Emergency Response Commission, and Local Emergency Planning Committee;

(E) Assess the interaction of the spilled substance with water and/or other substances stored at the facility and notify response personnel at the scene of that assessment;

(F) Assess the possible hazards to human health and the environment due to the release. This assessment must consider both the direct and indirect effects of the release (i.e., the effects of any toxic, irritating, or asphyxiating gases that may be generated, or the effects of any hazardous surface water runoffs from water or chemical agents used to control fire and heat-induced explosion);

(G) Assess and implement prompt removal actions to contain and remove the substance released;

(H) Coordinate rescue and response actions as previously arranged with all response personnel;

(I) Use authority to immediately access company funding to initiate cleanup activities; and

(J) Direct cleanup activities until properly relieved of this responsibility.

(4) *Hazard evaluation.* The response plan shall discuss the facility's known or reasonably identifiable history of discharges reportable under 40 CFR part 110 for the entire life of the facility and shall identify areas within the facility where discharges could occur and what the potential effects of the discharges would be on the affected environment. To assess the range of areas potentially affected, owners or operators shall, where appropriate, consider the distance calculated in paragraph (f)(1)(ii) of this section to determine whether a facility could, because of its location, reasonably be expected to cause substantial harm to the environment by discharging oil into or on the navigable waters or adjoining shorelines.

(5) *Response planning levels.* The response plan shall include discussion of specific planning scenarios for:

(i) A worst case discharge, as calculated using the appropriate worksheet in Appendix D to this part. In cases where the Regional Administrator determines that the worst case discharge volume calculated by the facility is not appropriate, the Regional Administrator may specify the worst case discharge amount to be used for response planning at the facility. For complexes, the worst case planning quantity shall be the larger of the amounts calculated for each component of the facility;

(ii) A discharge of 2,100 gallons or less, provided that this amount is less than the worst case discharge amount. For complexes, this planning quantity shall be the larger of the amounts calculated for each component of the facility; and

(iii) A discharge greater than 2,100 gallons and less than or equal to 36,000 gallons or 10 percent of the capacity of the largest tank at the facility, whichever is less, provided that this amount is less than the worst case discharge amount. For complexes, this planning quantity shall be the larger of the amounts calculated for each component of the facility.

(6) *Discharge detection systems.* The response plan shall describe the procedures and equipment used to detect discharges.

(7) *Plan implementation.* The response plan shall describe:

(i) Response actions to be carried out by facility personnel or contracted personnel under the response plan to ensure the safety of the facility and to mitigate or prevent discharges described in paragraph (h)(5) of this section or the substantial threat of such discharges;

(ii) A description of the equipment to be used for each scenario;

(iii) Plans to dispose of contaminated cleanup materials; and

(iv) Measures to provide adequate containment and drainage of spilled oil.

(8) *Self-inspection, drills/exercises, and response training.* The response plan shall include:

(i) A checklist and record of inspections for tanks, secondary containment, and response equipment;

(ii) A description of the drill/exercise program to be carried out under the response plan as described in § 112.21;

(iii) A description of the training program to be carried out under the response plan as described in § 112.21; and

(iv) Logs of discharge prevention meetings, training sessions, and drills/exercises. These logs may be maintained as an annex to the response plan.

(9) *Diagrams.* The response plan shall include site plan and drainage plan diagrams.

(10) *Security systems.* The response plan shall include a description of facility security systems.

(11) *Response plan cover sheet.* The response plan shall include a completed response plan cover sheet provided in Section 2.0 of Appendix F to this part.

(i)(1) In the event the owner or operator of a facility does not agree with the Regional Administrator's determination that the facility could, because of its location, reasonably be expected to cause substantial harm or significant and substantial harm to the environment by discharging oil into or on the navigable waters or adjoining shorelines, or that amendments to the facility response plan are necessary prior to

approval, such as changes to the worst case discharge planning volume, the owner or operator may submit a request for reconsideration to the Regional Administrator and provide additional information and data in writing to support the request. The request and accompanying information must be submitted to the Regional Administrator within 60 days of receipt of notice of the Regional Administrator's original decision. The Regional Administrator shall consider the request and render a decision as rapidly as practicable.

(2) In the event the owner or operator of a facility believes a change in the facility's classification status is warranted because of an unplanned event or change in the facility's characteristics (i.e., substantial harm or significant and substantial harm), the owner or operator may submit a request for reconsideration to the Regional Administrator and provide additional information and data in writing to support the request. The Regional Administrator shall consider the request and render a decision as rapidly as practicable.

(3) After a request for reconsideration under paragraph (i)(1) or (i)(2) of this section has been denied by the Regional Administrator, an owner or operator may appeal a determination made by the Regional Administrator. The appeal shall be made to the EPA Administrator and shall be made in writing within 60 days of receipt of the decision from the Regional Administrator that the request for reconsideration was denied. A complete copy of the appeal must be sent to the Regional Administrator at the time the appeal is made. The appeal shall contain a clear and concise statement of the issues and points of fact in the case. It also may contain additional information from the owner or operator, or from any other person. The EPA Administrator may request additional information from the owner or operator, or from any other person. The EPA Administrator shall render a decision as rapidly as practicable and shall notify the owner or operator of the decision.

[59 FR 34098, July 1, 1994]

§ 112.21 Facility response training and drills/exercises.

(a) The owner or operator of any facility required to prepare a facility response plan under § 112.20 shall develop and implement a facility response training program and a drill/exercise program that satisfy the requirements of this section. The owner or operator shall describe the programs in the response plan as provided in § 112.20(h)(8).

(b) The facility owner or operator shall develop a facility response training program to train those personnel involved in oil spill response activities. It is recommended that the training program be based on the USCG's Training Elements for Oil Spill Response, as applicable to facility operations. An alternative program can also be acceptable subject to approval by the Regional Administrator.

(1) The owner or operator shall be responsible for the proper instruction of facility personnel in the procedures to respond to discharges of oil and in applicable oil spill response laws, rules, and regulations.

(2) Training shall be functional in nature according to job tasks for both supervisory and non-supervisory operational personnel.

(3) Trainers shall develop specific lesson plans on subject areas relevant to facility personnel involved in oil spill response and cleanup.

(c) The facility owner or operator shall develop a program of facility response drills/exercises, including evaluation procedures. A program that follows the National Preparedness for Response Exercise Program (PREP) (see Appendix E to this part, section 10, for availability) will be deemed satisfactory for purposes of this section. An alternative program can also be acceptable subject to approval by the Regional Administrator.

[59 FR 34101, July 1, 1994]

APPENDIX A TO PART 112—MEMORANDUM OF UNDERSTANDING BETWEEN THE SECRETARY OF TRANSPORTATION AND THE ADMINISTRATOR OF THE ENVIRONMENTAL PROTECTION AGENCY

SECTION II—DEFINITIONS

The Environmental Protection Agency and the Department of Transportation agree that

for the purposes of Executive Order 11548, the term:

(1) *Non-transportation-related onshore and offshore facilities* means:

(A) Fixed onshore and offshore oil well drilling facilities including all equipment and appurtenances related thereto used in drilling operations for exploratory or development wells, but excluding any terminal facility, unit or process integrally associated with the handling or transferring of oil in bulk to or from a vessel.

(B) Mobile onshore and offshore oil well drilling platforms, barges, trucks, or other mobile facilities including all equipment and appurtenances related thereto when such mobile facilities are fixed in position for the purpose of drilling operations for exploratory or development wells, but excluding any terminal facility, unit or process integrally associated with the handling or transferring of oil in bulk to or from a vessel.

(C) Fixed onshore and offshore oil production structures, platforms, derricks, and rigs including all equipment and appurtenances related thereto, as well as completed wells and the wellhead separators, oil separators, and storage facilities used in the production of oil, but excluding any terminal facility, unit or process integrally associated with the handling or transferring of oil in bulk to or from a vessel.

(D) Mobile onshore and offshore oil production facilities including all equipment and appurtenances related thereto as well as completed wells and wellhead equipment, piping from wellheads to oil separators, oil separators, and storage facilities used in the production of oil when such mobile facilities are fixed in position for the purpose of oil production operations, but excluding any terminal facility, unit or process integrally associated with the handling or transferring of oil in bulk to or from a vessel.

(E) Oil refining facilities including all equipment and appurtenances related thereto as well as in-plant processing units, storage units, piping, drainage systems and waste treatment units used in the refining of oil, but excluding any terminal facility, unit or process integrally associated with the handling or transferring of oil in bulk to or from a vessel.

(F) Oil storage facilities including all equipment and appurtenances related thereto as well as fixed bulk plant storage, terminal oil storage facilities, consumer storage, pumps and drainage systems used in the storage of oil, but excluding inline or breakout storage tanks needed for the continuous operation of a pipeline system and any terminal facility, unit or process integrally associated with the handling or transferring of oil in bulk to or from a vessel.

(G) Industrial, commercial, agricultural or public facilities which use and store oil, but excluding any terminal facility, unit or process integrally associated with the handling or transferring of oil in bulk to or from a vessel.

(H) Waste treatment facilities including in-plant pipelines, effluent discharge lines, and storage tanks, but excluding waste treatment facilities located on vessels and terminal storage tanks and appurtenances for the reception of oily ballast water or tank washings from vessels and associated systems used for off-loading vessels.

(I) Loading racks, transfer hoses, loading arms and other equipment which are appurtenant to a nontransportation-related facility or terminal facility and which are used to transfer oil in bulk to or from highway vehicles or railroad cars.

(J) Highway vehicles and railroad cars which are used for the transport of oil exclusively within the confines of a nontransportation-related facility and which are not intended to transport oil in interstate or intrastate commerce.

(K) Pipeline systems which are used for the transport of oil exclusively within the confines of a nontransportation-related facility or terminal facility and which are not intended to transport oil in interstate or intrastate commerce, but excluding pipeline systems used to transfer oil in bulk to or from a vessel.

(2) *Transportation-related onshore and offshore facilities* means:

(A) Onshore and offshore terminal facilities including transfer hoses, loading arms and other equipment and appurtenances used for the purpose of handling or transferring oil in bulk to or from a vessel as well as storage tanks and appurtenances for the reception of oily ballast water or tank washings from vessels, but excluding terminal waste treatment facilities and terminal oil storage facilities.

(B) Transfer hoses, loading arms and other equipment appurtenant to a non-transportation-related facility which is used to transfer oil in bulk to or from a vessel.

(C) Interstate and intrastate onshore and offshore pipeline systems including pumps and appurtenances related thereto as well as in-line or breakout storage tanks needed for the continuous operation of a pipeline system, and pipelines from onshore and offshore oil production facilities, but excluding onshore and offshore piping from wellheads to oil separators and pipelines which are used for the transport of oil exclusively within the confines of a nontransportation-related facility or terminal facility and which are not intended to transport oil in interstate or intrastate commerce or to transfer oil in bulk to or from a vessel.

(D) Highway vehicles and railroad cars which are used for the transport of oil in interstate or intrastate commerce and the

APPENDIX C

WATER RESOURCES

APPENDIX C1

WATER BUDGET

TRANSIT MIXED CONCRETE COMPANY
A Division of Southdown, Inc.

TRANSIT MIXED CONCRETE COMPANY
SOLEDAD CANYON WATER DEMAND ESTIMATIONS

The following is an estimate of the projected water use at Transit Mixed Concrete Company's Soledad Canyon Project. Projected water use is expressed as a rate of use in acre feet of water per year. Therefore the summer rate should be averaged with the winter rate if a projected yearly rate is desired.

It should be noted that traditional water use by this type of facility would normally amount to an approximate rate of 1200 acre feet of water per year. Transit Mixed Concrete plans to utilize process water clarifiers for the complete recycling of washing water, reducing consumption by 35% to a maximum rate of 775 acre feet per year. This Water Demand Estimation assumes that in all cases Transit Mixed Concrete will utilize the clarifier technology. Use of the clarifier technology is described as the "Original Recovery Rate" case. Water use rates can be further reduced by the recovery of water draining off of aggregate stockpiles. The total of these recovery methods is described as the "Maximum Recovery Rate" case.

The data can be summarized as follows (in acre feet per year):

Phase I	Winter Rate	Summer Rate	Avg Yearly Rate
Original Recovery	423	461	442
Maximum Recovery	314	352	333

Phase II	Winter Rate	Summer Rate	Avg Yearly Rate
Original Recovery	717	775	746
Maximum Recovery	513	572	542

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FORMULAS

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A - (F8/H12)*1000000
B - (D8/575)
C - (D12+E12)
C1 - (D13+E13)
C2 - (D14+E14)
C3 - (D15+E15)
D - (B12/100)*D8
D1 - (B13/100)*D8
D2 - (B14/100)*D8
D3 - (B15/100)*D8
E - (G12*2000)*(F12/100)/8.33
E1 - (G13*2000)*(F13/100)/8.33
E2 - (G14*2000)*(F14/100)/8.33
E3 - (G15*2000)*(F15/100)/8.33
F - (I12*H12)/325851
F1 - (I13*H13)/325851
F2 - (I14*H14)/325851
F3 - (I15*H15)/325851
G - +TOTAL(G12,G13,G14,G15)
H - +TOTAL(H12,H13,H14,H15)
I - +TOTAL(J12,J13,J14,J15)
J - (H8*60)
K - (B21*C21*D21)
L - (I21*H21)/325851
M - (B27*C27)
M1 - ((D28/100)*D8*2000)/((100-E28)/10)*(E28/10)8.33
M2 - (K29/100)*G29*1.5*2000/8.33
M3 - (F30*N30)
N - (I27*H27)/325851
N1 - (I28*H28)/325851
N2 - (I29*H29)/325851
N3 - (I30*H30)/325851
N4 - (I31*H31)/325851
O - (D8*.333)
P - +TOTAL(I27,I28,I29,I30,I31)
Q - +TOTAL(J27,J28,J29,J30,J31)
R - (D37*H43)
S - (B43/100)*D37
S1 - (B44/100)*D37
S2 - (B45/100)*D37
T - (D43*E43)
T1 - (D44*E44)
T2 - (D45*E45)
U - (H43*I43)/325851
U1 - (H44*I44)/325851
U2 - (H45*I45)/325851
V - (F47*G47)
V1 - (F48*G48)
W - (H47*I47)/325851
W1 - (H48*I48)/325851
X - +TOTAL(I43,I44,I45,I47,I48)
Y - +TOTAL(J43,J44,J45,J47,J48)
Z - +TOTAL(G16)
Z1 - +TOTAL(I49,I32,I21,I16)
Z2 - +TOTAL(J49,J32,J21,J16)
AA - ((((E12-8)*.008)*G12)*2000/8.33)*H12/325851
BB - (((E14-2)*G14*.008)*2000/8.33)*H12/325851
CC - (((E15-4)*G15*.008)*2000/8.33)*H12/325851
DD - (I47/2)*H47/325851
EE - +O12+O14+O15+O47
FF - -1*O49
GG - +J54+J56
```

SOLEDAD CANYON WATER DEMAND

Phase: I Case: Average Season: Summer

Rock Plant:

Rock Plant Production: (A) Tons/Day 2.15 Tons/Yr (B) Hrs/Day

Product	%Product	Int%Moist	% Absorb	Ext%Moist	Tot%Moist	Tons/Day	Op Days	Gal/Day	Ac-Ft/Yr	Rec Water Ac-Ft/Yr
W.C. Sand	53	1.5	0.75	15	(C)	(D)	270	(E)	(F)	(AA)
Grav 1 1/2	2	1.5	0.75	3	(C1)	(D1)	270	(E1)	(F1)	
Grav 1	30	1.5	0.75	4	(C2)	(D2)	270	(E2)	(F2)	(BB)
Grav 3/8	15	1.5	0.75	7	(C3)	(D3)	270	(E3)	(F3)	(CC)
					Sub-Total	(G)		(H)	(I)	

In Plant Dust Suppression:

Gal/Min	Nozzles	Min/Day	Op Days	Gal/Day	Ac-Ft/Yr
0.5	36	(J)	270	(K)	(L)

Ancilliary Facilities:

	Truck/Day	Gal/Truck	% Silt	% Water	Gal/Load	Tons/Day	Op Days	Gal/Day	Ac-Ft/Yr	Moist%Add	-Dust p	Evap	Loads/Day
Truck Wash	7	115					270	(M)	(N)				
Disp Fine			4	40			270	(M1)	(N1)				
Comp Fine						(O)	270	(M2)	(N2)	3.5		1.5	
Dust Supp					4000		270	(M3)	(N3)		1		31
Off Main							270	6500	(N4)				
					Sub-Total			(P)	(Q)				

Batch Plant:

Batch Plant Production: 750 Cu.Yd./Day (R) CuYd/Year

Concrete Products:

Product	% Production	Gal/CuYd	CuYd/Day	No.Trucks	Gal/Truck	Op Days	Gal/Day	Ac-Ft/Yr		
Pump 3/8	10	39.8	(S)			255	(T)	(U)		
Place 1	50	32.6	(S1)			255	(T1)	(U1)		
Pump 1	40	34.6	(S2)			255	(T2)	(U2)		
Washout				33	200	255	(V)	(W)		(DD)
Jobsite Clean up				75	50	255	(V1)	(W1)	Sub Total	(EE)
				Sub-Total			(X)	(Y)		

	Tons/Day	Gal/Day	Ac-Ft/Yr
Total	(Z)	(Z1)	(Z2)
		Rec Water	(FF)
		Total Use	(GG)

SOLEDAD CANYON WATER DEMAND

Estimate Date: April 16, 1992

Phase: I Case: Original Recovery Rate Season: Winter

Rock Plant:

Rock Plant Production: 7962.963 Tons/Day 2.15 Tons/Yr 13.848631 Hrs/Day

Product	%Product	Int%Moist	% Absorb	Ext%Moist	Tot%Moist	Tons/Day	Op Days	Gal/Day	Ac-Ft/Yr
W.C. Sand	53	1.5	0.75	15	15.75	4220.3704	270	159593.84	132.23939
Grav 1 1/2	2	0.6	0.2	3	3.2	159.25926	270	1223.6006	1.0138749
Grav 1	30	0.75	0.25	4	4.25	2388.8889	270	24376.417	20.198289
Grav 3/8	15	1.25	0.45	7	7.45	1194.4444	270	21365.213	17.703206
					Sub-Total	7962.963		206559.07	171.15476

In Plant Dust Suppression:

Gal/Min	Nozzles	Min/Day	Op Days	Gal/Day	Ac-Ft/Yr
1.5	36	830.91787	270	44869.565	37.178903

Ancilliary Facilities:

	Truck/Day	Gal/Truck	% Silt	% Water	Gal/Load	Tons/Day	Op Days	Gal/Day	Ac-Ft/Yr	Moist%Add	-Dust p	Evap	Loads/Da
Truck Wash	30	115					270	3450	2.8586685				
Disp Fine			4	50			270	76475.034	63.367181				
Comp Fine						2651.6667	270	38199.28	31.651907	4		1.1	
Dust Supp					4000		270	100000	82.859957		1		2
Off Main							270	6500	5.3858972				
					Sub-Total			224624.31	186.12361				

Batch Plant:

Batch Plant Production: 750 Cu.Yd./Day 191250 CuYd/Year

Concrete Products:

Product	% Production	Gal/CuYd	CuYd/Day	No.Trucks	Gal/Truck	Op Days	Gal/Day	Ac-Ft/Yr
Pump 3/8	10	39.8	75			255	2985	2.3359603
Place 1	50	32.6	375			255	12225	9.5668726
Pump 1	40	34.6	300			255	10380	8.1230378
Washout				33	200	255	6600	5.1649373
Jobsite Clean up				75	50	255	3750	2.9346235
				Sub-Total			35940	28.125432

	Tons/Day	Gal/Day	Ac-Ft/Yr
Total	7962.963	511992.95	422.5827

SOLEDAD CANYON WATER DEMAND

Estimate Date: April 16, 1992

Phase: I Case: Maximum Recovery Rate Season: Winter

Rock Plant:

Rock Plant Production: 7962.963 Tons/Day 2.15 Tons/Yr 13.848631 Hrs/Day

Product	%Product	Int%Moist	% Absorb	Ext%Moist	Tot%Moist	Tons/Day	Op Days	Gal/Day	Ac-Ft/Yr	Rec Water Ac-Ft/Yr
W.C. Sand	53	1.5	0.75	15	15.75	4220.3704	270	159593.84	132.23939	47.018448
Grav 1 1/2	2	0.6	0.2	3	3.2	159.25926	270	1223.6006	1.0138749	
Grav 1	30	0.75	0.25	4	4.25	2388.8889	270	24376.417	20.198289	7.6040617
Grav 3/8	15	1.25	0.45	7	7.45	1194.4444	270	21365.213	17.703206	5.7030463
					Sub-Total	7962.963		206559.07	171.15476	

In Plant Dust Suppression:

Gal/Min	Nozzles	Min/Day	Op Days	Gal/Day	Ac-Ft/Yr
0.5	36	830.91787	270	14956.522	12.392968

Ancilliary Facilities:

	Truck/Day	Gal/Truck	% Silt	% Water	Gal/Load	Tons/Day	Op Days	Gal/Day	Ac-Ft/Yr	Moist%Add	-Dust p	Evap	Loads/Day
Truck Wash	30	115					270	3450	2.8586685				
Disp Fine			4	40			270	50983.356	42.244787				
Comp Fine						2651.6667	270	38199.28	31.651907	4		1.1	
Dust Supp					4000		270	100000	82.859957		1		25
Off Main							270	6500	5.3858972				
					Sub-Total			199132.64	165.00122				

Batch Plant:

Batch Plant Production: 750 Cu.Yd./Day 191250 CuYd/Year

Concrete Products:

Product	% Production	Gal/CuYd	CuYd/Day	No.Trucks	Gal/Truck	Op Days	Gal/Day	Ac-Ft/Yr		
Pump 3/8	10	39.8	75			255	2985	2.3359603		
Place 1	50	32.6	375			255	12225	9.5668726		
Pump 1	40	34.6	300			255	10380	8.1230378		
Washout				33	200	255	6600	5.1649373		2.5824687
Jobsite Clean up				75	50	255	3750	2.9346235		
				Sub-Total			35940	28.125432	Sub Total	62.908025

	Tons/Day	Gal/Day	Ac-Ft/Yr
Total	7962.963	456588.23	376.67437
		Rec Water	-62.90803
		Total Use	313.76635

SOLEDAD CANYON WATER DEMAND

Estimate Date: April 16, 1992

Phase: I Case: Original Recovery Rate Season: Summer

Rock Plant:

Rock Plant Production: 7962.963 Tons/Day 2.15 Tons/Yr 13.848631 Hrs/Day

Product	%Product	Int%Moist	% Absorb	Ext%Moist	Tot%Moist	Tons/Day	Op Days	Gal/Day	Ac-Ft/Yr
W.C. Sand	53	1.5	0.75	15	15.75	4220.3704	270	159593.84	132.23939
Grav 1 1/2	2	0.6	0.2	3	3.2	159.25926	270	1223.6006	1.0138749
Grav 1	30	0.75	0.25	4	4.25	2388.8889	270	24376.417	20.198289
Grav 3/8	15	1.25	0.45	7	7.45	1194.4444	270	21365.213	17.703206
					Sub-Total	7962.963		206559.07	171.15476

In Plant Dust Suppression:

Gal/Min	Nozzles	Min/Day	Op Days	Gal/Day	Ac-Ft/Yr
1.5	36	830.91787	270	44869.565	37.178903

Ancilliary Facilities:

	Truck/Day	Gal/Truck	% Silt	% Water	Gal/Load	Tons/Day	Op Days	Gal/Day	Ac-Ft/Yr	Moist%Add	-Dust p	Evap	Loads/Day
Truck Wash	60	115					270	6900	5.7173371				
Disp Fine			4	50			270	76475.034	63.367181				
Comp Fine						2651.6667	270	57298.92	47.47786	6		1.5	
Dust Supp					4000		270	124000	102.74635		1		31
Off Main							270	6500	5.3858972				
					Sub-Total			271173.95	224.69462				

Batch Plant:

Batch Plant Production: 750 Cu.Yd./Day 191250 CuYd/Year

Concrete Products:

Product	% Production	Gal/CuYd	CuYd/Day	No.Trucks	Gal/Truck	Op Days	Gal/Day	Ac-Ft/Yr
Pump 3/8	10	39.8	75			255	2985	2.3359603
Place 1	50	32.6	375			255	12225	9.5668726
Pump 1	40	34.6	300			255	10380	8.1230378
Washout				33	200	255	6600	5.1649373
Jobsite Clean up				75	50	255	3750	2.9346235
				Sub-Total			35940	28.125432

	Tons/Day	Gal/Day	Ac-Ft/Yr
Total	7962.963	558542.59	461.15371

SOLEDAD CANYON WATER DEMAND

Estimate Date: April 16, 1992

Phase: I Case: Maximum Recovery Rate Season: Summer

Rock Plant:

Rock Plant Production: 7962.963 Tons/Day 2.15 Tons/Yr 13.848631 Hrs/Day

Product	%Product	Int%Moist	% Absorb	Ext%Moist	Tot%Moist	Tons/Day	Op Days	Gal/Day	Ac-Ft/Yr	Rec Water Ac-Ft/Yr
W.C. Sand	53	1.5	0.75	15	15.75	4220.3704	270	159593.84	132.23939	47.018448
Grav 1 1/2	2	0.6	0.2	3	3.2	159.25926	270	1223.6006	1.0138749	
Grav 1	30	0.75	0.25	4	4.25	2388.8889	270	24376.417	20.198289	7.6040617
Grav 3/8	15	1.25	0.45	7	7.45	1194.4444	270	21365.213	17.703206	5.7030463
					Sub-Total	7962.963		206559.07	171.15476	

In Plant Dust Suppression:

Gal/Min	Nozzles	Min/Day	Op Days	Gal/Day	Ac-Ft/Yr
0.5	36	830.91787	270	14956.522	12.392968

Ancilliary Facilities:

	Truck/Day	Gal/Truck	% Silt	% Water	Gal/Load	Tons/Day	Op Days	Gal/Day	Ac-Ft/Yr	Moist%Add	-Dust p	Evap	Loads/Day
Truck Wash	60	115					270	6900	5.7173371				
Disp Fine			4	40			270	50983.356	42.244787				
Comp Fine						2651.6667	270	57298.92	47.47786	6		1.5	
Dust Supp					4000		270	124000	102.74635		1		31
Off Main							270	6500	5.3858972				
					Sub-Total			245682.28	203.57223				

Batch Plant:

Batch Plant Production: 750 Cu.Yd./Day 191250 CuYd/Year

Concrete Products:

Product	% Production	Gal/CuYd	CuYd/Day	No.Trucks	Gal/Truck	Op Days	Gal/Day	Ac-Ft/Yr		
Pump 3/8	10	39.8	75			255	2985	2.3359603		
Place 1	50	32.6	375			255	12225	9.5668726		
Pump 1	40	34.6	300			255	10380	8.1230378		
Washout				33	200	255	6600	5.1649373		2.5824687
Jobsite Clean up				75	50	255	3750	2.9346235		
				Sub-Total			35940	28.125432	Sub Total	62.908025

	Tons/Day	Gal/Day	Ac-Ft/Yr
Total	7962.963	503137.87	415.24538
		Rec Water	-62.90803
		Total Use	352.33736

SOLEDAD CANYON WATER DEMAND

Phase: II Case: Original Recovery Rate Season: Winter Estimate Date: April 16, 1992

Rock Plant:

Rock Plant Production: 14482.759 Tons/Day 4.2 Tons/Yr 16.091954 Hrs/Day

Product	%Product	Int%Moist	% Absorb	Ext%Moist	Tot%Moist	Tons/Day	Op Days	Gal/Day	Ac-Ft/Yr
W.C. Sand	53	1.5	0.75	15	15.75	7675.8621	290	290263.69	258.3281
Grav 1 1/2	2	0.6	0.2	3	3.2	289.65517	290	2225.4419	1.9805928
Grav 1	30	0.75	0.25	4	4.25	4344.8276	290	44334.975	39.457123
Grav 3/8	15	1.25	0.45	7	7.45	2172.4138	290	38858.302	34.583007
					Sub-Total	14482.759		375682.41	334.34883

In Plant Dust Suppression:

Gal/Min	Nozzles	Min/Day	Op Days	Gal/Day	Ac-Ft/Yr
1.5	48	965.51724	290	69517.241	61.868768

Ancilliary Facilities:

	Truck/Day	Gal/Truck	% Silt	% Water	Gal/Load	Tons/Day	Op Days	Gal/Day	Ac-Ft/Yr	Moist%Add	-Dust p	Evap	Loads/Day
Truck Wash	60	115					290	6900	6.1408435				
Disp Fine			4	50			290	139090.12	123.78705				
Comp Fine						4822.7586	290	69475.514	61.831632	4		1.1	
Dust Supp					4000		290	100000	88.997732		1		25
Off Main							290	8500	7.5648072				
					Sub-Total			323965.63	288.32207				

Batch Plant:

Batch Plant Production: 750 Cu.Yd./Day 217500 CuYd/Year

Concrete Products:

Product	% Production	Gal/CuYd	CuYd/Day	No.Trucks	Gal/Truck	Op Days	Gal/Day	Ac-Ft/Yr
Pump 3/8	10	39.8	75			290	2985	2.6565823
Place 1	50	32.6	375			290	12225	10.879973
Pump 1	40	34.6	300			290	10380	9.2379646
Washout				33	200	290	6600	5.8738503
Jobsite Clean up				75	50	290	3750	3.337415
				Sub-Total			35940	31.985785

	Tons/Day	Gal/Day	Ac-Ft/Yr
Total	14482.759	805105.29	716.52544

SOLEDAD CANYON WATER DEMAND

Phase: II Case: Original Recovery Rate Season: Summer Estimate Date: April 16, 1992

Rock Plant:

Rock Plant Production: 14482.759 Tons/Day 4.2 Tons/Yr 16.091954 Hrs/Day

Product	%Product	Int%Moist	% Absorb	Ext%Moist	Tot%Moist	Tons/Day	Op Days	Gal/Day	Ac-Ft/Yr
W.C. Sand	53	1.5	0.75	15	15.75	7675.8621	290	290263.69	258.3281
Grav 1 1/2	2	0.6	0.2	3	3.2	289.65517	290	2225.4419	1.9805928
Grav 1	30	0.75	0.25	4	4.25	4344.8276	290	44334.975	39.457123
Grav 3/8	15	1.25	0.45	7	7.45	2172.4138	290	38858.302	34.583007
					Sub-Total	14482.759		375682.41	334.34883

In Plant Dust Suppression:

Gal/Min	Nozzles	Min/Day	Op Days	Gal/Day	Ac-Ft/Yr
1.5	48	965.51724	290	69517.241	61.868768

Ancilliary Facilities:

	Truck/Day	Gal/Truck	% Silt	% Water	Gal/Load	Tons/Day	Op Days	Gal/Day	Ac-Ft/Yr	Moist%Add	-Dust p	Evap	Loads/Day
Truck Wash	120	115					290	13800	12.281687				
Disp Fine			4	50			290	139090.12	123.78705				
Comp Fine						4822.7586	290	104213.27	92.747448	6		1.5	
Dust Supp					4000		290	124000	110.35719		1		31
Off Main							290	8500	7.5648072				
					Sub-Total			389603.39	346.73818				

Batch Plant:

Batch Plant Production: 750 Cu.Yd./Day 217500 CuYd/Year

Concrete Products:

Product	% Production	Gal/CuYd	CuYd/Day	No.Trucks	Gal/Truck	Op Days	Gal/Day	Ac-Ft/Yr
Pump 3/8	10	39.8	75			290	2985	2.6565823
Place 1	50	32.6	375			290	12225	10.879973
Pump 1	40	34.6	300			290	10380	9.2379646
Washout				33	200	290	6600	5.8738503
Jobsite Clean up				75	50	290	3750	3.337415
				Sub-Total			35940	31.985785

	Tons/Day	Gal/Day	Ac-Ft/Yr
Total	14482.759	870743.04	774.94156

SOLEDAD CANYON WATER DEMAND

Phase: II Case: Maximum Recovery Rate Season: Winter Date: April 16, 1992

Rock Plant:

Rock Plant Production: 14482.759 Tons/Day 4.2 Tons/Yr 16.091954 Hrs/Day

Product	%Product	Int%Moist	% Absorb	Ext%Moist	Tot%Moist	Tons/Day	Op Days	Gal/Day	Ac-Ft/Yr	Rec Water Ac-Ft/Yr
W.C. Sand	53	1.5	0.75	15	15.75	7675.8621	290	290263.69	258.3281	91.849992
Grav 1 1/2	2	0.6	0.2	3	3.2	289.65517	290	2225.4419	1.9805928	
Grav 1	30	0.75	0.25	4	4.25	4344.8276	290	44334.975	39.457123	14.854446
Grav 3/8	15	1.25	0.45	7	7.45	2172.4138	290	38858.302	34.583007	11.140835
					Sub-Total	14482.759		375682.41	334.34883	

In Plant Dust Suppression:

Gal/Min	Nozzles	Min/Day	Op Days	Gal/Day	Ac-Ft/Yr
0.5	48	965.51724	290	23172.414	20.622923

Ancilliary Facilities:

	Truck/Day	Gal/Truck	% Silt	% Water	Gal/Load	Tons/Day	Op Days	Gal/Day	Ac-Ft/Yr	Moist%Add	-Dust p	Evap	Loads/Day
Truck Wash	60	115					290	6900	6.1408435				
Disp Fine			4	40			290	92726.746	82.524701				
Comp Fine						4822.7586	290	69475.514	61.831632	4		1.1	
Dust Supp					4000		290	100000	88.997732		1		25
Off Main							290	8500	7.5648072				
					Sub-Total			277602.26	247.05972				

Batch Plant:

Batch Plant Production: 750 Cu.Yd./Day 217500 CuYd/Year

Concrete Products:

Product	% Production	Gal/CuYd	CuYd/Day	No.Trucks	Gal/Truck	Op Days	Gal/Day	Ac-Ft/Yr		
Pump 3/8	10	39.8	75			290	2985	2.6565823		
Place 1	50	32.6	375			290	12225	10.879973		
Pump 1	40	34.6	300			290	10380	9.2379646		
Washout				33	200	290	6600	5.8738503		2.9369252
Jobsite Clean up				75	50	290	3750	3.337415		
				Sub-Total			35940	31.985785	Sub Total	120.7822

	Tons/Day	Gal/Day	Ac-Ft/Yr
Total	14482.759	712397.08	634.01725
		Rec Water	-120.7822
		Total Use	513.23505

SOLEDAD CANYON WATER DEMAND

Phase: II Case: Maximum Recovery Rate Season: Summer Estimate Date: April 16, 1992

Rock Plant:

Rock Plant Production: 14482.759 Tons/Day 4.2 Tons/Yr 16.091954 Hrs/Day

Product	%Product	Int%Moist	% Absorb	Ext%Moist	Tot%Moist	Tons/Day	Op Days	Gal/Day	Ac-Ft/Yr	Rec Water Ac-Ft/Yr
W.C. Sand	53	1.5	0.75	15	15.75	7675.8621	290	290263.69	258.3281	91.849992
Grav 1 1/2	2	0.6	0.2	3	3.2	289.65517	290	2225.4419	1.9805928	
Grav 1	30	0.75	0.25	4	4.25	4344.8276	290	44334.975	39.457123	14.854446
Grav 3/8	15	1.25	0.45	7	7.45	2172.4138	290	38858.302	34.583007	11.140835
					Sub-Total	14482.759		375682.41	334.34883	

In Plant Dust Suppression:

Gal/Min	Nozzles	Min/Day	Op Days	Gal/Day	Ac-Ft/Yr
0.5	48	965.51724	290	23172.414	20.622923

Ancilliary Facilities:

	Truck/Day	Gal/Truck	% Silt	% Water	Gal/Load	Tons/Day	Op Days	Gal/Day	Ac-Ft/Yr	Moist%Add	-Dust p	Evap	Loads/Day
Truck Wash	120	115					290	13800	12.281687				
Disp Fine			4	40			290	92726.746	82.524701				
Comp Fine						4822.7586	290	104213.27	92.747448	6		1.5	
Dust Supp					4000		290	124000	110.35719		1		31
Off Main							290	8500	7.5648072				
					Sub-Total			343240.02	305.47583				

Batch Plant:

Batch Plant Production: 750 Cu.Yd./Day 217500 CuYd/Year

Concrete Products:

Product	% Production	Gal/CuYd	CuYd/Day	No.Trucks	Gal/Truck	Op Days	Gal/Day	Ac-Ft/Yr		
Pump 3/8	10	39.8	75			290	2985	2.6565823		
Place 1	50	32.6	375			290	12225	10.879973		
Pump 1	40	34.6	300			290	10380	9.2379646		
Washout				33	200	290	6600	5.8738503		2.9369252
Jobsite Clean up				75	50	290	3750	3.337415		
				Sub-Total			35940	31.985785	Sub Total	120.7822

	Tons/Day	Gal/Day	Ac-Ft/Yr
Total	14482.759	778034.84	692.43336
		Rec Water	-120.7822
		Total Use	571.65117

APPENDIX C2

ANSWER TO VESTED RIGHTS vs APPLICATION NO. 29967
(West Coast Environmental 1994)

West Coast Environmental

Answer to Vested Rights Protests
vs.
Application No. 29967

Transit Mixed Concrete Company
Soledad Canyon Project
March 11, 1994

Prepared for:

Transit Mixed Concrete Company
P.O. Box 575
1201 West Gladstone Street
Azusa, California 91702-0575

TR110 - 610

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TRANSIT MIXED CONCRETE COMPANY
A Division of Southdown, Inc.

March 11, 1994

VIA OVERNIGHT DELIVERY

Julie Laudon
State Water Resources Control Board
Division of Water Rights
901 "P" Street
Sacramento, California 95814

APPLICATION 29967 OF TRANSIT MIXED CONCRETE COMPANY,
SANTA CLARA RIVER SUBTERRANEAN STREAM IN LOS ANGELES COUNTY

Dear Ms. Laudon:

Enclosed for filing with the State Water Resources Control Board is the original and one copy of a report dated March 11, 1994. This report contains the answer of Transit Mixed Concrete Company to the vested rights protests of Newhall County Water District, Valencia Water Company/Newhall Land & Farming Company and United Water Conservation District which challenge Application No. 29967 of Transit Mixed Concrete Company to appropriate 322 acre-feet per year from the Santa Clara River underflow.

Please call me at (818) 969-4311 if I can be of any assistance to you in reviewing this report, or in the processing of our application to appropriate water.

Yours Truly,

Brian R. Mastin

Brian R. Mastin
Environmental Affairs Manager

Enclosures

BRM:amg

P.O. BOX 575 • AZUSA, CALIFORNIA 91702 • TELEPHONE (213) 686-1603 • (818) 969-4311

Distribution:

Mr. Kerry Shapiro
Baker & McKenzie, Attorneys at Law
2 Embarcadero Center, 24th Fl.
San Francisco, CA 94111-3909

Mr. Robert Di Primio
Valencia Water Company/
Newhall Land & Farming Co.
28769 Castaic Canyon Road
Valencia, CA 91355

Ms. Julia Dougan
Area Manager
U.S. Department of Interior
Bureau of Land Management
Palm Springs-South Coast Resource Area
63-500 Garnet Avenue
P.O. Box 2000
N. Palm Springs, CA 92258-2000

Mr. James E. Jinks
Newhall County Water District
P.O. Box 779
Newhall, CA 91322-0779

United Water Conservation District
c/o Kenneth L. Woodward
950 Watt Avenue
Sacramento, CA 95864

C.A. Rasmussen Company
c/o Russell J. Watson, P.E.
2360 Shasta Way
Simi Valley, CA 93065

Answer to Vested Rights Protests
vs.
Application No. 29967

Transit Mixed Concrete Company
P.O. Box 575
1201 West Gladstone Street
Azusa, California 91702-0575

March 11, 1994

Contact: Brian R. Mastin
Environmental Affairs Manager
(818) 969-4311

West Coast Environmental

March 11, 1994

Brian R. Mastin
Environmental Affairs Manager
Transit Mixed Concrete Company
P.O. Box 575
1201 W. Gladstone Ave.
Azusa, CA 91702-0575

Re: Application No. 29967 to Appropriate Water from the Santa Clara River Underflow, Los Angeles County

Dear Mr. Mastin:

Enclosed herewith is the report **Answer to Vested Rights Protests vs. Application No. 29967** for Transit Mixed Concrete Company.

Respectfully submitted,

REGISTERED GEOLOGIST
PHILIP R. KINNEY
No. 4856
STATE OF CALIFORNIA

Philip Kinney, R.G., R.E.A.
Registered Geologist

3-11-94
Date

REGISTERED PROFESSIONAL ENGINEER
CAROLYN M. MEANS
No. 4562
Exp 9/30/94
CHEMICAL
STATE OF CALIFORNIA

Carolyn Means Casavan, P.E.
President

3-11-94
Date

4245 MARKET ST., SUITE 206 • VENTURA, CA 93003 • (805) 644-7976 • FAX 644-5929

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LIST OF ACRONYMS

AFY	Acre Feet Per Year
AVEK	Antelope Valley-East Kern Water Agency
CAR	C.A. Rasmussen Company
CDM	California Division of Mines and Geology
CDWR	California Department of Water Resources
CLWA	Castaic Lake Water Agency
DWR	Division of Water Rights
EIR	Environmental Impact Report
gpd/ft	Gallons per Day/per foot
gpm/ft	Gallons per Minute/per foot
GW	Groundwater
GWS	Groundwater Systems, Inc. Report
HA	Hydrologic Area
K	Hydraulic Conductivity
LACWD	Los Angeles County Waterworks District
LAS	Lower Aquifer System
NCWD	Newhall County Water District
NLF	Newhall Land and Farming
POTW	Publicly Owned Treatment Works
ppm	Parts per Million
PS-AAPG	Pacific Section-American Association of Petroleum Geologists
RWQCB	Regional Water Quality Control Board
SCEIR	Screencheck Environmental Impact Report
SCR	Santa Clara River
SCRW	Santa Clara River Watershed
SCWC	Santa Clarita Water Company
SMGB	State Mining and Geology Board
SWP	State Water Project
SWRCB	State Water Resources Control Board
Sy	Specific Yield
T	Transmissivity
TDS	Total Dissolved Solids
TMC	Transit Mixed Concrete Company
UAS	Upper Aquifer System
USGS	U.S. Geological Survey
UTS	Unarmored Threespine Stickleback
UW	United Water
UWCD	United Water Conservation District
VC	Ventura County
VC-FCD	Ventura County-Flood Control District
VWC/NLF	Valencia Water Company/Newhall Land and Farming
WCE	West Coast Environmental
WSCP	Water Shortage Contingency Plan (Upper Santa Clara Water Committee)
WSCP-TMC	Water Shortage Contingency Plan (Transit Mixed Concrete Company)

Executive Summary

The Project

Transit Mixed Concrete Company (TMC) proposes to establish a sand and gravel mining project in Soledad Canyon, Los Angeles County. The Project will provide badly-needed construction aggregate resources (sand, gravel, crushed rock, etc.) for the building and construction industry throughout the Los Angeles region. The Bureau of Land Management of the U.S. Department of the Interior has entered into contracts with TMC for the mining of sand and gravel over a 20-year period.

The Application

In order to conduct its activities, TMC has leased riparian properties and submitted an application to appropriate water from the Santa Clara River underflow (A29967) for the purposes of washing aggregates, manufacturing ready-mixed concrete, running auxiliary facilities, suppressing fugitive dust from roads, and compacting excess earthen fines on site. Water will be recycled on site, without discharge into the river. Total usage is estimated to be 598 acre feet per year, of which an estimated 322 acre feet per year will be derived from appropriated water if the present application is approved.

The Protests and Answer to Protests

Several parties have protested TMC's application, either on the grounds of environmental concerns or alleged injury to prior vested rights. Among the protestants, Newhall County Water District, Valencia Water Company/Newhall Land and Farming, and United Water Conservation District each allege that TMC's proposed appropriation will violate their prior vested rights. This report documents information which supports a finding that surplus, unappropriated water is available for appropriation from the Santa Clara River, in compliance with statutory permitting procedures, and in support of TMC's application.

Answer to the Protest of Newhall County Water District

Newhall County Water District (NCWD) asserts that it enjoys prior vested rights to appropriate percolating groundwater from its wells. NCWD further alleges that these rights would be injured by TMC's proposed appropriation, which would prevent the recharge of the aquifer. In support of its position, NCWD points to a decline of water in its wells during several successive years of drought. TMC answers with the following: (1) water resources data indicates that surplus water is available, which during wet and average precipitation years, is being wasted into the sea; (2) refusal to approve TMC's project would frustrate the State of California's declared policy of developing specially designated construction aggregate resources; (3) TMC's diversion will not unreasonably impair pumping levels or materially injure NCWD; (4) TMC would agree to the principles set forth in the Water Shortage Contingency Plan that has been submitted to the State of California by local water purveyors, and of which NCWD is a party, and to curtail TMC's use in the event of severe drought; and (5) NCWD may in fact be diverting its water from an underground stream or the underflow of the Santa Clara River without a permit, and therefore is without a prior vested right, although determining the exact legal status of the water is not necessary to establishing the availability of surplus water for TMC's appropriation. Because the proposed appropriation will not cause any material harm

to the protestant, and will provide for a more beneficial use of water which is in the public interest, TMC argues that NCWD's protest should be dismissed.

Answer to the Protest of Valencia Water Company/Newhall Land and Farming

Valencia Water Company/Newhall Land and Farming (VWC/NLF) claimed pre-1914, overlying and appropriative groundwater rights as well as riparian rights. Despite requests from the Division of Water Resources, VWC/NLF failed to provide a list of wells identifying the type of water right claimed for each well. Nonetheless, they assert that TMC's proposed appropriation and exercise of riparian rights will injure their alleged prior vested rights. TMC answers that VWC/NLF have waived any claims resting on riparian or pre-1914 rights through their failure to identify those rights. In addition to the arguments raised in TMC's answer to NCWD's protest, many of which apply to VWC/NLF, TMC further answers that its proposed appropriation will not materially damage the protestants, either in terms of the quantity or quality of water available to them, because of the large volume of usable water (estimated at 1.41 million acre feet) found in the Saugus Formation. Their protests should accordingly be dismissed.

Answer to the Protest of United Water Conservation District

United Water Conservation District (UWCD) claims that TMC's proposed appropriation may adversely affect its prior rights. UWCD further requests that all of TMC's unconsumed water be returned to the Santa Clara River, and that TMC's appropriation not adversely affect downstream prior rights. TMC answers that: (1) it will recycle all of the water it appropriates, leaving no unconsumed water; (2) there is sufficient water in the Santa Clara River for TMC to make its proposed appropriation of 322 acre feet per year without any materially adverse impact on UWCD; (3) UWCD may reduce the scale of its own diversions, making more water available; and (4) TMC's proposed diversions are geographically remote from UWCD's points of diversion, further reducing the impact on UWCD. Because TMC's proposed appropriation will not materially harm UWCD's exercise of prior rights, TMC argues UWCD's protest should also be dismissed.

Sources of Information

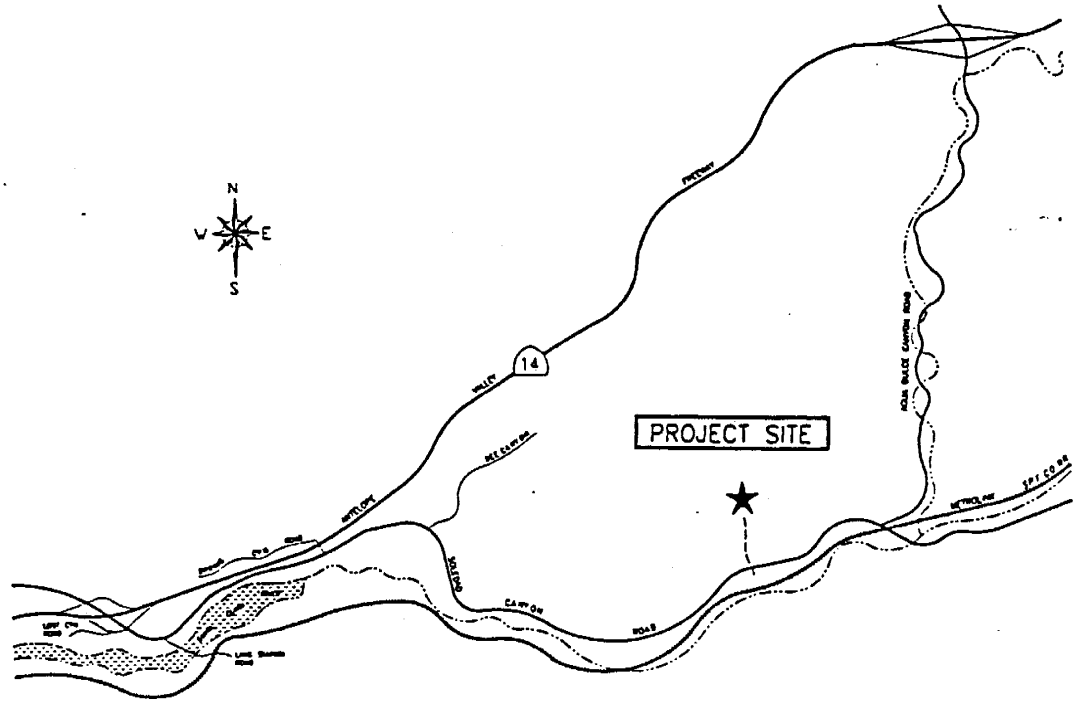
In order to determine the availability of water for appropriation from the Santa Clara River, TMC employed West Coast Environmental (WCE), an environmental consulting firm, to collect, analyze, and summarize information regarding water resource availability, water use, and water quality. Much of the information utilized was previously developed by other consultants, and other information was obtained by reviewing public records and agency reports.

APPENDIX D

TRAFFIC

TRANSIT MIXED CONCRETE COMPANY FACILITY IN SOLEDAD CANYON
COUNTY OF LOS ANGELES, CALIFORNIA

TRAFFIC AND CIRCULATION STUDY



May 7, 1998

ATE Project #97095

Prepared for:

The Chambers Group
17671 Cowan Avenue, Suite 100
Irvine, CA 92614

Prepared by:

Richard L. Pool, P.E.
100 N. Hope Avenue, Suite 4
Santa Barbara, CA 93110-1686

REGISTERED PROFESSIONAL ENGINEER
RICHARD L. POOL
No. 18,030
Expires 6/30/01
CIVIL
STATE OF CALIFORNIA

ASSOCIATED TRANSPORTATION ENGINEERS
100 N. Hope Avenue, Suite 4, Santa Barbara, CA 93110-1686 • (805) 687-4418 • FAX (805) 682-8509

EXECUTIVE SUMMARY

The proposed Transit Mixed Concrete (TMC) Company Project consists of a sand and gravel extraction and processing facility and a ready-mixed concrete batch plant on Soledad Canyon Road in the Soledad Canyon area of Los Angeles County. The site is located 2.9 miles east of the Antelope Valley Freeway via Soledad Canyon Road. There are two 10-year phases to the project. The Phase I production (1999-2009) is expected to average 1.4 million tons of aggregate produced per year, however up to 2.15 million tons of aggregate may be produced per year during Phase I. The Phase II production (2009-2019) is expected to average 4.2 million tons of aggregate produced per year.

Analyses of existing traffic conditions (1997) found that all of the study-area roadways and intersections currently operate at LOS A during the A.M. and P.M. peak hour periods. Phase I of the TMC Project would generate 754 ADT, 54 A.M. peak hour and 32 P.M. peak hour trips. Phase II would generate 1,284 ADT, 98 A.M. peak hour and 57 P.M. peak hour trips. Neither Phase I or Phase II would significantly impact the study-area roadways or intersections based on LA County impact criteria.

The Soledad Canyon Road/Antelope Valley Freeway NB Ramps intersection is forecast to operate at LOS E (ICU 0.91) during the A.M. peak hour period with 1999 + TMC Phase I + Related Project traffic. The intersection is forecast to operate at LOS F (ICU 1.04) during the A.M. peak hour period and LOS D (ICU 0.84) during the P.M. peak hour period with 2009 + TMC Phase II + Related Project traffic. Both the Soledad Canyon Road/Antelope Valley Freeway NB Ramps and SB Ramps intersections meet signal warrants under 1999 + TMC Phase I + Related Project and 2009 + TMC Phase II + Related Project conditions.

These locations will require geometric improvements and traffic signal control to achieve a desired level of service with or without the TMC Project if the other Related Projects are developed. The TMC Project's pro-rata share of the improvements for the Soledad Canyon Road/Antelope Valley Freeway Interchange is 2.3% for 1999 + TMC Phase I + Related Project conditions and 3.6% for 2009 + TMC Phase II + Related Project conditions. The project's share was determined in accordance with the Los Angeles County Traffic Impact Analysis Guidelines.

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INTRODUCTION

This report contains an analysis of the traffic and circulation impacts associated with the Transit Mixed Concrete (TMC) Company Project proposed in the Soledad Canyon area of the County of Los Angeles. The report provides information relative to existing and future traffic conditions in the study-area and recommends improvements where necessary. It is our understanding that the results of the study will be incorporated into the EIR being prepared for the TMC Project.

PROJECT DESCRIPTION

The proposed TMC Project consists of a sand and gravel extraction and processing facility and a ready-mixed concrete batch plant on Soledad Canyon Road. The site is located 2.9 miles east of the Antelope Valley Freeway via Soledad Canyon Road (see Figure 1). The TMC Project site is accessible from Antelope Valley Freeway interchanges at Soledad Canyon Road and Agua Dulce Canyon Road.

There are two 10-year phases to the project. The Phase I production (1999-2009) is expected to average 1.4 million tons of aggregate produced per year, however up to 2.15 million tons of aggregate may be produced per year during Phase I. The Phase I traffic impact analysis is based on the 2.15 million tons of aggregate produced per year and 15 on-site employees. The Phase II production (2009-2019) is expected to average 4.2 million tons of aggregate produced per year and 30 on-site employees are estimated.

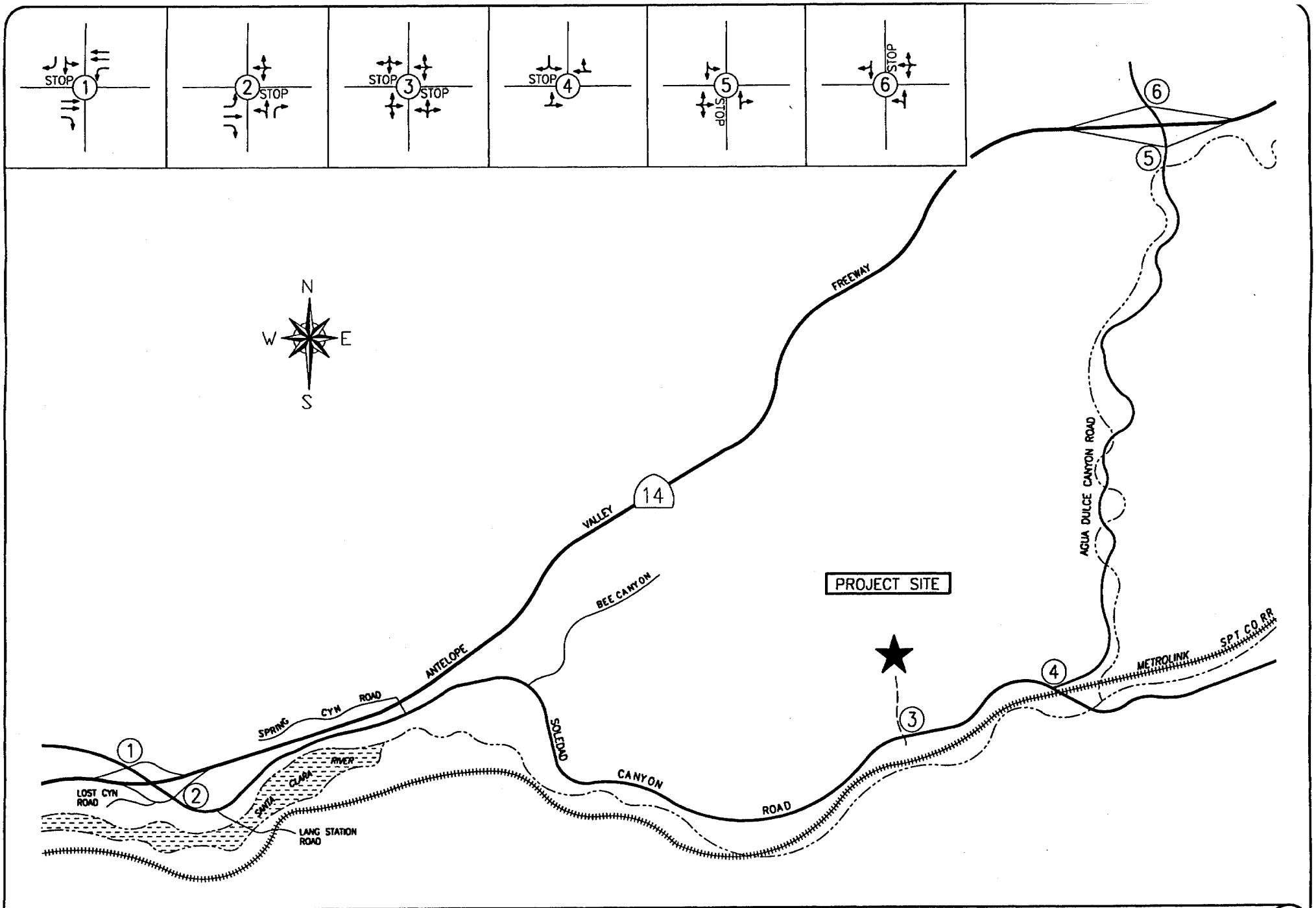
STUDY SCOPE

Transportation Facilities

The scope of this traffic study was developed in conjunction with the Traffic & Lighting Division of Los Angeles County Department of Public Works. The following transportation facilities are included in the analysis.

Table 1
Study-Area Transportation Facilities

Freeways	Roadways	Intersections
Antelope Valley Freeway	Soledad Canyon Rd Agua Dulce Canyon Rd	Soledad Canyon Rd/Antelope Valley Freeway SB Ramps Soledad Canyon Rd/Antelope Valley Freeway NB Ramps Soledad Canyon Rd/TMC Project Access Soledad Canyon Rd/Agua Dulce Canyon Rd Agua Dulce Canyon Rd/Antelope Valley Freeway NB Ramps Agua Dulce Canyon Rd/Antelope Valley Freeway SB Ramps



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VICINITY MAP – STREET NETWORK

FIGURE 1

Traffic Scenarios

The following traffic scenarios are included in the traffic study.

Scenario 1 - Existing (1997)
Scenario 2 - Year 1999 (Scenario 1 + Growth @ 1.5%/year)
Scenario 3 - Year 1999 + TMC Phase I (Scenario 2 + TMC Phase I)
Scenario 4 - Year 1999 + TMC Phase I + Related Projects (Scenario 3 + Related Projects)
Scenario 5 - Year 2009 (Scenario 1 + Growth @ 1.5%/year)
Scenario 6 - Year 2009 + TMC Phase II (Scenario 5 + TMC Phase II)
Scenario 7 - Year 2009 + TMC Phase II + Related Projects (Scenario 6 + Related Projects)

EXISTING CONDITIONS

Street Network

Major access roads to the TMC Project site include the Interstate 5 (I-5) Freeway, the Antelope Valley Freeway, Soledad Canyon Road, and Agua Dulce Canyon Road. The following text briefly describes the major access roads to the TMC Project site. Figure 1 illustrates the major components of the existing street network adjacent to the site. A 50-scale drawing of the project's access is included in the Technical Appendix for reference.

Interstate 5. This route is a major north/south freeway passing through the western end of the Santa Clarita Valley. It provides an important transportation route to Los Angeles and the surrounding urban areas. The potential marketing area for TMC includes the Santa Clarita Valley and the greater Los Angeles urban area and thus the TMC Project would use this freeway to some extent.

Antelope Valley Freeway (State Route 14). This State route is a southwest/northeast-oriented freeway connecting the Antelope Valley with I-5. The Antelope Valley Freeway is accessible from Soledad Canyon Road and Agua Dulce Canyon Road from the TMC Project site. The freeway has three lanes in either direction in proximity to Soledad Canyon Road. For the purposes of this report, the Antelope Valley Freeway is considered north/south-oriented.

Soledad Canyon Road. This road forms the southern boundary of the site and will be used for site access. Soledad Canyon Road is a two-lane east-west oriented road east of the Antelope Valley Freeway that is classified as a Major Highway in the County Master Plan. Access to Soledad Canyon Road is provided via the Antelope Valley Freeway. No signalized intersections are located along Soledad Canyon Road in this area (all are stop-sign controlled). An undeveloped road currently provides access to the TMC Project site from Soledad Canyon Road.

Agua Dulce Canyon Road. This north/south two-lane road has one lane in each direction from the Antelope Valley Freeway to Soledad Canyon Road. A full interchange with the Antelope Valley Freeway is provided and a T-intersection forms the Agua Dulce Canyon/Soledad Canyon Road intersection.

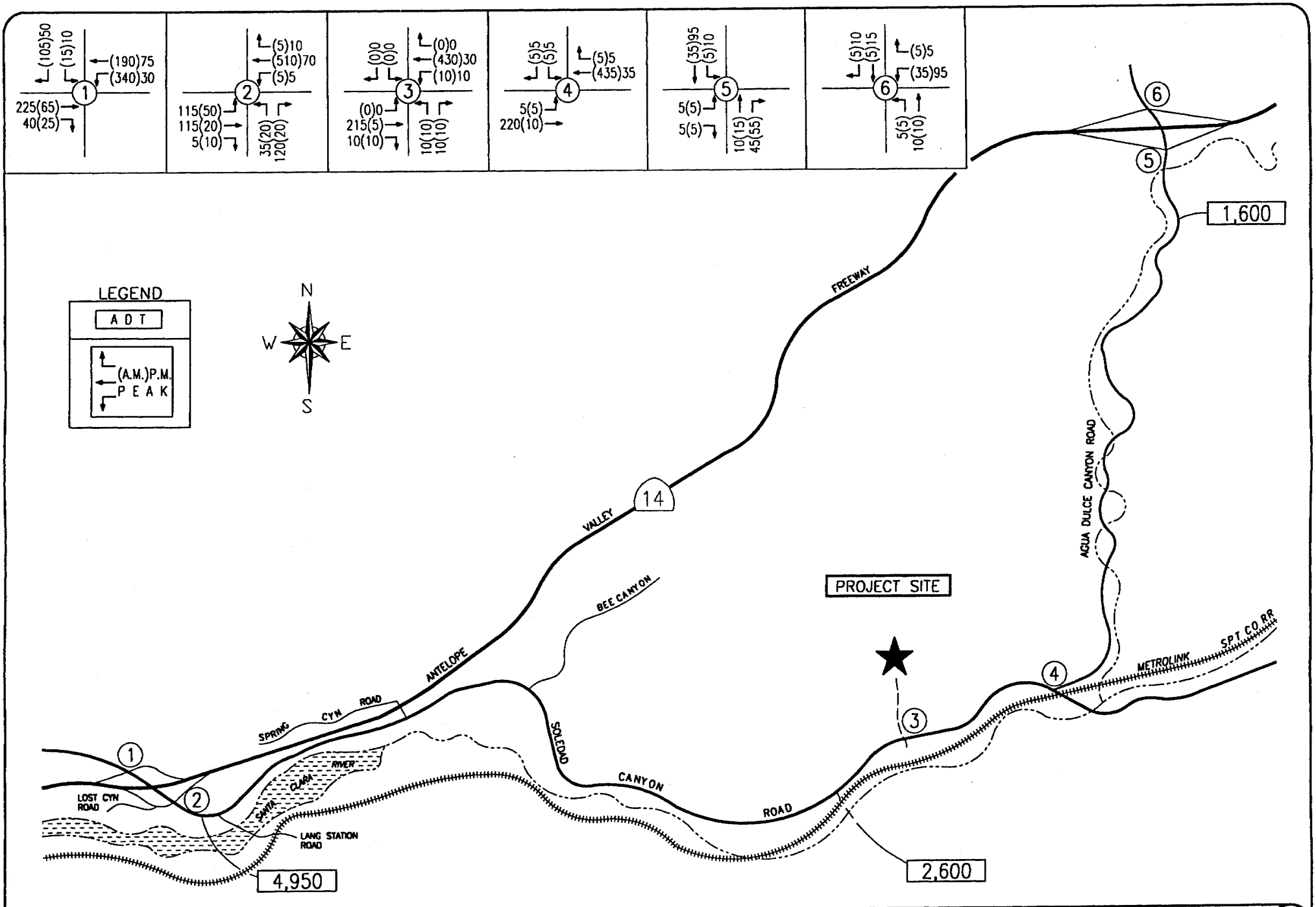
Roadway Operations

Methodology. Figure 2 illustrates the 1997 traffic volumes for the study-area roadways and intersections. These volumes were collected in July of 1997. "Levels of Service" (LOS) A through F are used to rate roadway operations, with LOS A indicating very good operation and LOS F indicating poor operation. More complete descriptions of the level of service grades are provided in Table 2. It is important to note that the traffic volumes used in the level of service calculations for this traffic study include truck volumes which have been converted to passenger car equivalents (PCEs) pursuant to Los Angeles County guidelines. Adjustments were made by multiplying each truck present in the traffic system by a factor of 2.0 (each truck equals two passenger vehicles) prior to completing the level of service forecasts.

Table 2
Level of Service Definitions

LOS	ICU - V/C[a]	Definition
A	< 0.60	Low volumes; primarily free flow operations. Density is low and vehicles can freely maneuver within traffic stream. Drivers can maintain their desired speeds with little or no delay.
B	0.61 - 0.70	Stable flow with potential for some restriction of operating speeds due to traffic conditions. Maneuvering is only slightly restricted. Stopped delays are not bothersome and drivers are not subject to appreciable tension.
C	0.71 - 0.80	Stable operations, however the ability to maneuver is more restricted by the increase in traffic volumes. Relatively satisfactory operating speeds prevail but adverse signal coordination or longer queues cause delays.
D	0.81 - 0.90	Approaching unstable traffic flow where small increases in volume could cause substantial delays. Most drivers are restricted in their ability to maneuver and their selection of travel speeds. Comfort and convenience are low but tolerable.
E	0.91 - 1.00	Operations characterized by significant approach delays and average travel speeds of one-half to one-third of free flow speed. Flow is unstable and potential for stoppages of brief duration. High signal density, extensive queuing, or signal progression/timing are the typical causes of delays.
F	> 1.00	Forced flow operations with high approach delays at critical signalized intersections. Speeds are reduced substantially and stoppages may occur for short or long periods of time because of downstream congestion.

[a] Intersection Capacity Utilization for intersections. Volume-to-Capacity ratio for roadways.



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1997 TRAFFIC VOLUMES

FIGURE 2

Antelope Valley Freeway (State Route 14). Although the TMC Project application was deemed complete prior to enactment of the County of Los Angeles Congestion Management Program (CMP) and therefore is not subject to the CMP, potential impacts to the Antelope Valley Freeway were assessed based on the criteria established in the CMP guidelines.

The CMP guidelines indicate that freeway analyses should be completed where a project would add 150 or more trips, in either direction, during the A.M. or P.M. weekday peak hours. Phase I of the TMC Project would add 50 A.M peak hour trips and 27 P.M peak hour trips (total of both directions) to the Antelope Valley Freeway south of Soledad Canyon Road. Phase II would add 87 A.M peak hour trips and 48 P.M peak hour trips (total of both directions) to the Antelope Valley Freeway south of Soledad Canyon Road. The TMC Project's peak hour traffic additions to the Antelope Valley Freeway south of Soledad Canyon Road are well below the 150 peak trip criteria, indicating that the TMC Project would not significantly impact the freeway.

Soledad Canyon Road. The TMC Project would be primarily served by Soledad Canyon Road, which is about 2.9 miles in length between the TMC Project access road and the Antelope Valley Freeway. Soledad Canyon Road is a two-lane east-west oriented road that is classified as a Major Highway in the County Master Plan. This classification includes urban highways which are of county-wide significance and which are, or are projected to be, the most heavily traveled routes. Also classified as Major Highways are key (inter-urban) connectors, non-urban access ways and recreational roads. Soledad Canyon Road is a non-urban access road which serves the area mining and recreational facilities and therefore fits the non-urban access way and recreational road description of the County's Major Highway designation. It is not heavily traveled (2,600 ADT in the vicinity of the TMC Project site) and it serves as a local access to several recreational vehicle parks in the area as well as provides local access to other mining projects in the area.

The LA County Traffic Impact Analysis Guidelines provide two methods for assessing potential impacts to two-lane highways such as Soledad Canyon Road.[1] The guidelines stipulate that the methodology contained in Chapter 8 of the Highway Capacity Manual (HCM)[2] or the volume-to-capacity ratio methodology contained within the guidelines are to be used.

Chapter 8 of the HCM states that two-lane highways serve two functions and can be defined in that manner. The two functions are: a) to provide *efficient mobility* as a primary arterial, and b) to provide *accessibility* to an area. As stated in the HCM, *"Efficient mobility is the principal function of major two-lane highways used as primary arteries connecting major traffic generators or as primary links in state and national highway networks. Consistent high-speed operations and infrequent passing delays are desirable for these facilities."*

---

[1] Traffic Impact Analysis Report Guidelines, County of Los Angeles Department of Public Works, January 1997.

[2] Highway Capacity Manual, Transportation Research Special Report 209, National Research Council, Third Edition, Updated 1994.

The empirical formulas and tables contained in Chapter 8 of the (HCM) apply to the "*efficient mobility*" function for two-lane highways. The formulae and tables are not generally applicable to the second function, for which the purpose and parameters for a highway providing "*accessibility*" is explained as: *"Many paved, two-lane rural roads basically serve an accessibility function. They provide all-weather accessibility to an area, often for relatively low traffic volumes. The provision of cost-effective access is the dominant policy consideration. High speed, while beneficial, is not the principal concern."*

The volume-to-capacity ratio methodology contained in the LA County Traffic Impact Analysis Guidelines was used to determine levels of service for Soledad Canyon Road since it is a two-lane rural road that basically serves an *accessibility* function. The methodology provided in Chapter 8 of the HCM does not provide levels of service for roadways such as Soledad Canyon Road for the following reasons:

- Efficient mobility with consistent high-speed operations is not the primary purpose.
- The ability to pass is not desirable (passing is prohibited on Soledad Canyon Road).
- Soledad Canyon Road basically serves an accessibility function and traffic volumes are relatively low.

Table 3 shows the LA County level of service criteria for two-lane roadways.

Table 3
LA County Two-Lane Roadway LOS Criteria

Directional Split	Total Capacity (pcph)[a]	Peak Hour Volume				
		LOS A (V/C < 0.60)	LOS B (V/C 0.61-0.70)	LOS C (V/C 0.71-0.80)	LOS D (V/C 0.81-0.90)	LOS E (V/C 0.91-1.00)
50 / 50	2,800	< 1,680	< 1,960	< 2,240	< 2,520	< 2,800
60 / 40	2,650	< 1,590	< 1,855	< 2,120	< 2,385	< 2,650
70 / 30	2,500	< 1,500	< 1,750	< 2,000	< 2,250	< 2,500
80 / 20	2,300	< 1,380	< 1,610	< 1,840	< 2,070	< 2,300
90 / 10	2,100	< 1,260	< 1,470	< 1,680	< 1,890	< 2,100
100 / 0	2,000	< 1,200	< 1,400	< 1,600	< 1,800	< 2,000

[a] pcph = passenger car per hour.

Agua Dulce Canyon Road. Secondary access to the TMC Project would be via Agua Dulce Canyon Road, which is a north-south two-lane road. This road has a full-access interchange with the Antelope Valley Freeway. Agua Dulce Canyon Road is similar in nature to Soledad Canyon Road, in that it basically serves an accessibility function. Thus, the volume-to-capacity ratio methodology contained in the LA County Traffic Impact Analysis Guidelines was also used to determine levels of service for Agua Dulce Canyon Road.

1997 volume-to-capacity ratios and corresponding levels of service for the study-area roadway segments are summarized in Table 4. Detailed level of service calculation worksheets are contained in the Technical Appendix for reference. As shown, both Soledad Canyon Road and Agua Dulce Canyon Road currently operate at LOS A during the A.M. and P.M. peak hour periods.

Table 4
1997 Roadway Operations

Roadway	A.M. Peak Hour V/C / LOS	P.M. Peak Hour V/C / LOS
Soledad Cyn Rd		
Project - Bee Cyn	0.23 / LOS A	0.12 / LOS A
Bee Cyn - Rt 14	0.28 / LOS A	0.13 / LOS A
Agua Dulce Cyn Rd		
s/o Rt 14	0.04 / LOS A	0.06 / LOS A

Intersection Operations

Methodology. The LOS A-F grading system discussed previously for roadway operations is also used to rate intersection operations. Pursuant to Los Angeles County Traffic Study Guidelines, the Intersection Capacity Utilization (ICU) method of intersection analysis was used to determine levels of service for the study-area intersections.

1997 ICUs and levels of service for the study-area intersections are shown in Table 5. Detailed level of service calculation worksheets are contained in the Technical Appendix for reference. As shown, all of the intersections operate at LOS A during the A.M. and P.M. peak hour periods.

Table 5
1997 Intersection Operations

Intersection	A.M. Peak Hour ICU / LOS	P.M. Peak Hour ICU / LOS
Soledad Cyn Rd/Antelope Vly SB Ramps	0.42 / LOS A	0.23 / LOS A
Soledad Cyn Rd/Antelope Vly NB Ramps	0.49 / LOS A	0.31 / LOS A
Soledad Cyn Rd/TMC Project Access	0.41 / LOS A	0.28 / LOS A
Soledad Cyn Rd/Agua Dulce Cyn Rd	0.41 / LOS A	0.28 / LOS A
Agua Dulce Cyn Rd/Antelope Vly NB Ramps	0.18 / LOS A	0.21 / LOS A
Agua Dulce Cyn Rd/Antelope Vly SB Ramps	0.14 / LOS A	0.19 / LOS A

PROJECT-GENERATED TRAFFIC VOLUMES

Trip Generation

The TMC Project is to be developed in two phases. Phase I would be from 1999 to 2009, while Phase II would be from 2009 to 2019. Since trip rates are not available for mining operations, project-generated traffic was estimated based on the operational characteristics of Phases I and II. Table 6 summarizes the Phase I and Phase II trip generation estimates developed for the project and detailed calculation worksheets are contained in the Technical Appendix for reference. Briefly, TMC Project trip generation estimates were developed based on the number of trucks required to transport the quantity of materials mined and produced, and other materials required for the TMC Project. Employee trips were estimated assuming 4 trips per day per employee. Peak hour inbound and outbound trips were estimated based on operations at similar mining facilities.

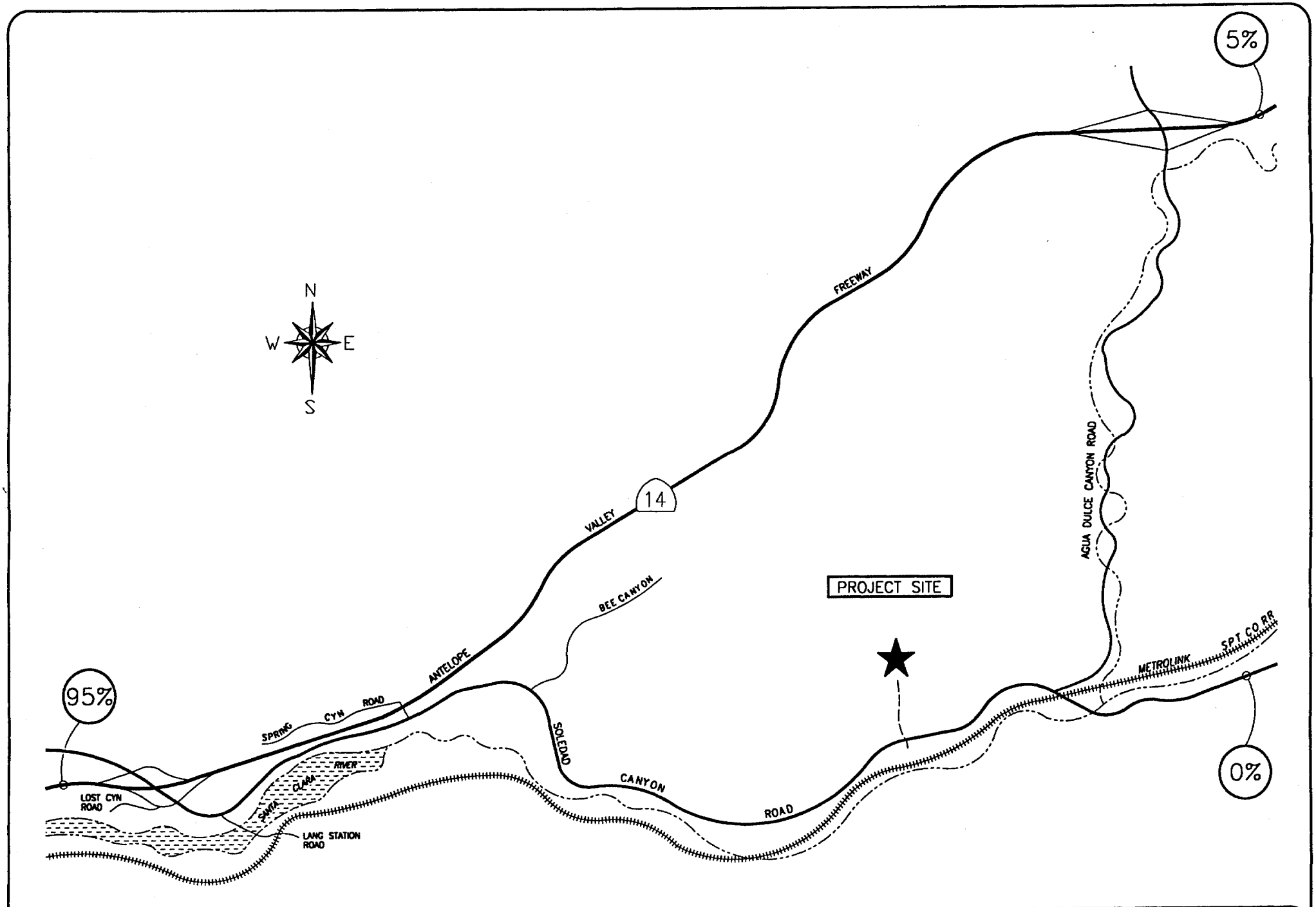
Table 6
Project Trip Generation

Phase	ADT	A.M. Peak Hour			P.M. Peak Hour		
		In	Out	Total	In	Out	Total
Phase I							
Trucks	694	18	28	46	11	13	24
Employees	60	8	1	9	1	7	8
Totals	754	26	29	54	12	20	32
Phase II							
Trucks	1,164	33	47	80	19	22	41
Employees	120	16	2	18	2	14	16
Totals	1,284	49	49	98	21	36	57

As listed in Table 6, Phase I would generate a relatively minor amount of traffic at the site, 754 ADT, 54 A.M. peak hour and 32 P.M. peak hour trips. Phase II would generate 1,284 ADT, 98 A.M. peak hour and 57 P.M. peak hour trips.

Trip Distribution

Primary access between the site and the Antelope Valley Freeway is provided by the Soledad Canyon Road interchange. It is anticipated that 95% of project traffic would travel to the Antelope Valley Freeway via Soledad Canyon Road and 5% would use Agua Dulce Canyon Road. The major destinations for the materials shipped from the proposed Soledad site are the Santa Clarita Valley, Inglewood, Los Angeles, Hollywood, Sun Valley, and other areas nearby. Thus, most of the daily production will be shipped southbound on the Antelope Valley Freeway toward the Los Angeles area. The anticipated trip distribution patterns for both shipping and employees are shown in Figure 3 and 4.



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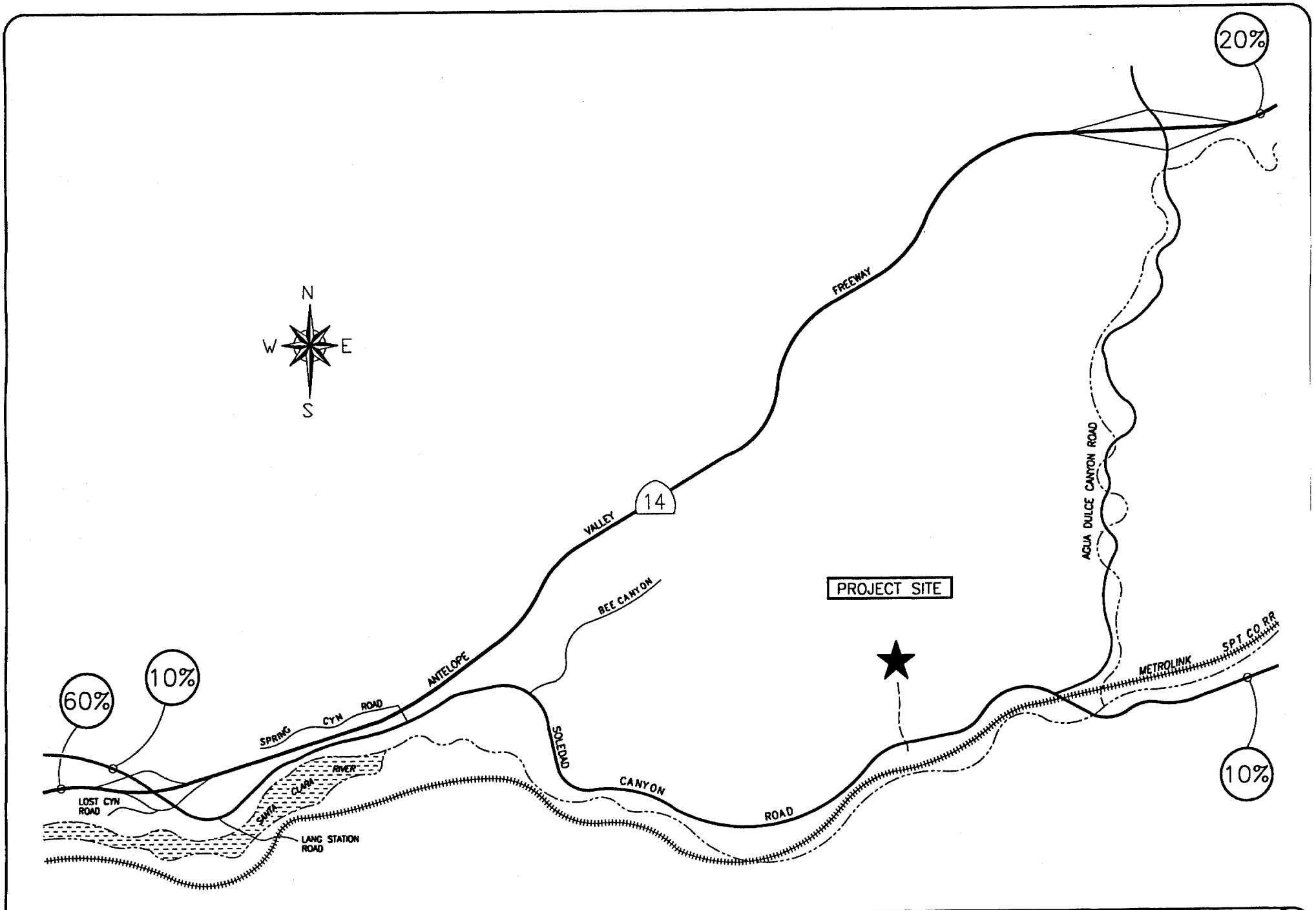
PROJECT TRIP DISTRIBUTION PERCENTAGES (SHIPPING)

FIGURE 3



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PROJECT TRIP DISTRIBUTION PERCENTAGES (EMPLOYEES)

FIGURE 4

Trip Assignment

Once distributed, project-generated traffic was assigned to the study-area roadways and intersections. Figures 5 and 6 illustrate the assignment of Phase I and Phase II project-generated traffic to the street system serving the site.

TRAFFIC VOLUME FORECASTS

Ambient Growth

Pursuant to Los Angeles County Public Work direction, a 1.5% / year growth factor was applied to the existing volumes to account for development located outside of the project study area. The 1.5% / year factor was used to forecast Year 1999 volumes, as full production during Phase I may begin in Year 1999. It was assumed that Phase II full production would begin in 2009. The 1.5% annual growth factor was also applied for this scenario.

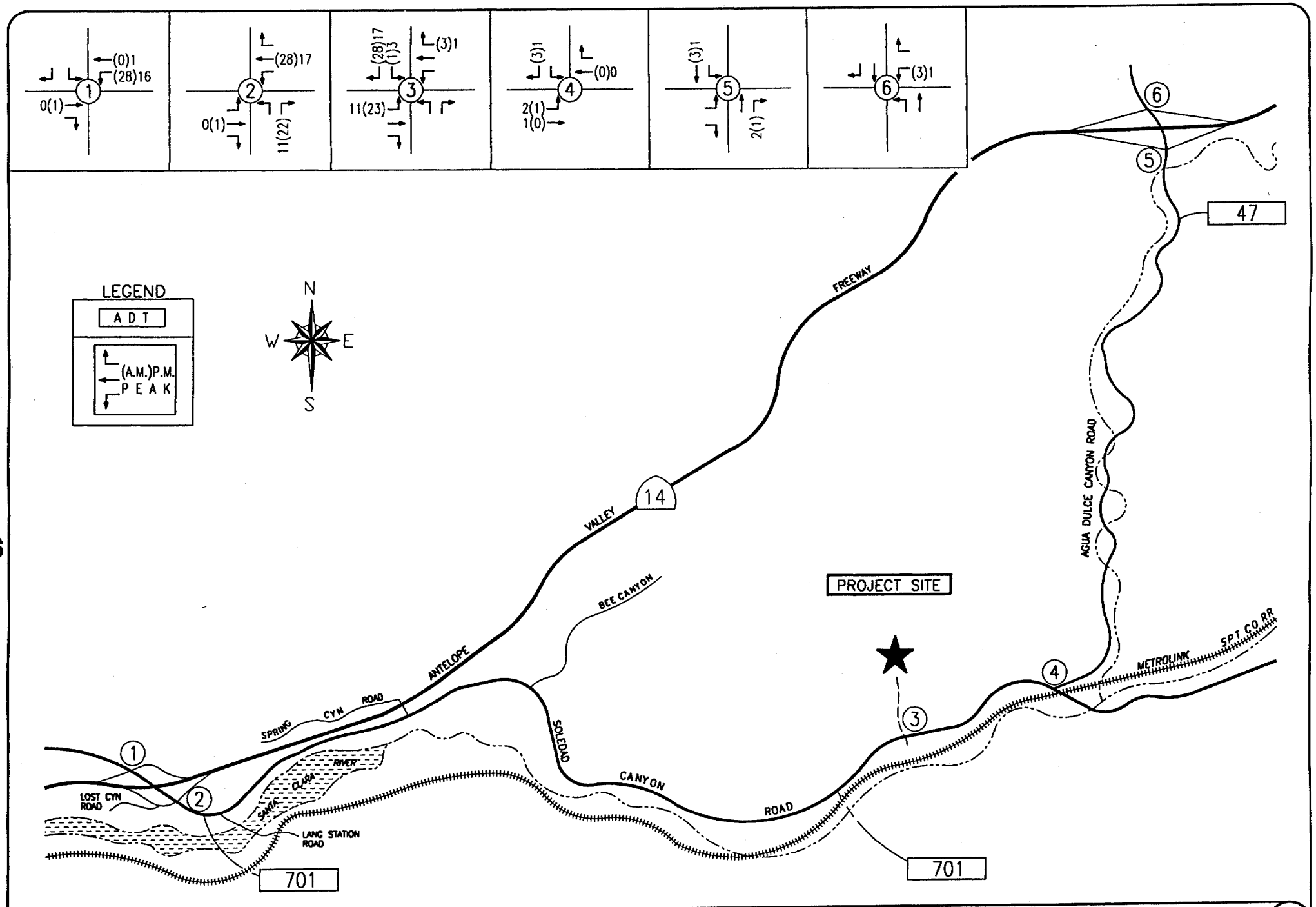
Related Projects

There are several Related Projects located in the vicinity of the proposed TMC Project. Table 7 summarizes the traffic associated with the Related Projects. Trip generation calculations and a map showing the Related Project locations are contained in the Technical Appendix for reference.

Table 7
Related Projects

Project	Use	Size	Trip Generation		
			ADT	A.M. Peak	P.M. Peak
CalMat	Mining	1,183 Acres	350	24	8
LA Co #90501	Single Family Res.	616 Units	5,883	456	622
LA Co #87459	Single Family Res.	437 Units	4,173	323	441
LA Co #93147	Mobile Homes	650 Units	3,127	260	364
LA Co #90115	Single Family Res.	499 Units	4,765	369	504
Curtis Sand & Gravel[a]	Mining	168 Acres	64	8	7
CA Rasmussen[a]	Mining	205 Acres	89	0	9
LA Co #86258[a]	Single Family Res.	70 Units	669	52	71
LA Co #91057[a]	Single Family Res.	30 Units	287	22	30
LA Co #91084[a]	Single Family Res.	14 Units	134	10	14
LA Co #97002[a]	Mining	NA	164	5	4

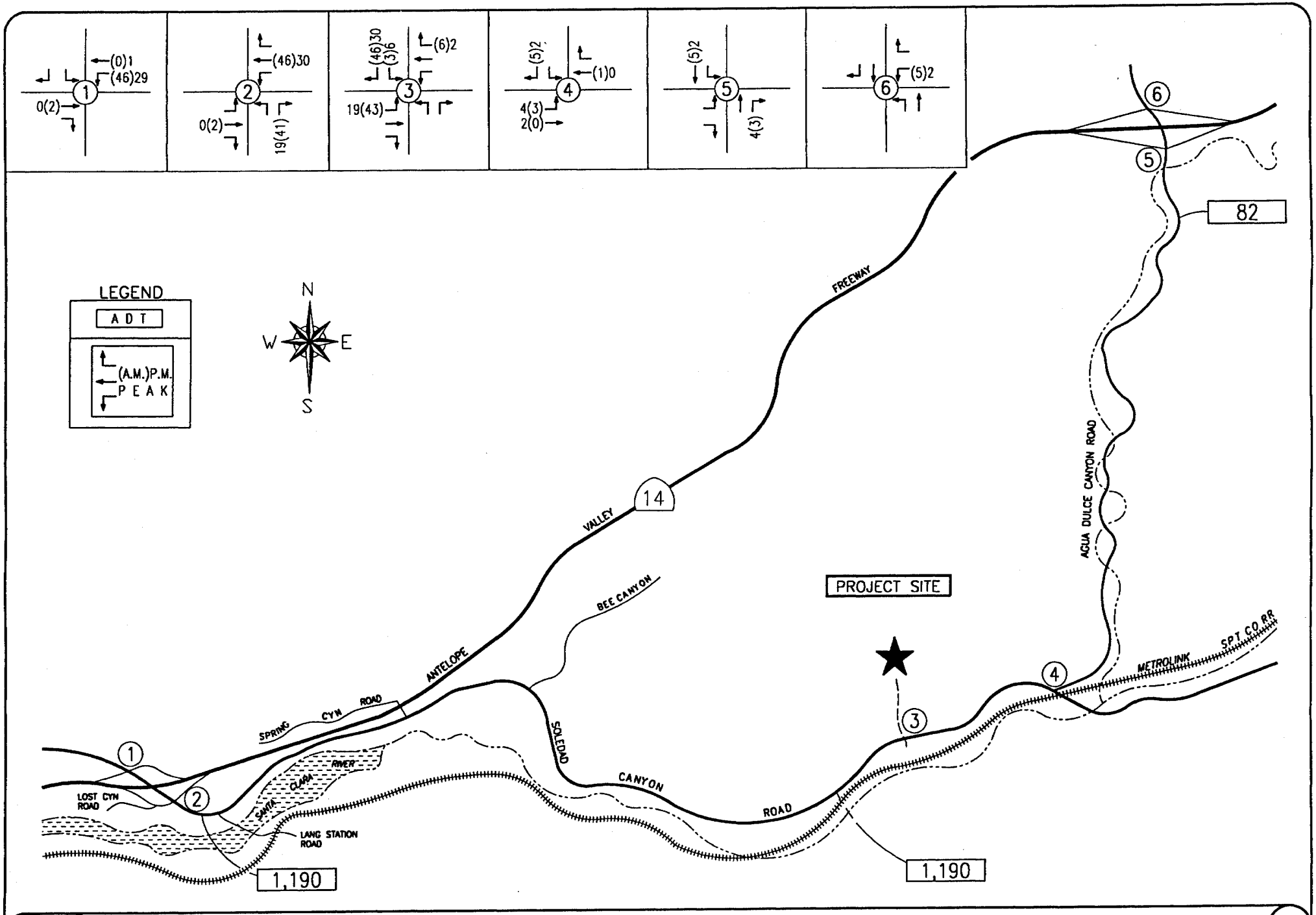
NA – Size not available. Trip generation based on initial study information.
[a] Project built or deem insignificant - see Technical Appendix.



Associated Transportation Engineers

PHASE I TRAFFIC ASSIGNMENT

FIGURE 5



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PHASE II TRAFFIC ASSIGNMENT

FIGURE 6

Figures A through F, contained in the Technical Appendix, show the traffic volume forecasts for the various traffic scenarios analyzed. They are:

Figure A - Year 1999 Traffic Volumes
Figure B - Year 1999 + TMC Phase I Traffic Volumes
Figure C - Year 1999 + TMC Phase I + Related Projects Traffic Volumes
Figure D - Year 2009 Traffic Volumes
Figure E - Year 2009 + TMC Phase II Traffic Volumes
Figure F - Year 2009 + TMC Phase II + Related Projects Traffic Volumes

TRAFFIC IMPACT CRITERIA

The significance of project-generated impacts was evaluated using the impact threshold criteria established by LA County and listed in the LA County Traffic Impact Analysis Guidelines. Table 8 shows the roadway impact criteria used to assess potential TMC Project impacts to Soledad Canyon Road and Agua Dulce Canyon Road, while Table 9 shows the impact criteria used to assess potential TMC Project impacts to the study-area intersections.

Table 8
LA County Impact Criteria — Roadways

Directional Split	Total Capacity (pcph)	% Increase in PCPH by Project		
		LOS C	LOS D	LOS E
50 / 50	2,800	4%	2%	1%
60 / 40	2,650	4%	2%	1%
70 / 30	2,500	4%	2%	1%
80 / 20	2,300	4%	2%	1%
90 / 10	2,100	4%	2%	1%
100 / 0	2,000	4%	2%	1%

Project impacts based on pre-project LOS.
Source: LA County TIA Guidelines.

Table 9
LA County Impact Criteria — Intersections

LOS	V/C (ICU)	Project V/C (ICU) Increase
LOS C	0.71 - 0.80	0.04 or more
LOS D	0.81 - 0.90	0.02 or more
LOS E/F	0.91 or more	0.01 or more

Project impacts based on pre-project LOS.
Source: LA County TIA Guidelines.

TRAFFIC IMPACT ANALYSIS

Roadway Impacts

A.M. and P.M. peak hour roadway volume-to-capacity ratios and levels of service for the traffic study scenarios are summarized in Tables 10 and 11. Figures showing the forecast traffic volumes, along with level of service calculation worksheets, are contained in the Technical Appendix for reference. As shown, both Soledad Canyon Road and Agua Dulce Canyon Road are forecast to operate at LOS A during the A.M. and P.M. peak hour periods with 1999, 1999 + TMC Phase I, and 1999 + Phase I + Related Project traffic. Phase I would not significantly impact the study-area roadway segments based on the LA County impact criteria presented previously.

Both Soledad Canyon Road and Agua Dulce Canyon Road are forecast to operate at LOS A during the A.M. and P.M. peak hour periods with 2009 and 2009 + TMC Phase II traffic. Soledad Canyon Road between Bee Canyon Road and the Antelope Valley Freeway is forecast to operate at LOS B during the A.M. peak hour period with 2009 + Phase II + Related Project traffic volumes. Phase II would not significantly impact the study-area roadway segments based on LA County impact criteria.

Intersection Impacts

A.M. and P.M. peak hour intersection ICUs and levels of service for the traffic study scenarios are summarized in Tables 12 and 13. Figures showing the forecast traffic volumes, along with level of service calculation worksheets, are contained in the Technical Appendix for reference.

All of the study-area intersections are forecast to operate at LOS A during the A.M. and P.M. peak hour periods with 1999 and 1999 + TMC Phase I traffic. Phase I would not significantly impact the study-area intersections based on the LA County impact criteria presented previously.

With 1999 + TMC Phase I + Related Project traffic the Soledad Canyon Road/Antelope Valley Freeway NB Ramps intersection is forecast to operate at LOS E (ICU 0.91) during the A.M. peak hour period. The intersection's LOS E operation is due to traffic generated by cumulative developments in the area, primarily the Bee Canyon Project (LA Co #93147 - 650 Mobile Homes), which would generate 3,127 ADT, 260 A.M. peak hour and 364 P.M. peak hour trips — the majority of which would use the Soledad Canyon Road/Antelope Valley Freeway Interchange.

Tables 12 and 13 also show that all of the study-area intersections are forecast to operate at LOS A or LOS B during the A.M. and P.M. peak hour periods with 2009 and 2009 + TMC Phase II traffic. Phase II would not significantly impact the study-area intersections based on the LA County impact criteria.

With 2009 + TMC Phase II + Related Project traffic the Soledad Canyon Road/Antelope Valley Freeway NB Ramps intersection is forecast to operate at LOS F (ICU 1.04) during the A.M. peak hour period and LOS D (ICU 0.84) during the P.M. peak hour period. As with the 1999 analysis, the intersection's LOS is due to traffic generated by cumulative developments in the area, primarily the Bee Canyon Project and the Shadow Pines Project, which would generate a combined total of 7,892 ADT, 629 A.M. peak hour and 868 P.M. peak hour trips — the majority of which would use the Soledad Canyon Road/Antelope Valley Freeway Interchange.

Table 10
A.M. Peak Hour Roadway Operations

Roadway	V/C Ratio / LOS						
	1	2	3	4	5	6	7
Soledad Cyn Rd Project to Bee Cyn	0.23 / LOS A	0.24 / LOS A	0.27 / LOS A	0.29 / LOS A	0.28 / LOS A	0.35 / LOS A	0.35 / LOS A
Soledad Cyn Rd Bee Cyn to Rt 14	0.28 / LOS A	0.29 / LOS A	0.33 / LOS A	0.58 / LOS A	0.33 / LOS A	0.41 / LOS A	0.67 / LOS B
Agua Dulce Cyn Rd s/o Rt 14	0.04 / LOS A	0.04 / LOS A	0.05 / LOS A	0.07 / LOS A	0.05 / LOS A	0.06 / LOS A	0.22 / LOS A

Table 11
P.M. Peak Hour Roadway Operations

Roadway	V/C Ratio / LOS						
	1	2	3	4	5	6	7
Soledad Cyn Rd Project to Bee Cyn	0.12 / LOS A	0.13 / LOS A	0.14 / LOS A	0.15 / LOS A	0.14 / LOS A	0.18 / LOS A	0.21 / LOS A
Soledad Cyn Rd Bee Cyn to Rt 14	0.13 / LOS A	0.14 / LOS A	0.16 / LOS A	0.51 / LOS A	0.16 / LOS A	0.20 / LOS A	0.54 / LOS A
Agua Dulce Cyn Rd s/o Rt 14	0.06 / LOS A	0.06 / LOS A	0.06 / LOS A	0.08 / LOS A	0.07 / LOS A	0.08 / LOS A	0.27 / LOS A

Traffic Scenarios
Scenario 1 - Existing (1997)
Scenario 2 - Year 1999 (Scenario 1 + Growth @ 1.5%/year)
Scenario 3 - Year 1999 + TMC Phase I (Scenario 2 + TMC Phase I)
Scenario 4 - Year 1999 + TMC Phase I + Related Projects (Scenario 3 + Related Projects)
Scenario 5 - Year 2009 (Scenario 1 + Growth @ 1.5%/year)
Scenario 6 - Year 2009 + TMC Phase II (Scenario 5 + TMC Phase II)
Scenario 7 - Year 2009 + TMC Phase II + Related Projects (Scenario 6 + Related Projects)

Table 12
A.M. Peak Hour Intersection Operations

Intersection	V/C Ratio / LOS						
	1	2	3	4	5	6	7
Soledad Cyn Rd/Antelope Vly SB Ramps	0.42 / LOS A	0.43 / LOS A	0.47 / LOS A	0.66 / LOS B	0.49 / LOS A	0.54 / LOS A	0.75 / LOS C
Soledad Cyn Rd/Antelope Vly NB Ramps	0.49 / LOS A	0.51 / LOS A	0.57 / LOS A	**0.91 / LOS E**	0.57 / LOS A	0.67 / LOS B	**1.04 / LOS F**
Soledad Cyn Rd/TMC Project Access	0.41 / LOS A	0.42 / LOS A	0.48 / LOS A	0.51 / LOS A	0.47 / LOS A	0.58 / LOS A	0.64 / LOS B
Soledad Cyn Rd/Agua Dulce Cyn Rd	0.41 / LOS A	0.42 / LOS A	0.42 / LOS A	0.45 / LOS A	0.47 / LOS A	0.48 / LOS A	0.58 / LOS A
Agua Dulce Cyn Rd/Antelope Vly NB Ramps	0.18 / LOS A	0.18 / LOS A	0.19 / LOS A	0.23 / LOS A	0.20 / LOS A	0.21 / LOS A	0.46 / LOS A
Agua Dulce Cyn Rd/Antelope Vly SB Ramps	0.14 / LOS A	0.14 / LOS A	0.15 / LOS A	0.16 / LOS A	0.15 / LOS A	0.16 / LOS A	0.30 / LOS A

Table 13
P.M. Peak Hour Intersection Operations

Intersection	V/C Ratio / LOS						
	1	2	3	4	5	6	7
Soledad Cyn Rd/Antelope Vly SB Ramps	0.23 / LOS A	0.23 / LOS A	0.25 / LOS A	0.43 / LOS A	0.25 / LOS A	0.29 / LOS A	0.48 / LOS A
Soledad Cyn Rd/Antelope Vly NB Ramps	0.31 / LOS A	0.32 / LOS A	0.35 / LOS A	0.74 / LOS C	0.35 / LOS A	0.41 / LOS A	**0.82 / LOS D**
Soledad Cyn Rd/TMC Project Access	0.28 / LOS A	0.29 / LOS A	0.32 / LOS A	0.36 / LOS A	0.32 / LOS A	0.38 / LOS A	0.45 / LOS A
Soledad Cyn Rd/Agua Dulce Cyn Rd	0.28 / LOS A	0.29 / LOS A	0.29 / LOS A	0.33 / LOS A	0.32 / LOS A	0.32 / LOS A	0.46 / LOS A
Agua Dulce Cyn Rd/Antelope Vly NB Ramps	0.21 / LOS A	0.22 / LOS A	0.22 / LOS A	0.24 / LOS A	0.24 / LOS A	0.24 / LOS A	0.56 / LOS B
Agua Dulce Cyn Rd/Antelope Vly SB Ramps	0.19 / LOS A	0.19 / LOS A	0.19 / LOS A	0.21 / LOS A	0.21 / LOS A	0.21 / LOS A	0.35 / LOS A

Traffic Scenarios
Scenario 1 - Existing (1997)
Scenario 2 - Year 1999 (Scenario 1 + Growth @ 1.5%/year)
Scenario 3 - Year 1999 + TMC Phase I (Scenario 2 + TMC Phase I)
Scenario 4 - Year 1999 + TMC Phase I + Related Projects (Scenario 3 + Related Projects)
Scenario 5 - Year 2009 (Scenario 1 + Growth @ 1.5%/year)
Scenario 6 - Year 2009 + TMC Phase II (Scenario 5 + TMC Phase II)
Scenario 7 - Year 2009 + TMC Phase II + Related Projects (Scenario 6 + Related Projects)

Signal Warrants

An analysis was conducted to determine if signal warrants are satisfied at the study-area intersections, all of which are currently unsignalized. Caltrans signal warrant criteria were applied to the peak hour traffic forecasts developed for each traffic scenario. Signal warrant worksheets are in the Technical Appendix for reference. Table 14 summarizes the results of the signal warrant analysis. As shown, the Soledad Canyon Road/Antelope Valley Freeway NB Ramps interchange (NB & SB ramps) meet the peak hour signal warrant under both 1999 + TMC Phase I + Related Project and 2009 + TMC Phase II + Related Project conditions. Since this analysis is based upon forecast volumes and utilizes the peak hour warrant, the need for the traffic signals will have to be evaluated as the traffic volumes increase in the future. Traffic volume data will be available for monitoring as part of the traffic studies required for the future development projects.

Soledad Canyon Road Traffic Index

The Traffic Index (TI) for each of two segments of Soledad Canyon Road — Route 14 to Bee Canyon and Bee Canyon to the TMC Project Site — was calculated using the methods listed in Caltrans Design Manual. Worksheets illustrating the calculations and a more detailed discussion of the TI ratings are included in the Technical Appendix for reference. The TI is projected at 10.5 for Year 2000 and the existing structural section is sufficient for that loading. If the truck volume is as forecasted, the existing structural section will be sufficient until 2008. The truck volumes are forecasted to increase when TMC Phase II production level begin and a TI of 11.0 was calculated for Phase II. The calculations indicate that a minimum 2.5 inch overlay would be needed for two separate road segments totaling 1,800 feet prior to the beginning of Phase II. The Applicant will contribute its fair share of cost to resurface the specific 1,800 feet of pavement on Soledad Canyon Road with a minimum 2.5 inches of paving material. Paving shall be accomplished prior to the start of Phase II or at a later date as substantiated with a revised traffic index analysis. Since the analysis is based upon projected volumes and vehicle mix, review of the roadway surface and truck volumes will be necessary to determine the actual time that the overlay is warranted.

Table 14
Peak Hour Traffic Signal Warrant Summary

Intersection	Traffic Scenario						
	1	2	3	4	5	6	7
Soledad Cyn Rd/Antelope Vly SB Ramps	NO / NO	NO / NO	NO / NO	**YES / YES**	NO / NO	NO / NO	**YES / YES**
Soledad Cyn Rd/Antelope Vly NB Ramps	NO / NO	NO / NO	NO / NO	**YES / YES**	NO / NO	NO / NO	**YES / YES**
Soledad Cyn Rd/TMC Project Access	NO / NO	NO / NO	NO / NO	NO / NO	NO / NO	NO / NO	NO / NO
Soledad Cyn Rd/Agua Dulce Cyn Rd	NO / NO	NO / NO	NO / NO	NO / NO	NO / NO	NO / NO	NO / NO
Agua Dulce Cyn Rd/Antelope Vly NB Ramps	NO / NO	NO / NO	NO / NO	NO / NO	NO / NO	NO / NO	NO / NO
Agua Dulce Cyn Rd/Antelope Vly SB Ramps	NO / NO	NO / NO	NO / NO	NO / NO	NO / NO	NO / NO	NO / NO

AM/PM warrant satisfied.

Traffic Scenarios
Scenario 1 - Existing (1997)
Scenario 2 - Year 1999 (Scenario 1 + Growth @ 1.5%/year)
Scenario 3 - Year 1999 + TMC Phase I (Scenario 2 + TMC Phase I)
Scenario 4 - Year 1999 + TMC Phase I + Related Projects (Scenario 3 + Related Projects)
Scenario 5 - Year 2009 (Scenario 1 + Growth @ 1.5%/year)
Scenario 6 - Year 2009 + TMC Phase II (Scenario 5 + TMC Phase II)
Scenario 7 - Year 2009 + TMC Phase II + Related Projects (Scenario 6 + Related Projects)

Soledad Canyon Road Turnouts

The segment of Soledad Canyon Road from the TMC Project Site to the Antelope Valley Freeway is ±2.9 miles. There are two or three short (<1/4 mile) grades for westbound traffic where truck speeds would decrease due to the grade. Travel time surveys under free flow conditions found that passenger vehicles average about 49 MPH when traveling at reasonable and prudent speeds.

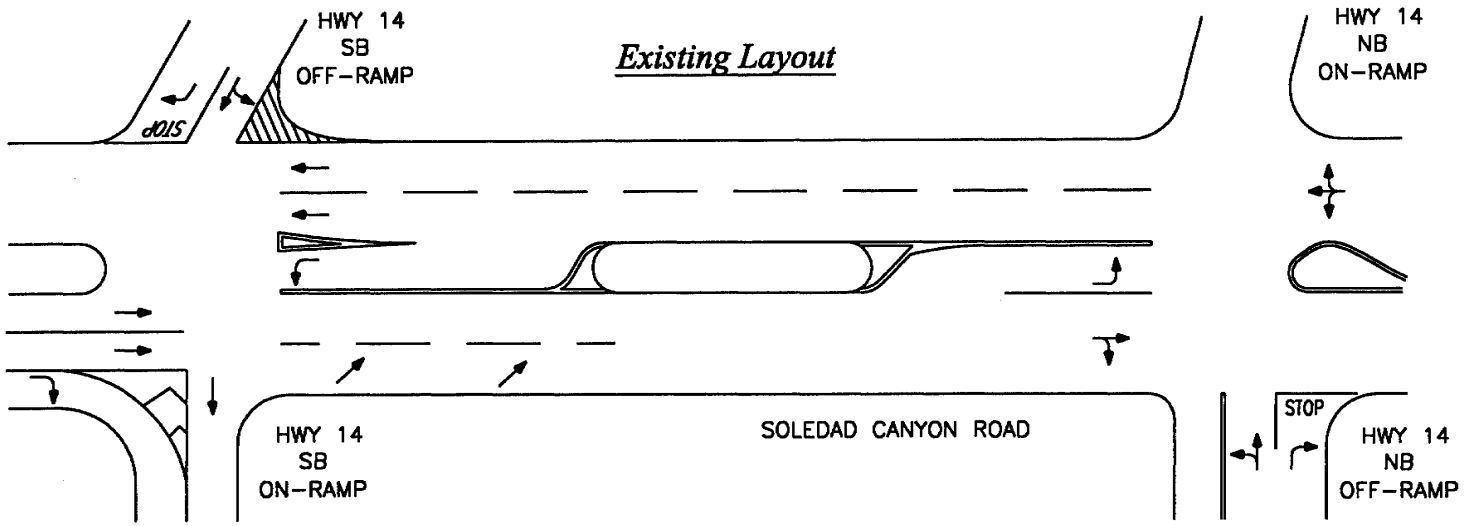
There are some safety issues related to the provision of turnouts that need to be considered. During the commute periods there is a fairly steady flow of traffic with minimal number of gaps of 5 seconds or more. A truck using the turnouts would either be required to crowd back into the traffic steam or come to a near stop (or slow roll) and then re-enter the traffic steam. The limited number of gaps indicates that when the truck moves into the travelled way, approaching vehicles would have to slow to the crawl speed of the truck as it is accelerating. Since the disparity of speed would be much greater between the truck and approaching vehicle, the use of turnouts may result in more delay in the traffic stream then not having turnouts.

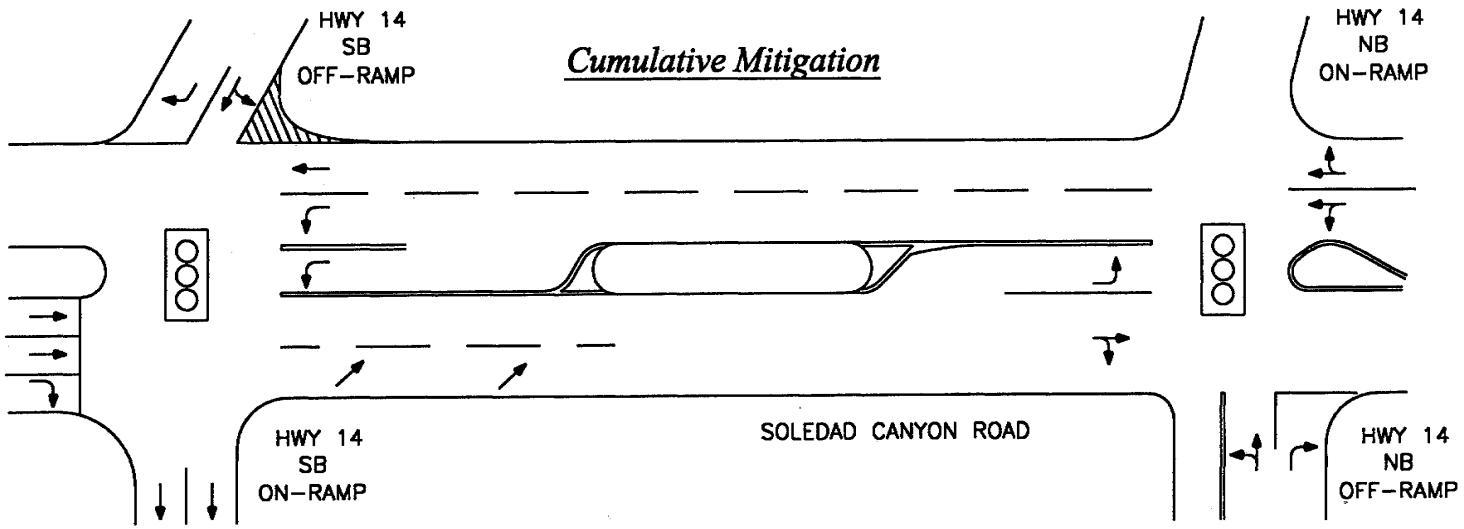
Based upon the foregoing discussion, the use of turnouts are not recommended for the segment of Soledad Canyon Road between the TMC Project Site and the Antelope Valley Freeway. Climbing lanes were also considered but the horizontal and vertical curves along the route are not conducive to such facilities.

MITIGATIONS

The TMC project does not generate significant project-specific impacts based on LA County impact criteria. On a cumulative basis, the project plus growth and related projects would have a significant impact at the Soledad Canyon Road/Antelope Valley Freeway Northbound and Southbound Ramp intersections. Mitigation measures are identified below for these two study-area intersections.

The Soledad Canyon Road/Antelope Valley Freeway NB Ramps intersection is forecast to operate at LOS E (ICU 0.91) during the A.M. peak hour period with 1999 + TMC Phase I + Related Project traffic. The intersection is forecast to operate at LOS F (ICU 1.04) during the A.M. peak hour period and LOS D (ICU 0.84) during the P.M. peak hour period with 2009 + TMC Phase II + Related Project traffic. The Soledad Canyon Road/Antelope Valley Freeway NB Ramps and SB Ramps intersections meet the peak hour signal warrant under both 1999 + TMC Phase I + Related Project and 2009 + TMC Phase II + Related Project conditions. The following intersection improvements are recommended to provide desired levels of service for the estimated cumulative traffic. The recommended intersection improvements are also shown on Figure 7.





NOT TO SCALE

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ROUTE 14/SOLEDAD CANYON ROAD MITIGATIONS

FIGURE 7

Table 15
Mitigated Intersection Operations - Related Project Scenarios

Intersection	Recommended Improvement	Mitigated ICU / LOS[a]
Soledad Cyn Rd/Antelope Vly SB Ramps	1. Restripe EB approach to include 1 thru and 1 right lane. 2. Restripe WB approach to include 2 left and 1 thru lane. 3. Signalize	Scenario 4 A.M. = 0.49 ICU / LOS A P.M. = 0.48 ICU / LOS A Scenario 7 A.M. = 0.55 ICU / LOS A P.M. = 0.55 ICU / LOS A
Soledad Cyn Rd/Antelope Vly NB Ramps (Lost Canyon Rd)	1. Restripe EB approach to include 1 left and 1 thru-right lane. 2. Restripe WB approach to include 1 left-thru and 1 thru-right lane. 3. Signalize	Scenario 4 A.M. = 0.58 ICU / LOS A P.M. = 0.61 ICU / LOS B Scenario 7 A.M. = 0.66 ICU / LOS B P.M. = 0.67 ICU / LOS B

Scenario 4 = Year 1999 + TMC Phase I + Related Projects
Scenario 7 = Year 2009 + TMC Phase II + Related Projects

Pursuant to LA County Traffic Impact Analysis Guidelines, the TMC Project's contribution was determined for the recommended mitigation measures. The formula for determining the TMC Project's contribution is as follows:

$$\text{Project Percentage Share} = \frac{\text{Project Traffic}}{\text{Project} + \text{Other Related Projects Traffic}}$$

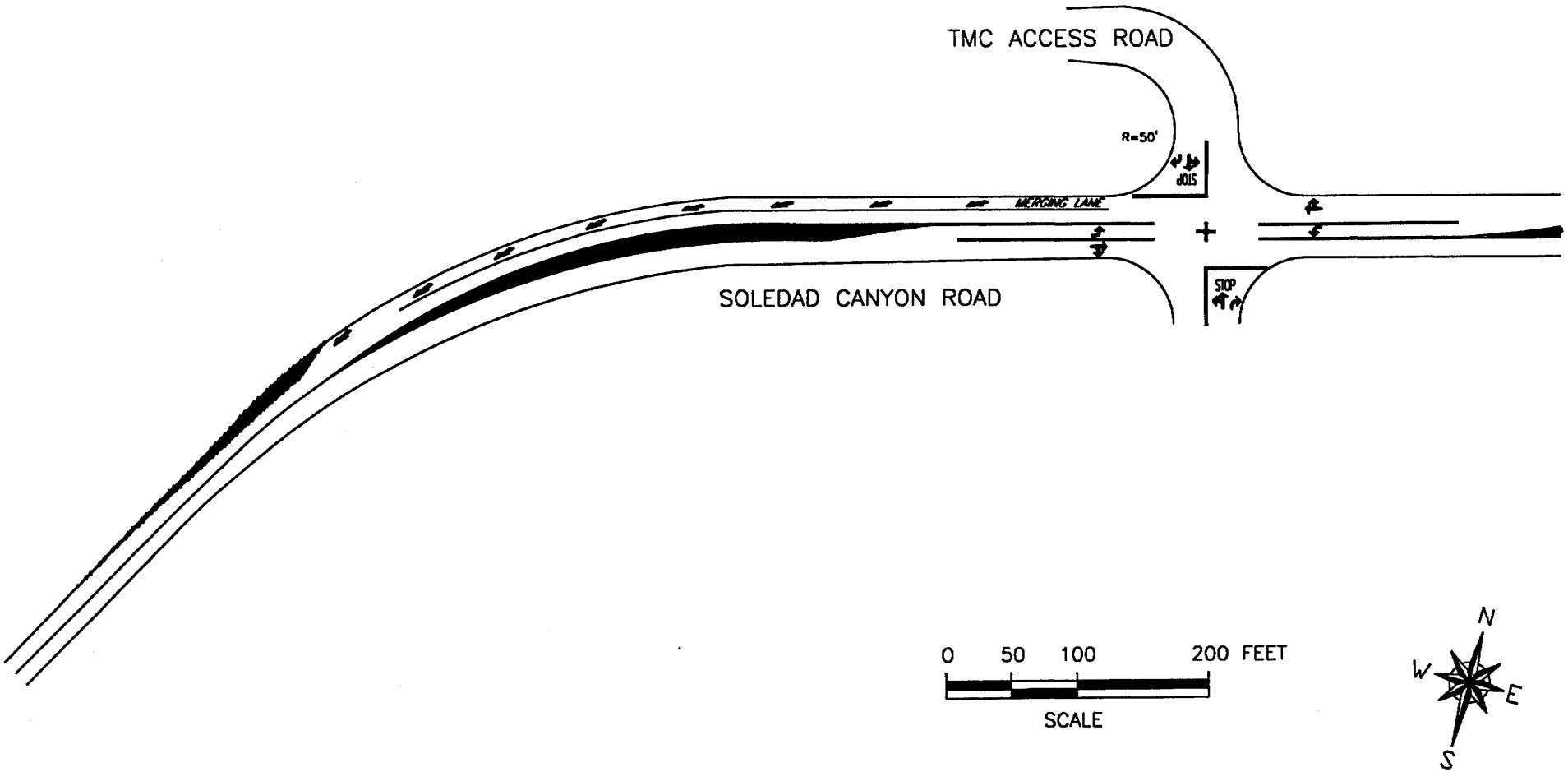
In accordance with the Los Angeles County Traffic Impact Analysis Guidelines, the TMC Project's pro-rata share of the improvements for the Soledad Canyon Road/Antelope Valley Freeway NB Ramps intersection is 9.0% and the TMC Project's pro-rata share of the improvements for the Soledad Canyon Road/Antelope Valley Freeway SB Ramps intersection is 6.5%. The project's share was determined based on the A.M. and P.M. peak hour traffic volumes entering the each intersection. A calculation worksheet is contained in the Technical Appendix for reference.

SITE ACCESS

Access to the site is proposed to be relocated from its existing location on Soledad Canyon Road to a point opposite of the existing access road for the CA Rasmussen mining operations. This would create a conventional four-way intersection on Soledad Canyon Road. This segment of Soledad Canyon Road is two-lanes wide with no turn lanes provided.

The project includes the construction of a left-turn pocket for eastbound traffic entering the facility and a westbound merge lane for traffic exiting the facility. These lanes will minimize the project's traffic effect on through traffic and provide traffic safety for merging trucks to and from Soledad Canyon Road from the site access road. The eastbound left-turn pocket will be a minimum of 200 feet long to provide storage for three semi-trucks. Additionally, separate right- and left-turn lanes are proposed for vehicles exiting the facility. Vehicles turning right (west) out of the facility will be accommodated by the merge lane. The length of this lane is to be approximately 700 feet with an additional tapering lane of 300 feet. The access road intersection returns will have 50-foot radii. Some trees and shrubs to the east and west of the access road will be cleared, as necessary, to afford an unimpeded view of oncoming traffic. Figure 8 shows the site access improvements.

■ ■ ■



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PROPOSED PROJECT ACCESS IMPROVEMENTS

FIGURE 8

STUDY PARTICIPANTS AND REFERENCES

ATE Participants

Richard Pool, P.E., Principal Engineer
Dan Dawson, Senior Transportation Planner
Heather O'Connell, Transportation Engineer
Marcus Dokolas, Traffic Technician

References

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Persons Contacted

Carolyn Casavan, P.E., West Coast Environmental
John Hecht, P.E., West Coast Environmental
James Hyon Chon, P.E., Traffic & Lighting Division Los Angeles County Public Works
Brian Mastin, Environmental Affairs Manager, Transit Mixed Concrete Company

TECHNICAL APPENDIX

CONTENTS:

PROJECT TRIP GENERATION

RELATED PROJECT INFORMATION

TRAFFIC VOLUME FORECASTS
- Figure A Year 1999 Traffic Volumes
- Figure B Year 1999 + TMC Phase I Traffic Volumes
- Figure C Year 1999 + TMC Phase I + Related Projects Traffic Volumes
- Figure D Year 2009 Traffic Volumes
- Figure E Year 2009 + TMC Phase II Traffic Volumes
- Figure F Year 2009 + TMC Phase II + Related Projects Traffic Volumes

ROADWAY LEVEL OF SERVICE CALCULATIONS

INTERSECTION LEVEL OF SERVICE CALCULATIONS

- Reference 1 - Soledad Cyn Rd/Antelope Vly SB Ramps
- Reference 2 - Soledad Cyn Rd/Antelope Vly NB Ramps
- Reference 3 - Soledad Cyn Rd/Project Access
- Reference 4 - Soledad Cyn Rd/Agua Dulce Cyn Rd
- Reference 5 - Agua Dulce Cyn Rd/Antelope Vly NB Ramps
- Reference 6 - Agua Dulce Cyn Rd/Antelope Vly SB Ramps

SIGNAL WARRANT WORKSHEETS

SOLEDAD CANYON ROAD TRAFFIC INDEX INFORMATION

COUNT DATA

PROJECT TRIP GENERATION

TRANSIT MIX CONCRETE - SOLEDAD CANYON
Trip Generation Worksheet

PHASE I

Trucks (347)

ADT		
Ready-Mix Concrete	=	75
Cement/Fly Ash	=	7
Aggregates	=	265
Subtotal	=	347
Inbound	=	347
Outbound	=	347
Inbound + Outbound	=	694
Peak Hour		
A.M. Peak Inbound (5.2%)	=	18
A.M. Peak Outbound (8.0%)	=	28
Inbound + Outbound	=	46
P.M. Peak Inbound (3.3%)	=	11
P.M. Peak Outbound (3.8%)	=	13
Inbound + Outbound	=	24

Employees (15)

ADT		
15 Emps. x 4 Trips	=	60
Peak Hour		
A.M. Peak Inbound (13%)	=	8
A.M. Peak Outbound (2%)	=	1
Inbound + Outbound	=	9
P.M. Peak Inbound (2%)	=	1
P.M. Peak Outbound (12%)	=	7
Inbound + Outbound	=	8

Phase I Totals

ADT	=	754
Peak Hour		
A.M. Peak Inbound	=	26
A.M. Peak Outbound	=	29
Inbound + Outbound	=	55
P.M. Peak Inbound	=	12
P.M. Peak Outbound	=	20
Inbound + Outbound	=	32

TRANSIT MIX CONCRETE - SOLEDAD CANYON
Trip Generation Worksheet

PHASE I
(CONVERTED TO PCEs)

Trucks (347)

ADT		
Ready-Mix Concrete	=	75
Cement/Fly Ash	=	7
Aggregates	=	265
Subtotal	=	347
Inbound	=	347
Outbound	=	347
Inbound + Outbound	=	694
Passenger Car Equivalents	=	1388 PCEs
Peak Hour		
A.M. Peak Inbound (5.2%)	=	36 PCEs
A.M. Peak Outbound (8.0%)	=	56 PCEs
P.M. Peak Inbound (3.3%)	=	22 PCEs
P.M. Peak Outbound (3.8%)	=	26 PCEs

Employees (15)

ADT		
15 Emps. x 4 Trips	=	60 PCEs
Peak Hour		
A.M. Peak Inbound	=	8 PCEs
A.M. Peak Outbound	=	1 PCEs
P.M. Peak Inbound	=	1 PCEs
P.M. Peak Outbound	=	7 PCEs

Phase I Totals

ADT	=	1448 PCEs
Peak Hour		
A.M. Peak Inbound	=	44 PCEs
A.M. Peak Outbound	=	57 PCEs
P.M. Peak Inbound	=	23 PCEs
P.M. Peak Outbound	=	33 PCEs

TRANSIT MIX CONCRETE - SOLEDAD CANYON
Trip Generation Worksheet

PHASE II

Trucks (582)

ADT		
Ready-Mix Concrete	=	75
Cement/Fly Ash	=	7
Aggregates	=	500
Subtotal	=	582
Inbound	=	582
Outbound	=	582
Inbound + Outbound	=	1164
Peak Hour		
A.M. Peak Inbound (5.7%)	=	33
A.M. Peak Outbound (8.0%)	=	47
Inbound + Outbound	=	80
P.M. Peak Inbound (3.3%)	=	19
P.M. Peak Outbound (3.8%)	=	22
Inbound + Outbound	=	41

Employees (30)

ADT		
30 Emps. x 4 Trips	=	120
Peak Hour		
A.M. Peak Inbound	=	16
A.M. Peak Outbound	=	2
Inbound + Outbound	=	18
P.M. Peak Inbound	=	2
P.M. Peak Outbound	=	14
Inbound + Outbound	=	16

Phase II Totals

ADT	=	1284
Peak Hour		
A.M. Peak Inbound	=	49
A.M. Peak Outbound	=	49
Inbound + Outbound	=	98
P.M. Peak Inbound	=	21
P.M. Peak Outbound	=	36
Inbound + Outbound	=	57

TRANSIT MIX CONCRETE - SOLEDAD CANYON
Trip Generation Worksheet

PHASES I & II
(CONVERTED TO PCEs)

Trucks (582)

ADT		
Ready-Mix Concrete	=	75
Cement/Fly Ash	=	7
Aggregates	=	500
Subtotal	=	582
Inbound	=	582
Outbound	=	582
Inbound + Outbound	=	1164
Passenger Car Equivalents	=	2328 PCEs
Peak Hour		
A.M. Peak Inbound (5.7%)	=	66 PCEs
A.M. Peak Outbound (8.0%)	=	94 PCEs
P.M. Peak Inbound (3.3%)	=	38 PCEs
P.M. Peak Outbound (3.8%)	=	44 PCEs

Employees (30)

ADT		
30 Emps. x 4 Trips	=	120 PCEs
Peak Hour		
A.M. Peak Inbound	=	16 PCEs
A.M. Peak Outbound	=	2 PCEs
P.M. Peak Inbound	=	2 PCEs
P.M. Peak Outbound	=	14 PCEs

Phase II Totals

ADT	=	2448 PCEs
Peak Hour		
A.M. Peak Inbound	=	82 PCEs
A.M. Peak Outbound	=	96 PCEs
P.M. Peak Inbound	=	40 PCEs
P.M. Peak Outbound	=	58 PCEs

RELATED PROJECT INFORMATION

Related Projects

There are several related projects located in the vicinity of the proposed TMC Project. Table A summarizes the traffic associated with the related projects. Trip generation calculations and a map showing the Related Project locations included in the cumulative analysis are provided on the following pages.

Table A
Related Projects

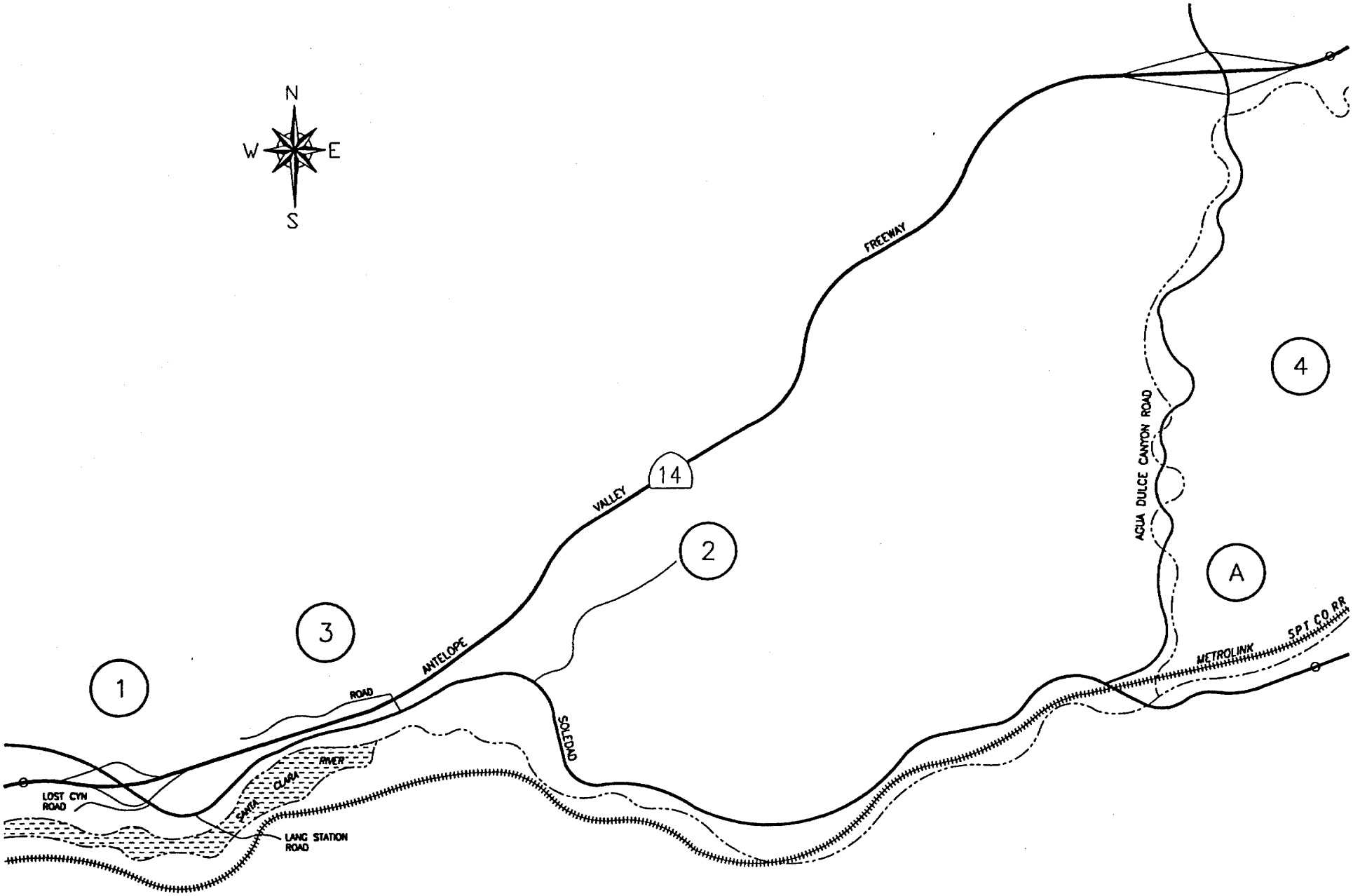
Project	Use	Size	Trip Generation		
			ADT	A.M. Peak	P.M. Peak
CalMat	Mining	1,183 Acres	350	24	8
LA Co #90501	Single Family Res.	616 Units	5,883	456	622
LA Co #87459	Single Family Res.	437 Units	4,173	323	441
LA Co #93147	Mobile Homes	650 Units	3,127	260	364
LA Co #90115	Single Family Res.	499 Units	4,765	369	504
Curtis Sand & Gravel[a]	Mining	168 Acres	64	8	7
CA Rasmussen[a]	Mining	205 Acres	89	0	9
LA Co #86258[a]	Single Family Res.	70 Units	669	52	71
LA Co #91057[a]	Single Family Res.	30 Units	287	22	30
LA Co #91084[a]	Single Family Res.	14 Units	134	10	14
LA Co #97002[a]	Mining	NA	164	5	4

NA – Size not available. Trip generation based on initial study information.
[a] The traffic associated with these Related Project's was not included in the cumulative analysis, as the projects have been completed or were deemed insignificant in size by LA County Traffic & Lighting Division.

SOLEDAD CANYON ROAD - TMC PROJECT
Related Project Trip Generation Worksheet

MAP NO.	PROJECT	Size	ADT Rate	ADT Trips	A.M. Peak Rate	A.M. Peak Trips	P.M. Peak Rate	P.M. Peak Trips
	Phase I Related Projects							
A	CalMat Company - Agua Dulce Quarry	1,183 ACRES	(a)	700	(a)	47	(a)	15
1	LA County #87459 - 228 Units	228 DU	9.55	2,177	0.74	169	1.01	230
2	LA County #93147 - 650 Mobile Home Units	650 DU	4.81	3,126	0.40	260	0.56	364
3	LA County #90115 - 546 Units	546 DU	9.55	5,214	0.74	404	1.01	551
	Subtotals:			**11,217**		**880**		**1,160**
	Phase II Related Projects							
4	LA County #90501 - 616 Units	616 DU	9.55	5,883	0.74	456	1.01	622
	TOTAL ALL RELATED PROJECTS			**17,100**		**1,336**		**1,782**

Notes:
(a) Trip generation derived from project TIA. Trips reported in PCEs.



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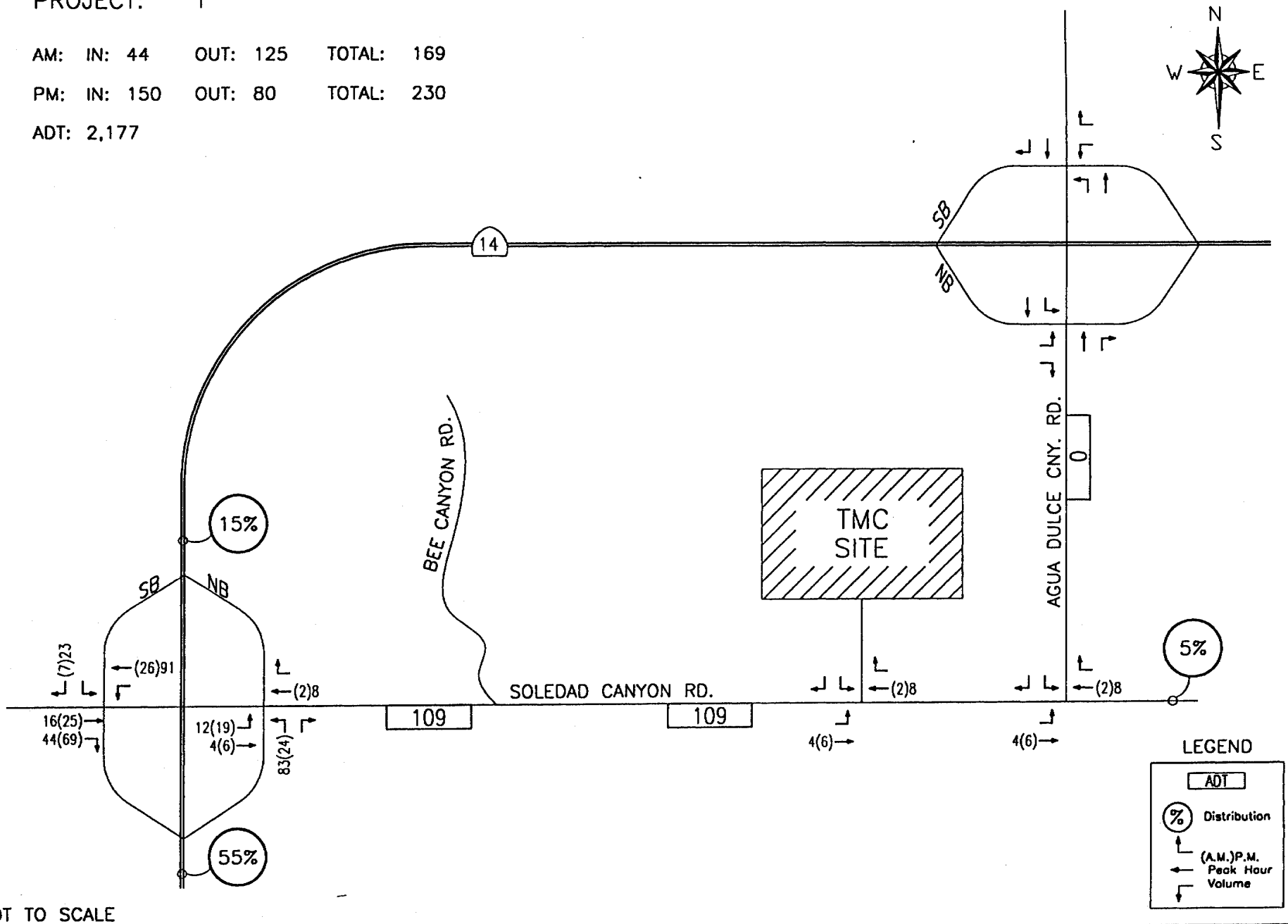
RELATED PROJECTS

PROJECT: 1

AM: IN: 44 OUT: 125 TOTAL: 169

PM: IN: 150 OUT: 80 TOTAL: 230

ADT: 2,177



NOT TO SCALE

ASSOCIATED TRANSPORTATION ENGINEERS

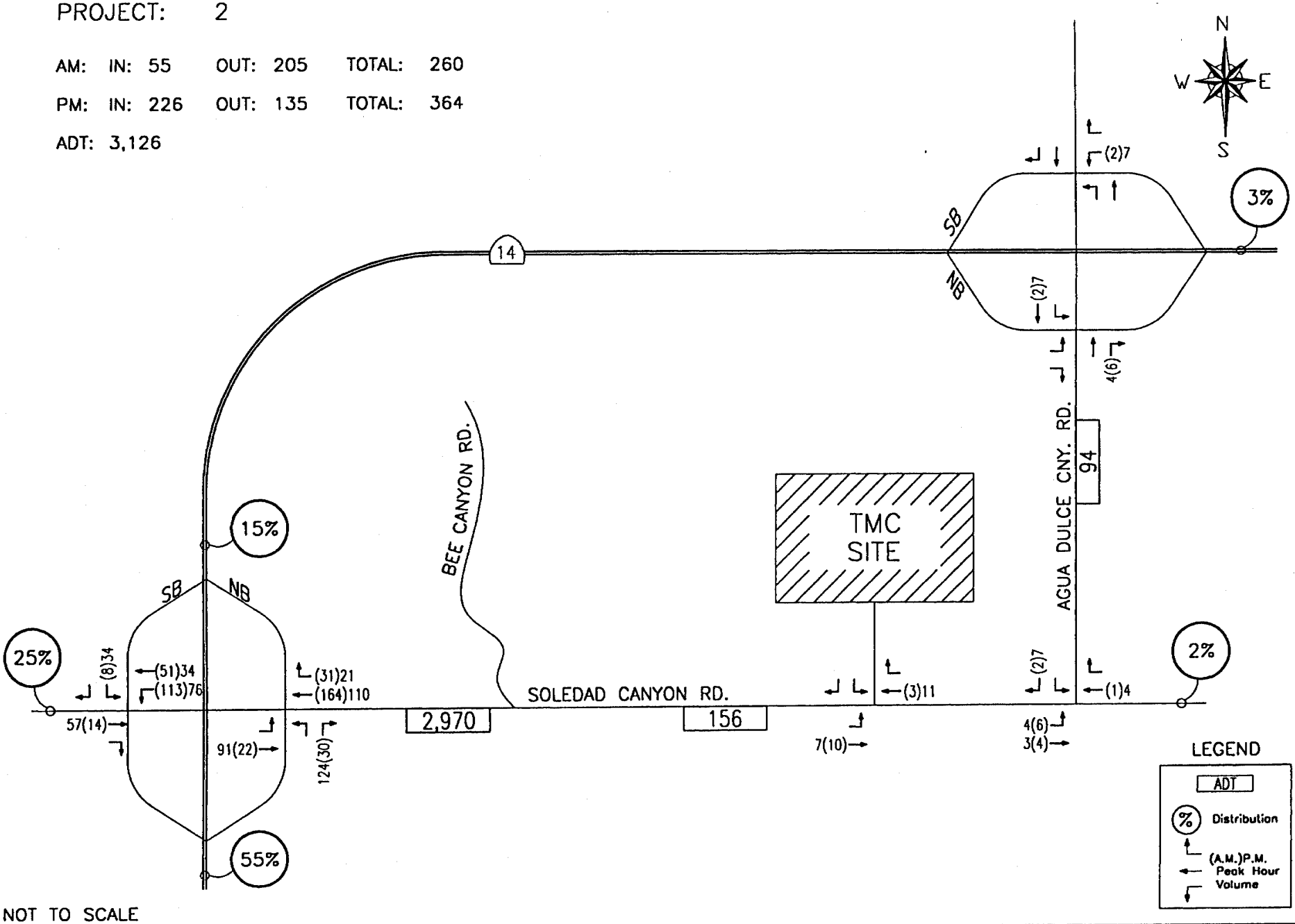
RELATED PROJECT – 1

PROJECT: 2

AM: IN: 55 OUT: 205 TOTAL: 260

PM: IN: 226 OUT: 135 TOTAL: 364

ADT: 3,126



NOT TO SCALE

ASSOCIATED TRANSPORTATION ENGINEERS

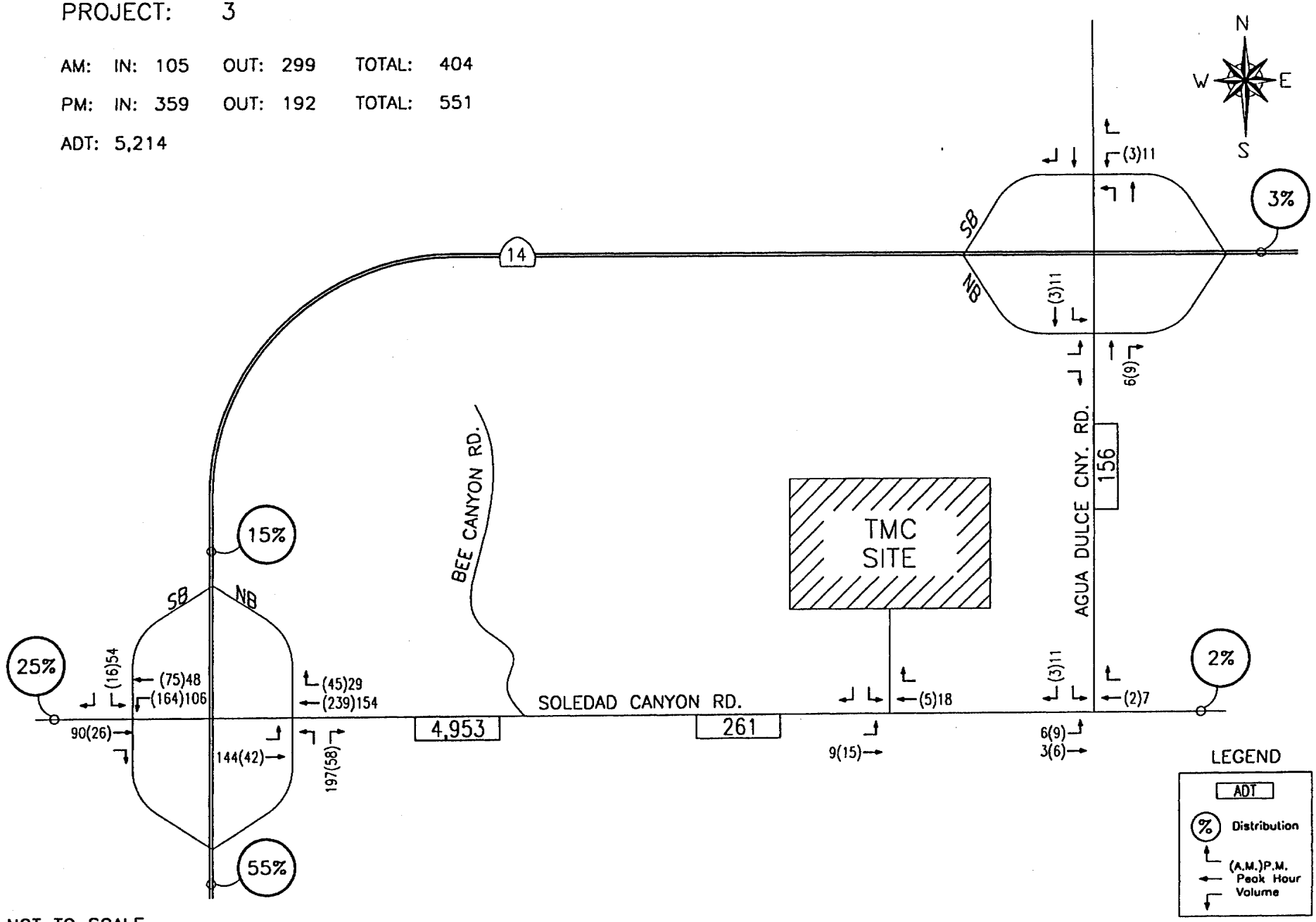
RELATED PROJECT – 2

PROJECT: 3

AM: IN: 105 OUT: 299 TOTAL: 404

PM: IN: 359 OUT: 192 TOTAL: 551

ADT: 5,214



NOT TO SCALE

ASSOCIATED TRANSPORTATION ENGINEERS

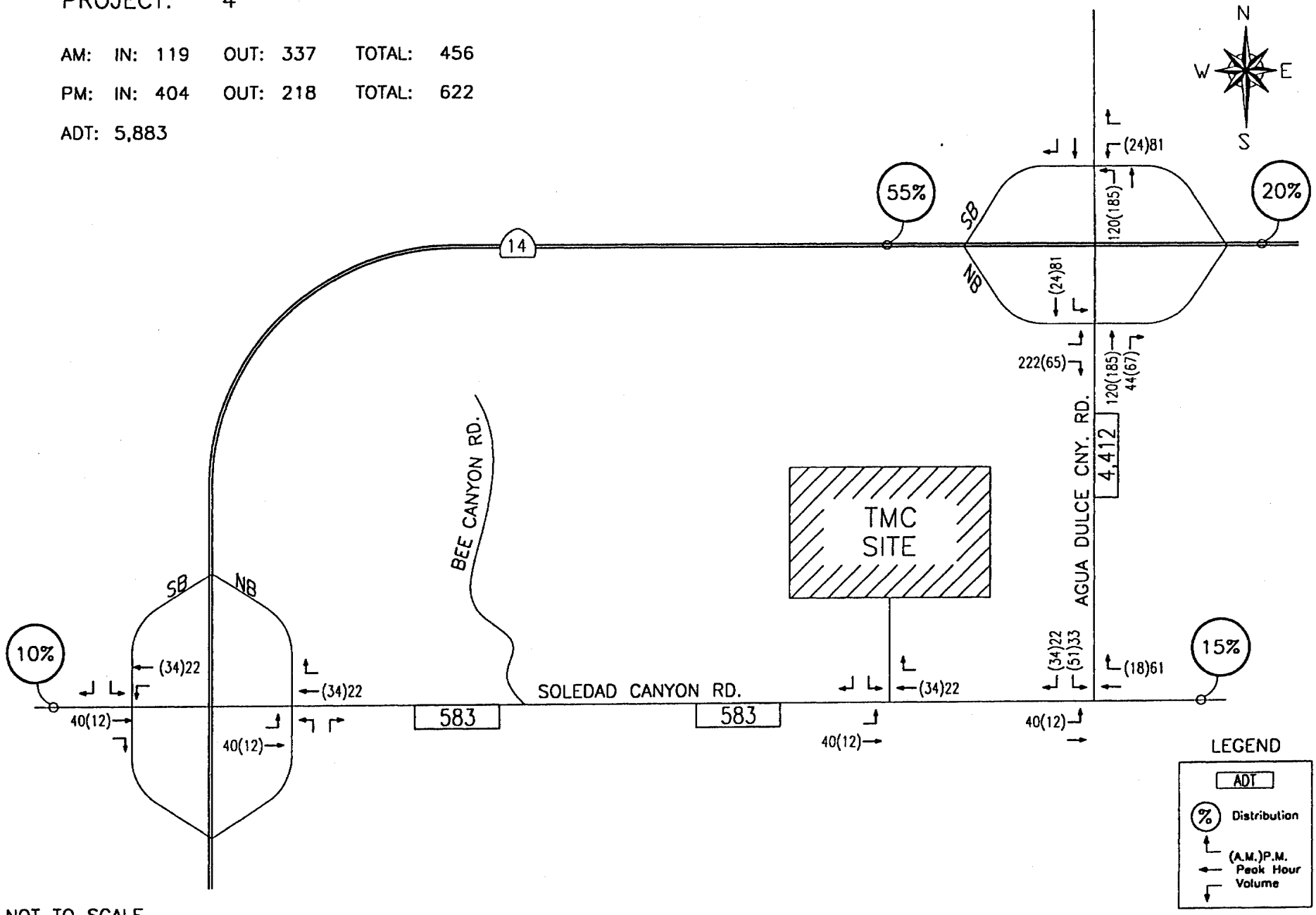
RELATED PROJECT – 3

PROJECT: 4

AM: IN: 119 OUT: 337 TOTAL: 456

PM: IN: 404 OUT: 218 TOTAL: 622

ADT: 5,883



NOT TO SCALE

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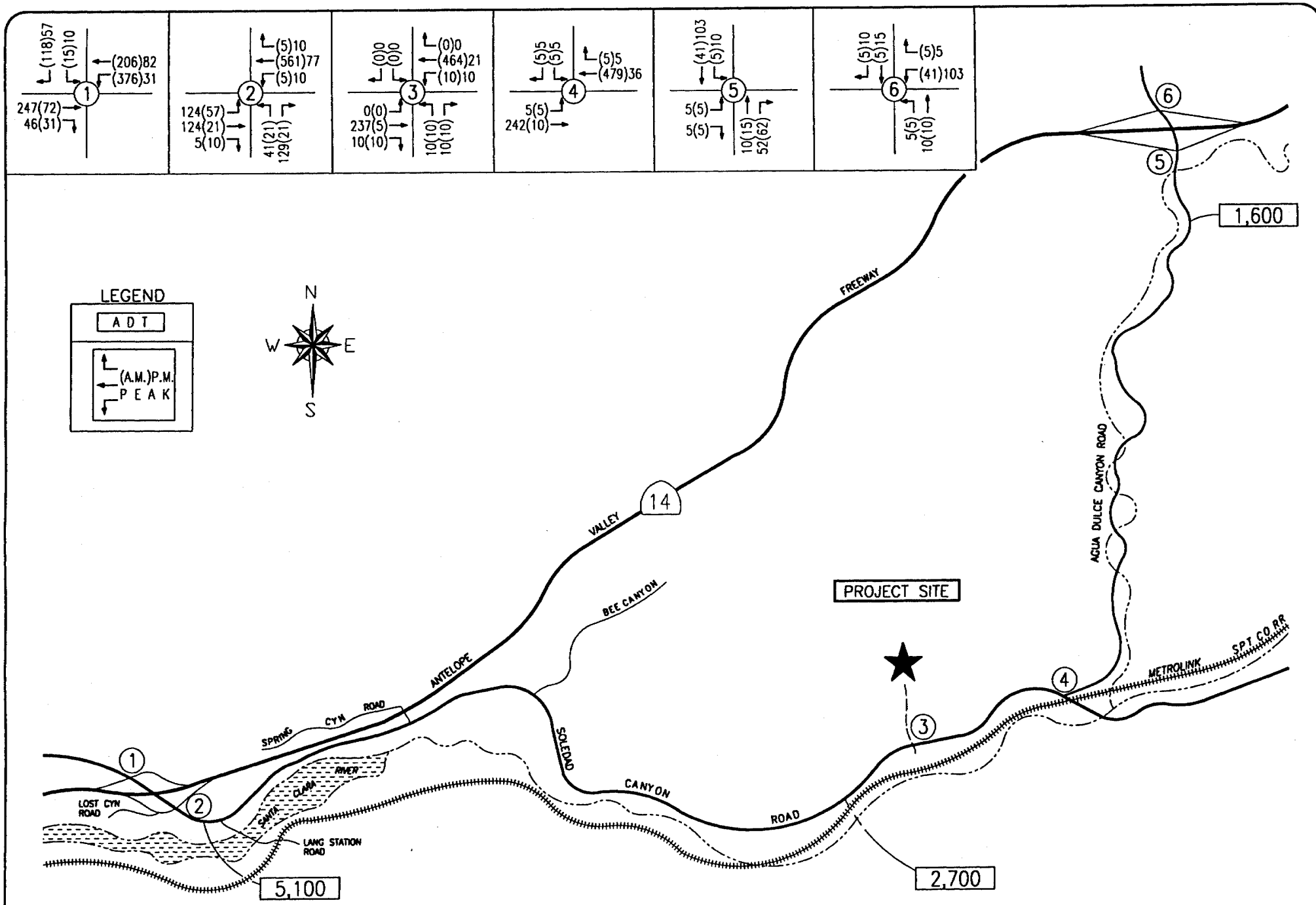
RELATED PROJECT – 4

TRAFFIC VOLUME FORECASTS

Figure A Year 1999 Traffic Volumes
Figure B Year 1999 + TMC Phase I Traffic Volumes
Figure C Year 1999 + TMC Phase I + Related Projects Traffic Volumes
Figure D Year 2009 Traffic Volumes
Figure E Year 2009 + TMC Phase II Traffic Volumes
Figure F Year 2009 + TMC Phase II + Related Projects Traffic Volumes



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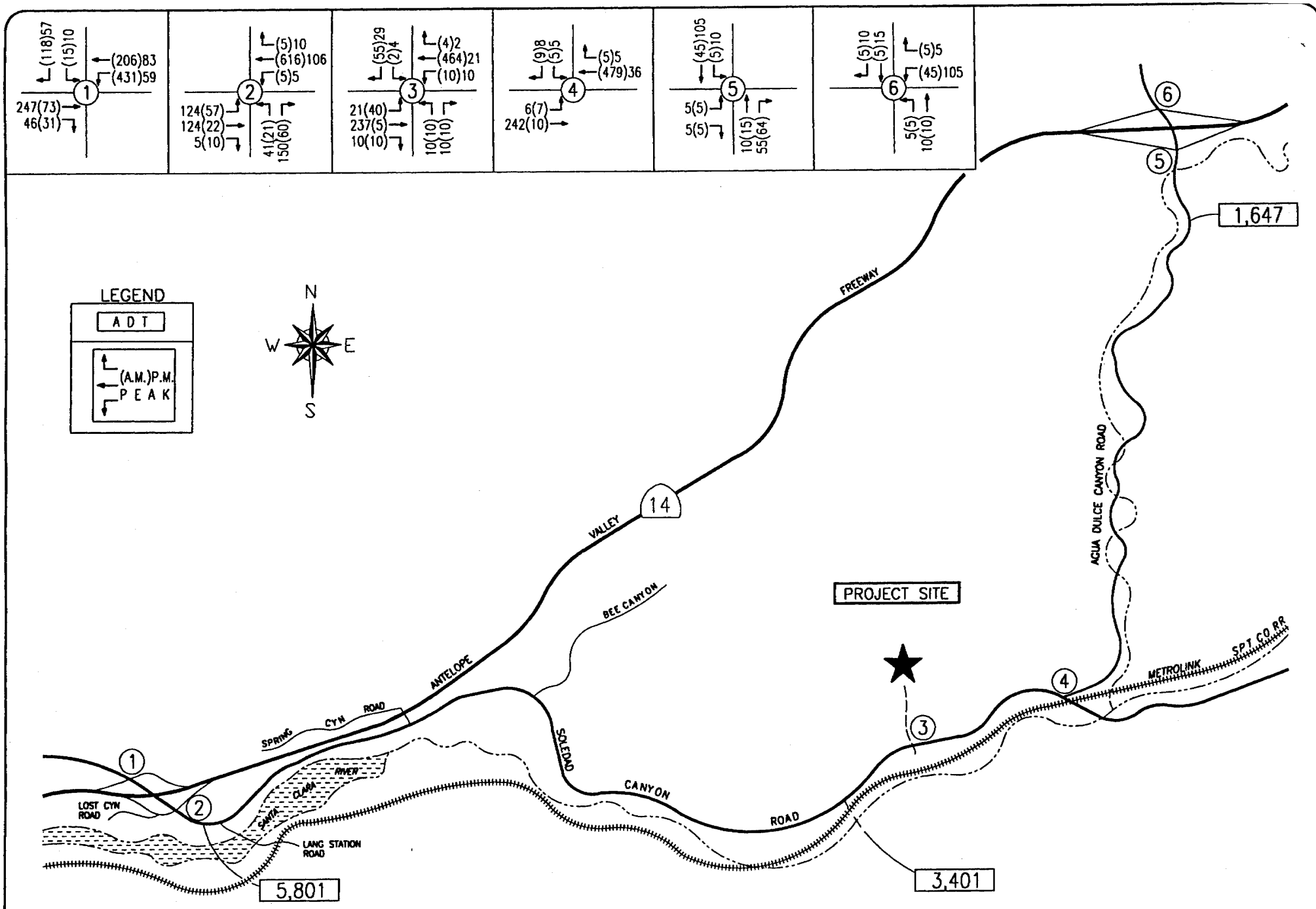
YEAR 1999 TRAFFIC VOLUMES

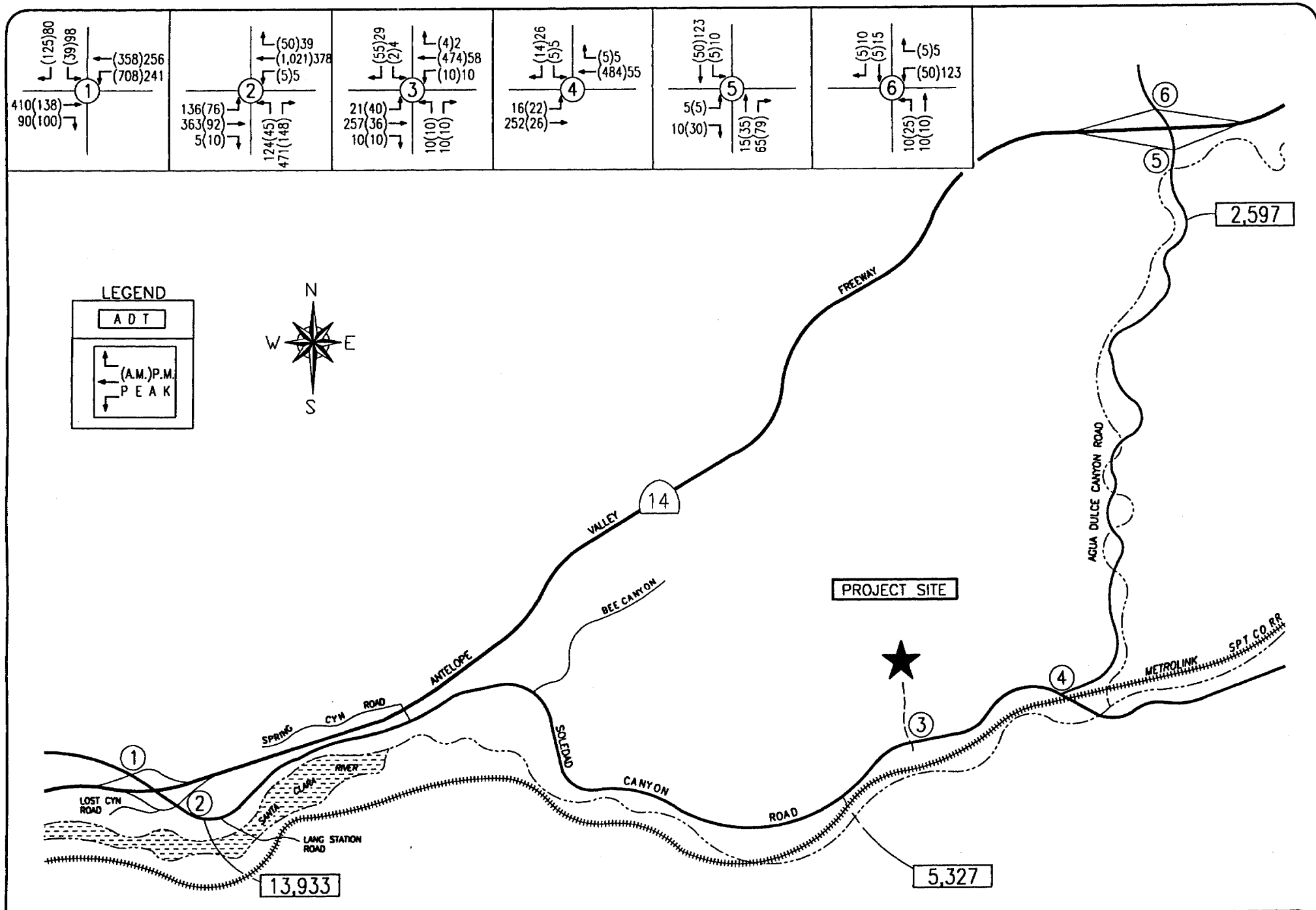
FIGURE A



ASSOCIATED TRANSPORTATION ENGINEERS

YEAR 1999 + TMC PHASE I TRAFFIC VOLUMES

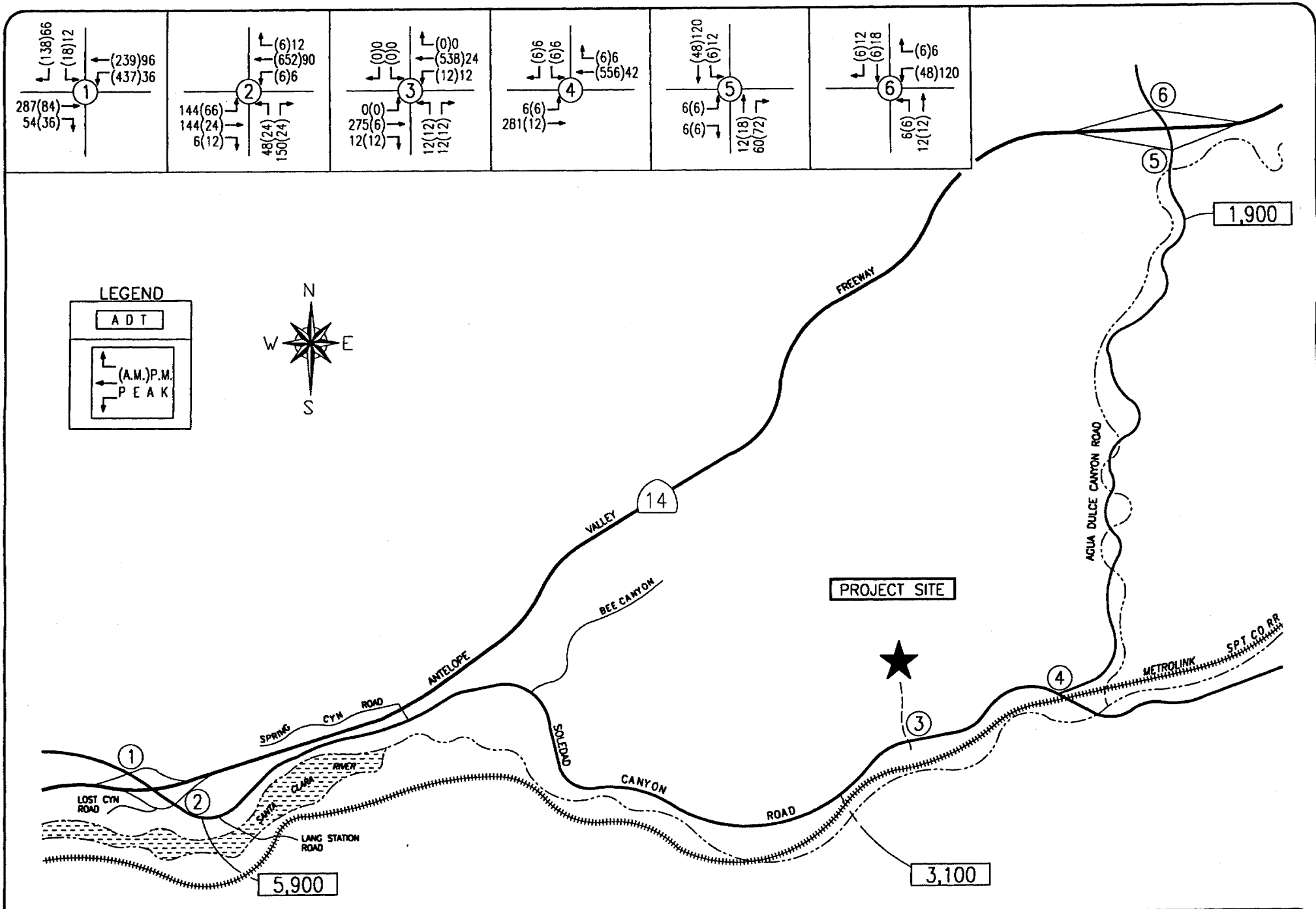
FIGURE B



ASSOCIATED TRANSPORTATION ENGINEERS

YEAR 1999 + TMC PHASE I + RELATED PROJECTS TRAFFIC VOLUMES

FIGURE C



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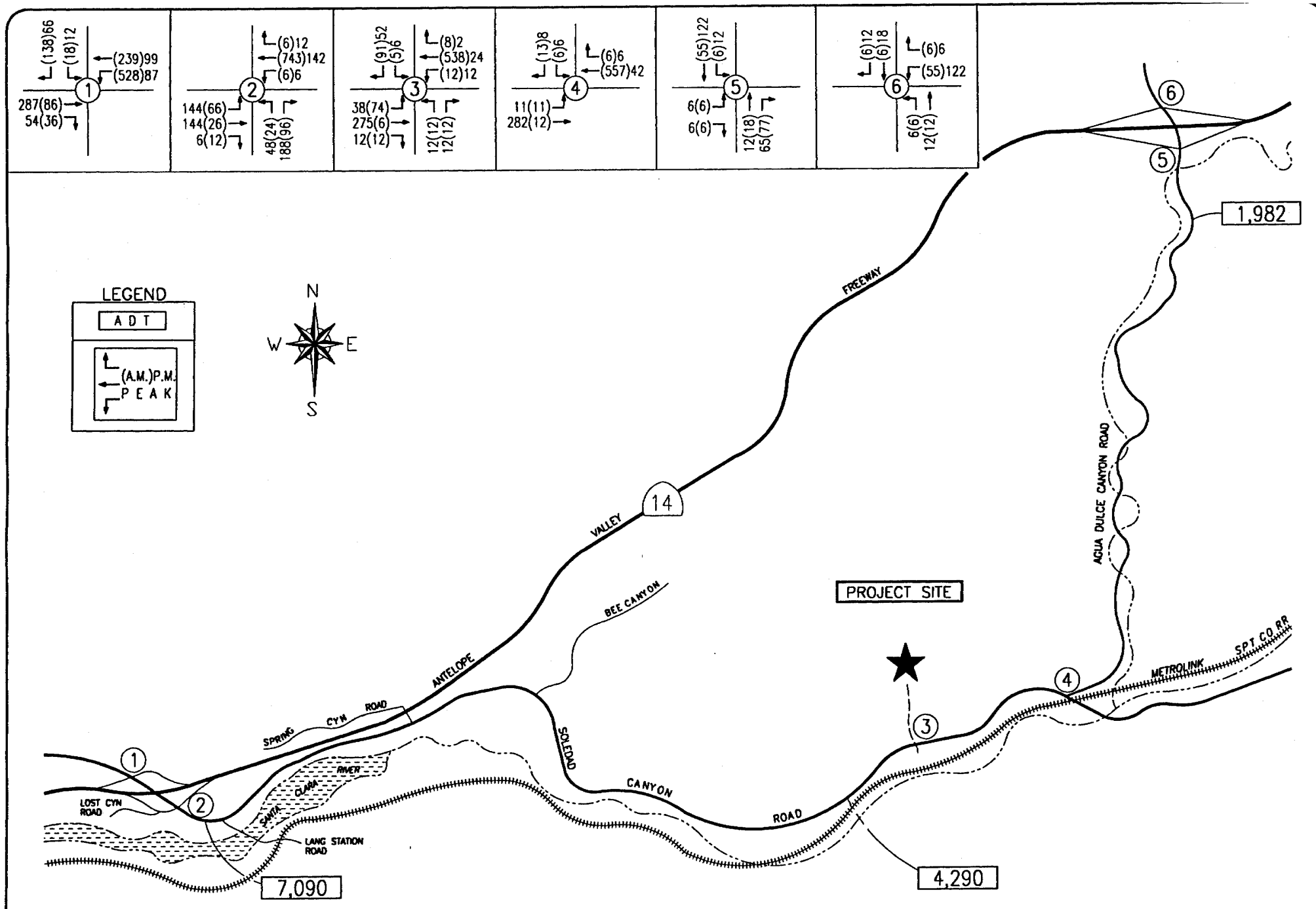
YEAR 2009 TRAFFIC VOLUMES

FIGURE D



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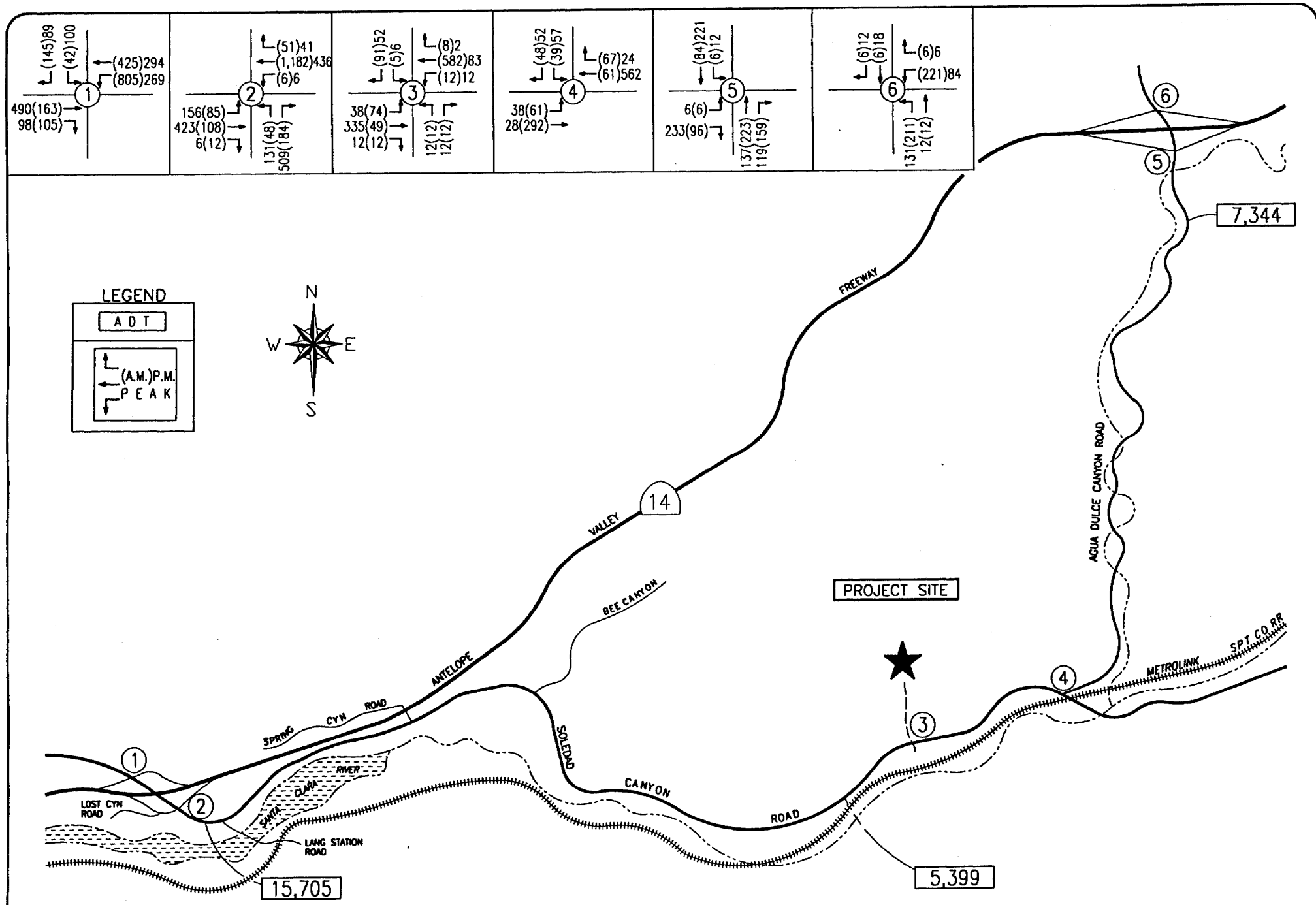
TRANSPORTATION
ENGINEERS

YEAR 2009 + TMC PHASE II TRAFFIC VOLUMES

FIGURE E



ASSOCIATED TRANSPORTATION ENGINEERS

YEAR 2009 + TMC PHASE II + RELATED PROJECTS TRAFFIC VOLUMES

FIGURE F

ROADWAY LEVEL OF SERVICE CALCULATIONS

TRANSIT MIX CONCRETE - SOLEDAD CANYON

A.M. PEAK HOUR TRAFFIC VOLUME FORECASTS
SOLEDAD CANYON ROAD - PROJECT ACCESS TO BEE CANYON

EXISTING 1997	VOLUMES							PCEs			LEVEL OF SERVICE			
	EASTBOUND			WESTBOUND			TOTAL				DIR SPLIT	CAPACITY	V/C RATIO	LOS
	Pass Veh	Trucks	Total	Pass Veh	Trucks	Total	EB & WB	EB	WB	TOTAL				
Existing	15	0	15	427	13	440	455	15	453	468	100 / 0	2,000	0.23	LOS A

1999	VOLUMES							PCEs			LEVEL OF SERVICE			
	EASTBOUND			WESTBOUND			TOTAL				DIR SPLIT	CAPACITY	V/C RATIO	LOS
	Pass Veh	Trucks	Total	Pass Veh	Trucks	Total	EB & WB	EB	WB	TOTAL				
Existing	15	0	15	427	13	440	455	15	453	468				
Growth (@1.5% / yr)	0	0	0	13	0	13	13	0	13	13				
Total	15	0	15	440	13	453	468	15	466	481	100 / 0	2,000	0.24	LOS A

1999 + TMC PHASE I	VOLUMES							PCEs			LEVEL OF SERVICE			
	EASTBOUND			WESTBOUND			TOTAL				DIR SPLIT	CAPACITY	V/C RATIO	LOS
	Pass Veh	Trucks	Total	Pass Veh	Trucks	Total	EB & WB	EB	WB	TOTAL				
1999	15	0	15	440	13	453	468	15	466	481				
TMC Phase I	6	17	23	1	27	28	51	40	55	95				
Total	21	17	38	441	40	481	519	55	521	576	90 / 10	2,100	0.27	LOS A

1999 + TMC PHASE I + RELATED PROJECTS	VOLUMES							PCEs			LEVEL OF SERVICE			
	EASTBOUND			WESTBOUND			TOTAL				DIR SPLIT	CAPACITY	V/C RATIO	LOS
	Pass Veh	Trucks	Total	Pass Veh	Trucks	Total	EB & WB	EB	WB	TOTAL				
1999 + TMC Phase I	21	17	38	441	40	481	519	55	521	576				
Related Project #A	0	0	0	0	0	0	0	0	0	0				
Related Project #1	6	0	6	2	0	2	8	6	2	8				
Related Project #2	10	0	10	3	0	3	13	10	3	13				
Related Project #3	15	0	15	5	0	5	20	15	5	20				
Total	52	17	69	451	40	491	560	86	531	617	90 / 10	2,100	0.29	LOS A

2009	VOLUMES							PCEs			LEVEL OF SERVICE			
	EASTBOUND			WESTBOUND			TOTAL				DIR SPLIT	CAPACITY	V/C RATIO	LOS
	Pass Veh	Trucks	Total	Pass Veh	Trucks	Total	EB & WB	EB	WB	TOTAL				
Existing	15	0	15	427	13	440	560	86	531	617				
Growth (@1.5% / yr)	3	0	3	84	3	87	90	3	90	93				
Total	18	0	18	511	16	527	545	18	543	561	100 / 0	2,000	0.28	LOS A

2009 + TMC PHASE II	VOLUMES							PCEs			LEVEL OF SERVICE			
	EASTBOUND			WESTBOUND			TOTAL				DIR SPLIT	CAPACITY	V/C RATIO	LOS
	Pass Veh	Trucks	Total	Pass Veh	Trucks	Total	EB & WB	EB	WB	TOTAL				
2009	18	0	18	511	16	527	545	18	543	561				
TMC Phase II	12	31	43	1	45	46	89	74	91	165				
Total	30	31	61	512	61	573	634	92	634	726	90 / 10	2,100	0.35	LOS A

2009 + TMC PHASE II + RELATED PROJECTS	VOLUMES							PCEs			LEVEL OF SERVICE			
	EASTBOUND			WESTBOUND			TOTAL				DIR SPLIT	CAPACITY	V/C RATIO	LOS
	Pass Veh	Trucks	Total	Pass Veh	Trucks	Total	EB & WB	EB	WB	TOTAL				
2009 + Phase II	30	31	61	512	61	573	634	92	634	726				
Related Project #A	0	0	0	0	0	0	0	0	0	0				
Related Project #1	6	0	6	2	0	2	8	6	2	8				
Related Project #2	10	0	10	3	0	3	13	10	3	13				
Related Project #3	15	0	15	5	0	5	20	15	5	20				
Related Project #4	12	0	12	34	0	34	46	12	34	46				
Total	73	31	104	556	61	617	721	135	678	813	80 / 20	2,300	0.35	LOS A

Levels of Service calculated persuant to LA County Traffic Impact Analysis Guidelines (January 1997).

TRANSIT MIX CONCRETE - SOLEDAD CANYON

P.M. PEAK HOUR TRAFFIC VOLUME FORECASTS
SOLEDAD CANYON ROAD - PROJECT ACCESS TO BEE CANYON

EXISTING 1997	VOLUMES							PCEs			LEVEL OF SERVICE			
	EASTBOUND			WESTBOUND			TOTAL				DIR SPLIT	CAPACITY	V/C RATIO	LOS
	Pass Veh	Trucks	Total	Pass Veh	Trucks	Total	EB & WB	EB	WB	TOTAL				
Existing	218	7	225	39	1	40	265	232	41	273	80 / 20	2,300	0.12	LOS A

1999	VOLUMES							PCEs			LEVEL OF SERVICE			
	EASTBOUND			WESTBOUND			TOTAL				DIR SPLIT	CAPACITY	V/C RATIO	LOS
	Pass Veh	Trucks	Total	Pass Veh	Trucks	Total	EB & WB	EB	WB	TOTAL				
Existing	218	7	225	39	1	40	265	232	41	273				
Growth (@1.5% / yr)	7	0	7	1	0	1	8	7	1	8				
Total	225	7	232	40	1	41	273	239	42	281	90 / 10	2,100	0.13	LOS A

1999 + TMC PHASE I	VOLUMES							PCEs			LEVEL OF SERVICE			
	EASTBOUND			WESTBOUND			TOTAL				DIR SPLIT	CAPACITY	V/C RATIO	LOS
	Pass Veh	Trucks	Total	Pass Veh	Trucks	Total	EB & WB	EB	WB	TOTAL				
1999	225	7	232	40	1	41	273	239	42	281				
TMC Phase I	1	10	11	5	12	17	28	21	29	50				
Total	226	17	243	45	13	58	301	260	71	331	80 / 20	2,300	0.14	LOS A

1999 + TMC PHASE I + RELATED PROJECTS	VOLUMES							PCEs			LEVEL OF SERVICE			
	EASTBOUND			WESTBOUND			TOTAL				DIR SPLIT	CAPACITY	V/C RATIO	LOS
	Pass Veh	Trucks	Total	Pass Veh	Trucks	Total	EB & WB	EB	WB	TOTAL				
1999 + TMC Phase I	226	17	243	45	13	58	301	260	71	331				
Related Project #A	0	0	0	0	0	0	0	0	0	0				
Related Project #1	4	0	4	8	0	8	12	4	8	12				
Related Project #2	7	0	7	11	0	11	18	7	11	18				
Related Project #3	9	0	9	15	0	15	24	9	15	24				
Total	246	17	263	79	13	92	355	280	105	385	70 / 30	2,500	0.15	LOS A

2009	VOLUMES							PCEs			LEVEL OF SERVICE			
	EASTBOUND			WESTBOUND			TOTAL				DIR SPLIT	CAPACITY	V/C RATIO	LOS
	Pass Veh	Trucks	Total	Pass Veh	Trucks	Total	EB & WB	EB	WB	TOTAL				
Existing	218	7	225	39	1	40	355	280	105	385				
Growth (@1.5% / yr)	43	1	44	8	0	8	52	45	8	53				
Total	261	8	269	47	1	48	317	277	49	326	80 / 20	2,300	0.14	LOS A

2009 + TMC PHASE II	VOLUMES							PCEs			LEVEL OF SERVICE			
	EASTBOUND			WESTBOUND			TOTAL				DIR SPLIT	CAPACITY	V/C RATIO	LOS
	Pass Veh	Trucks	Total	Pass Veh	Trucks	Total	EB & WB	EB	WB	TOTAL				
2009	261	8	269	47	1	48	317	277	49	326				
TMC Phase II	1	18	19	9	21	30	49	37	51	88				
Total	262	26	288	56	22	78	366	314	100	414	80 / 20	2,300	0.18	LOS A

2009 + TMC PHASE II + RELATED PROJECTS	VOLUMES							PCEs			LEVEL OF SERVICE			
	EASTBOUND			WESTBOUND			TOTAL				DIR SPLIT	CAPACITY	V/C RATIO	LOS
	Pass Veh	Trucks	Total	Pass Veh	Trucks	Total	EB & WB	EB	WB	TOTAL				
2009 + Phase II	262	26	288	56	22	78	366	314	100	414				
Related Project #A	0	0	0	0	0	0	0	0	0	0				
Related Project #1	4	0	4	8	0	8	12	4	8	12				
Related Project #2	7	0	7	11	0	11	18	7	11	18				
Related Project #3	9	0	9	15	0	15	24	9	15	24				
Related Project #4	40	0	40	22	0	22	62	40	22	62				
Total	322	26	348	112	22	134	482	374	156	530	70 / 30	2,500	0.21	LOS A

Levels of Service calculated persuant to LA County Traffic Impact Analysis Guidelines (January 1997).

TRANSIT MIX CONCRETE - SOLEDAD CANYON

A.M. PEAK HOUR TRAFFIC VOLUME FORECASTS
SOLEDAD CANYON ROAD - BEE CANYON TO ROUTE 14

EXISTING 1997	VOLUMES							PCEs			LEVEL OF SERVICE			
	EASTBOUND			WESTBOUND			TOTAL				DIR SPLIT	CAPACITY	V/C RATIO	LOS
	Pass Veh	Trucks	Total	Pass Veh	Trucks	Total	EB & WB	EB	WB	TOTAL				
Existing	38	2	40	494	26	520	560	42	546	588	90 / 10	2,100	0.28	LOS A

1999	VOLUMES							PCEs			LEVEL OF SERVICE			
	EASTBOUND			WESTBOUND			TOTAL				DIR SPLIT	CAPACITY	V/C RATIO	LOS
	Pass Veh	Trucks	Total	Pass Veh	Trucks	Total	EB & WB	EB	WB	TOTAL				
Existing	38	2	40	494	26	520	560	42	546	588				
Growth (@1.5% / yr)	1	0	1	15	1	16	17	1	17	18				
Total	39	2	41	509	27	536	577	43	563	606	90 / 10	2,100	0.29	LOS A

1999 + TMC PHASE I	VOLUMES							PCEs			LEVEL OF SERVICE			
	EASTBOUND			WESTBOUND			TOTAL				DIR SPLIT	CAPACITY	V/C RATIO	LOS
	Pass Veh	Trucks	Total	Pass Veh	Trucks	Total	EB & WB	EB	WB	TOTAL				
1999	39	2	41	509	27	536	577	43	563	606				
TMC Phase I	6	17	23	1	27	28	51	40	55	95				
Total	45	19	64	510	54	564	628	83	618	701	90 / 10	2,100	0.33	LOS A

1999 + TMC PHASE I + RELATED PROJECTS	VOLUMES							PCEs			LEVEL OF SERVICE			
	EASTBOUND			WESTBOUND			TOTAL				DIR SPLIT	CAPACITY	V/C RATIO	LOS
	Pass Veh	Trucks	Total	Pass Veh	Trucks	Total	EB & WB	EB	WB	TOTAL				
1999 + TMC Phase I	45	19	64	510	54	564	628	83	618	701				
Related Project #A	0	0	0	0	0	0	0	0	0	0				
Related Project #1	6	0	6	2	0	2	8	6	2	8				
Related Project #2	52	0	52	195	0	195	247	52	195	247				
Related Project #3	100	0	100	284	0	284	384	100	284	384				
Total	203	19	222	991	54	1045	1267	241	1099	1340	80 / 20	2,300	0.58	LOS A

2009	VOLUMES							PCEs			LEVEL OF SERVICE			
	EASTBOUND			WESTBOUND			TOTAL				DIR SPLIT	CAPACITY	V/C RATIO	LOS
	Pass Veh	Trucks	Total	Pass Veh	Trucks	Total	EB & WB	EB	WB	TOTAL				
Existing	38	2	40	494	26	520	1267	241	1099	1340				
Growth (@1.5% / yr)	7	0	7	97	5	102	109	7	107	114				
Total	45	2	47	591	31	622	669	49	653	702	90 / 10	2,100	0.33	LOS A

2009 + TMC PHASE II	VOLUMES							PCEs			LEVEL OF SERVICE			
	EASTBOUND			WESTBOUND			TOTAL				DIR SPLIT	CAPACITY	V/C RATIO	LOS
	Pass Veh	Trucks	Total	Pass Veh	Trucks	Total	EB & WB	EB	WB	TOTAL				
2009	45	2	47	591	31	622	669	49	653	702				
TMC Phase II	12	31	43	1	45	46	89	74	91	165				
Total	57	33	90	592	76	668	758	123	744	867	90 / 10	2,100	0.41	LOS A

2009 + TMC PHASE II + RELATED PROJECTS	VOLUMES							PCEs			LEVEL OF SERVICE			
	EASTBOUND			WESTBOUND			TOTAL				DIR SPLIT	CAPACITY	V/C RATIO	LOS
	Pass Veh	Trucks	Total	Pass Veh	Trucks	Total	EB & WB	EB	WB	TOTAL				
2009 + Phase II	57	33	90	592	76	668	758	123	744	867				
Related Project #A	0	0	0	0	0	0	0	0	0	0				
Related Project #1	6	0	6	2	0	2	8	6	2	8				
Related Project #2	52	0	52	195	0	195	247	52	195	247				
Related Project #3	100	0	100	284	0	284	384	100	284	384				
Related Project #4	12	0	12	34	0	34	46	12	34	46				
Total	227	33	260	1107	76	1183	1443	293	1259	1552	80 / 20	2,300	0.67	LOS B

Levels of Service calculated persuant to LA County Traffic Impact Analysis Guidelines (January 1997).

TRANSIT MIX CONCRETE - SOLEDAD CANYON

P.M. PEAK HOUR TRAFFIC VOLUME FORECASTS
SOLEDAD CANYON ROAD - BEE CANYON TO ROUTE 14

EXISTING 1997	VOLUMES							PCEs			LEVEL OF SERVICE			
	EASTBOUND			WESTBOUND			TOTAL				DIR SPLIT	CAPACITY	V/C RATIO	LOS
	Pass Veh	Trucks	Total	Pass Veh	Trucks	Total	EB & WB	EB	WB	TOTAL				
Existing	223	12	235	81	4	85	320	247	89	336	70 / 30	2,500	0.13	LOS A

1999	VOLUMES							PCEs			LEVEL OF SERVICE			
	EASTBOUND			WESTBOUND			TOTAL				DIR SPLIT	CAPACITY	V/C RATIO	LOS
	Pass Veh	Trucks	Total	Pass Veh	Trucks	Total	EB & WB	EB	WB	TOTAL				
Existing	223	12	235	81	4	85	320	247	89	336				
Growth (@1.5% / yr)	7	0	7	2	0	2	9	7	2	9				
Total	230	12	242	83	4	87	329	254	91	345	70 / 30	2,500	0.14	LOS A

1999 + TMC PHASE I	VOLUMES							PCEs			LEVEL OF SERVICE			
	EASTBOUND			WESTBOUND			TOTAL				DIR SPLIT	CAPACITY	V/C RATIO	LOS
	Pass Veh	Trucks	Total	Pass Veh	Trucks	Total	EB & WB	EB	WB	TOTAL				
1999	230	12	242	83	4	87	329	254	91	345				
TMC Phase I	1	10	11	5	12	17	28	21	29	50				
Total	231	22	253	88	16	104	357	275	120	395	70 / 30	2,500	0.16	LOS A

1999 + TMC PHASE I + RELATED PROJECTS	VOLUMES							PCEs			LEVEL OF SERVICE			
	EASTBOUND			WESTBOUND			TOTAL				DIR SPLIT	CAPACITY	V/C RATIO	LOS
	Pass Veh	Trucks	Total	Pass Veh	Trucks	Total	EB & WB	EB	WB	TOTAL				
1999 + TMC Phase I	231	22	253	88	16	104	357	275	120	395				
Related Project #A	0	0	0	0	0	0	0	0	0	0				
Related Project #1	4	0	4	8	0	8	12	4	8	12				
Related Project #2	215	0	215	131	0	131	346	215	131	346				
Related Project #3	341	0	341	183	0	183	524	341	183	524				
Total	791	22	813	410	16	426	1239	835	442	1277	70 / 30	2,500	0.51	LOS A

2009	VOLUMES							PCEs			LEVEL OF SERVICE			
	EASTBOUND			WESTBOUND			TOTAL				DIR SPLIT	CAPACITY	V/C RATIO	LOS
	Pass Veh	Trucks	Total	Pass Veh	Trucks	Total	EB & WB	EB	WB	TOTAL				
Existing	223	12	235	81	4	85	1239	835	442	1277				
Growth (@1.5% / yr)	44	2	46	16	1	17	63	48	18	66				
Total	267	14	281	97	5	102	383	295	107	402	70 / 30	2,500	0.16	LOS A

2009 + TMC PHASE II	VOLUMES							PCEs			LEVEL OF SERVICE			
	EASTBOUND			WESTBOUND			TOTAL				DIR SPLIT	CAPACITY	V/C RATIO	LOS
	Pass Veh	Trucks	Total	Pass Veh	Trucks	Total	EB & WB	EB	WB	TOTAL				
2009	267	14	281	97	5	102	383	295	107	402				
TMC Phase II	1	18	19	9	21	30	49	37	51	88				
Total	268	32	300	106	26	132	432	332	158	490	70 / 30	2,500	0.20	LOS A

2009 + TMC PHASE II + RELATED PROJECTS	VOLUMES							PCEs			LEVEL OF SERVICE			
	EASTBOUND			WESTBOUND			TOTAL				DIR SPLIT	CAPACITY	V/C RATIO	LOS
	Pass Veh	Trucks	Total	Pass Veh	Trucks	Total	EB & WB	EB	WB	TOTAL				
2009 + Phase II	268	32	300	106	26	132	432	332	158	490				
Related Project #A	0	0	0	0	0	0	0	0	0	0				
Related Project #1	4	0	4	8	0	8	12	4	8	12				
Related Project #2	215	0	215	131	0	131	346	215	131	346				
Related Project #3	341	0	341	183	0	183	524	341	183	524				
Related Project #4	40	0	40	22	0	22	62	40	22	62				
Total	868	32	900	450	26	476	1376	932	502	1434	60 / 40	2,650	0.54	LOS A

Levels of Service calculated persuant to LA County Traffic Impact Analysis Guidelines (January 1997).

TRANSIT MIX CONCRETE - SOLEDAD CANYON

A.M. PEAK HOUR TRAFFIC VOLUME FORECASTS
AGUA DOLCE CANYON ROAD - SOUTH OF ROUTE 14

EXISTING 1997	VOLUMES							PCEs			LEVEL OF SERVICE			
	NORTHBOUND			SOUTHBOUND			TOTAL				DIR SPLIT	CAPACITY	V/C RATIO	LOS
	Pass Veh	Trucks	Total	Pass Veh	Trucks	Total	NB & SB	NB	SB	TOTAL				
Existing	65	5	70	39	1	40	110	75	41	116	60 / 40	2,650	0.04	LOS A

1999	VOLUMES							PCEs			LEVEL OF SERVICE			
	NORTHBOUND			SOUTHBOUND			TOTAL				DIR SPLIT	CAPACITY	V/C RATIO	LOS
	Pass Veh	Trucks	Total	Pass Veh	Trucks	Total	NB & SB	NB	SB	TOTAL				
Existing	65	5	70	39	1	40	110	75	41	116				
Growth (@1.5% / yr)	2	0	2	1	0	1	3	2	1	3				
Total	67	5	72	40	1	41	113	77	42	119	60 / 40	2,650	0.04	LOS A

1999 + TMC PHASE I	VOLUMES							PCEs			LEVEL OF SERVICE			
	NORTHBOUND			SOUTHBOUND			TOTAL				DIR SPLIT	CAPACITY	V/C RATIO	LOS
	Pass Veh	Trucks	Total	Pass Veh	Trucks	Total	NB & SB	NB	SB	TOTAL				
1999	67	5	72	40	1	41	113	77	42	119				
TMC Phase I	0	1	1	2	1	3	4	2	4	6				
Total	67	6	73	42	2	44	117	79	46	125	60 / 40	2,650	0.05	LOS A

1999 + TMC PHASE I + RELATED PROJECTS	VOLUMES							PCEs			LEVEL OF SERVICE			
	NORTHBOUND			SOUTHBOUND			TOTAL				DIR SPLIT	CAPACITY	V/C RATIO	LOS
	Pass Veh	Trucks	Total	Pass Veh	Trucks	Total	NB & SB	NB	SB	TOTAL				
1999 + TMC Phase I	67	6	73	42	2	44	117	79	46	125				
Related Project #A	1	9	10	5	10	15	25	19	25	44				
Related Project #1	0	0	0	0	0	0	0	0	0	0				
Related Project #2	6	0	6	2	0	2	8	6	2	8				
Related Project #3	9	0	9	3	0	3	12	9	3	12				
Total	83	15	98	52	12	64	162	113	76	189	60 / 40	2,650	0.07	LOS A

2009	VOLUMES							PCEs			LEVEL OF SERVICE			
	NORTHBOUND			SOUTHBOUND			TOTAL				DIR SPLIT	CAPACITY	V/C RATIO	LOS
	Pass Veh	Trucks	Total	Pass Veh	Trucks	Total	NB & SB	NB	SB	TOTAL				
Existing	65	5	70	39	1	40	162	113	76	189				
Growth (@1.5% / yr)	13	1	14	8	0	8	22	15	8	23				
Total	78	6	84	47	1	48	132	90	49	139	60 / 40	2,650	0.05	LOS A

2009 + TMC PHASE II	VOLUMES							PCEs			LEVEL OF SERVICE			
	NORTHBOUND			SOUTHBOUND			TOTAL				DIR SPLIT	CAPACITY	V/C RATIO	LOS
	Pass Veh	Trucks	Total	Pass Veh	Trucks	Total	NB & SB	NB	SB	TOTAL				
2009	78	6	84	47	1	48	132	90	49	139				
TMC Phase II	1	2	3	3	2	5	8	5	7	12				
Total	79	8	87	50	3	53	140	95	56	151	60 / 40	2,650	0.06	LOS A

2009 + TMC PHASE II + RELATED PROJECTS	VOLUMES							PCEs			LEVEL OF SERVICE			
	NORTHBOUND			SOUTHBOUND			TOTAL				DIR SPLIT	CAPACITY	V/C RATIO	LOS
	Pass Veh	Trucks	Total	Pass Veh	Trucks	Total	NB & SB	NB	SB	TOTAL				
2009 + Phase II	79	8	87	50	3	53	140	95	56	151				
Related Project #A	1	9	10	5	10	15	25	19	25	44				
Related Project #1	0	0	0	0	0	0	0	0	0	0				
Related Project #2	6	0	6	2	0	2	8	6	2	8				
Related Project #3	9	0	9	3	0	3	12	9	3	12				
Related Project #4	252	0	252	89	0	89	341	252	89	341				
Total	347	17	364	149	13	162	526	381	175	556	70 / 30	2,500	0.22	LOS A

Levels of Service calculated persuant to LA County Traffic Impact Analysis Guidelines (January 1997).

TRANSIT MIX CONCRETE - SOLEDAD CANYON

P.M. PEAK HOUR TRAFFIC VOLUME FORECASTS
AGUA DOLCE CANYON ROAD - SOUTH OF ROUTE 14

EXISTING 1997	VOLUMES							PCEs			LEVEL OF SERVICE			
	NORTHBOUND			SOUTHBOUND			TOTAL				DIR SPLIT	CAPACITY	V/C RATIO	LOS
	Pass Veh	Trucks	Total	Pass Veh	Trucks	Total	NB & SB	NB	SB	TOTAL				
Existing	53	2	55	97	3	100	155	57	103	160	60 / 40	2,650	0.06	LOS A

1999	VOLUMES							PCEs			LEVEL OF SERVICE			
	NORTHBOUND			SOUTHBOUND			TOTAL				DIR SPLIT	CAPACITY	V/C RATIO	LOS
	Pass Veh	Trucks	Total	Pass Veh	Trucks	Total	NB & SB	NB	SB	TOTAL				
Existing	53	2	55	97	3	100	155	57	103	160				
Growth (@1.5% / yr)	2	0	2	3	0	3	5	2	3	5				
Total	55	2	57	100	3	103	160	59	106	165	60 / 40	2,650	0.06	LOS A

1999 + TMC PHASE I	VOLUMES							PCEs			LEVEL OF SERVICE			
	NORTHBOUND			SOUTHBOUND			TOTAL				DIR SPLIT	CAPACITY	V/C RATIO	LOS
	Pass Veh	Trucks	Total	Pass Veh	Trucks	Total	NB & SB	NB	SB	TOTAL				
1999	55	2	57	100	3	103	160	59	106	165				
TMC Phase I	1	1	2	0	1	1	3	3	2	5				
Total	56	3	59	100	4	104	163	62	108	170	60 / 40	2,650	0.06	LOS A

1999 + TMC PHASE I + RELATED PROJECTS	VOLUMES							PCEs			LEVEL OF SERVICE			
	NORTHBOUND			SOUTHBOUND			TOTAL				DIR SPLIT	CAPACITY	V/C RATIO	LOS
	Pass Veh	Trucks	Total	Pass Veh	Trucks	Total	NB & SB	NB	SB	TOTAL				
1999 + TMC Phase I	56	3	59	100	4	104	163	62	108	170				
Related Project #A	3	1	4	1	2	3	7	5	5	10				
Related Project #1	0	0	0	0	0	0	0	0	0	0				
Related Project #2	4	0	4	7	0	7	11	4	7	11				
Related Project #3	6	0	6	11	0	11	17	6	11	17				
Total	69	4	73	119	6	125	198	77	131	208	60 / 40	2,650	0.08	LOS A

2009	VOLUMES							PCEs			LEVEL OF SERVICE			
	NORTHBOUND			SOUTHBOUND			TOTAL				DIR SPLIT	CAPACITY	V/C RATIO	LOS
	Pass Veh	Trucks	Total	Pass Veh	Trucks	Total	NB & SB	NB	SB	TOTAL				
Existing	53	2	55	97	3	100	198	77	131	208				
Growth (@1.5% / yr)	10	0	10	19	1	20	30	10	21	31				
Total	63	2	65	116	4	120	185	67	124	191	60 / 40	2,650	0.07	LOS A

2009 + TMC PHASE II	VOLUMES							PCEs			LEVEL OF SERVICE			
	NORTHBOUND			SOUTHBOUND			TOTAL				DIR SPLIT	CAPACITY	V/C RATIO	LOS
	Pass Veh	Trucks	Total	Pass Veh	Trucks	Total	NB & SB	NB	SB	TOTAL				
2009	63	2	65	116	4	120	185	67	124	191				
TMC Phase II	1	1	2	3	1	4	6	3	5	8				
Total	64	3	67	119	5	124	191	70	129	199	60 / 40	2,650	0.08	LOS A

2009 + TMC PHASE II + RELATED PROJECTS	VOLUMES							PCEs			LEVEL OF SERVICE			
	NORTHBOUND			SOUTHBOUND			TOTAL				DIR SPLIT	CAPACITY	V/C RATIO	LOS
	Pass Veh	Trucks	Total	Pass Veh	Trucks	Total	NB & SB	NB	SB	TOTAL				
2009 + Phase II	64	3	67	119	5	124	191	70	129	199				
Related Project #A	3	1	4	1	2	3	7	5	5	10				
Related Project #1	0	0	0	0	0	0	0	0	0	0				
Related Project #2	4	0	4	7	0	7	11	4	7	11				
Related Project #3	6	0	6	11	0	11	17	6	11	17				
Related Project #4	164	0	164	303	0	303	467	164	303	467				
Total	241	4	245	441	7	448	693	249	455	704	60 / 40	2,650	0.27	LOS A

Levels of Service calculated persuant to LA County Traffic Impact Analysis Guidelines (January 1997).

INTERSECTION LEVEL OF SERVICE CALCULATIONS

Reference 1 - Soledad Cyn Rd/Antelope Vly SB Ramps
Reference 2 - Soledad Cyn Rd/Antelope Vly NB Ramps
Reference 3 - Soledad Cyn Rd/Project Access
Reference 4 - Soledad Cyn Rd/Agua Dulce Cyn Rd
Reference 5 - Agua Dulce Cyn Rd/Antelope Vly NB Ramps
Reference 6 - Agua Dulce Cyn Rd/Antelope Vly SB Ramps

SOLEDAD CANYON - TMC PROJECT (97095) **REFERENCE #1**

INTERSECTION CAPACITY UTILIZATION WORKSHEET - TMC PHASE I ANALYSIS

COUNT DATE: ***JULY 1997***
TIME PERIOD: ***A.M. PEAK HOUR***
N/S STREET: ***SR 14 SB RAMPS***
E/W STREET: ***SOLEDAD CANYON ROAD***
CONTROL TYPE: ***ONE-WAY STOP***

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTHBOUND L	NORTHBOUND T	NORTHBOUND R	SOUTHBOUND L	SOUTHBOUND T	SOUTHBOUND R	EAST BOUND L	EAST BOUND T	EAST BOUND R	WESTBOUND L	WESTBOUND T	WESTBOUND R
(A) EXISTING (1997):	0	0	0	15	5	115	0	70	30	365	200	0
(B) 1999 GROWTH:	0	0	0	0	0	3	0	2	1	11	6	0
(C) TMC PHASE I:	0	0	0	0	0	0	0	1	0	55	0	0
(D) RELATED PROJECTS:	0	0	0	24	0	7	0	65	69	277	152	0

GEOMETRICS

GEOMETRICS	NORTHBOUND	SOUTHBOUND LT R	EAST BOUND TT R	WESTBOUND L TT

TRAFFIC SCENARIOS

SCENARIO 1: EXISTING 1997 (A)
SCENARIO 2: EXISTING + GROWTH TO 1999 (A+B)
SCENARIO 3: EXISTING + GROWTH TO 1999 + TMC PHASE I (A+B+C)
SCENARIO 4: EXISTING + GROWTH TO 1999 + TMC PHASE I + RELATED PROJECTS (A+B+C+D)

LEVEL OF SERVICE CALCULATIONS

MOVE	LANES	CAPACITY	SCENARIO VOLUMES 1	2	3	4	SCENARIO V/C RATIOS 1	2	3	4
NBL	0	0	0	0	0	0	-	-	-	-
NBT	0	0	0	0	0	0	-	-	-	-
NBR	0	0	0	0	0	0	-	-	-	-
SBL	0	0	15	15	15	39	-	-	-	-
SBT	1	1600	5	5	5	5	0.013	0.013	0.013	0.028
SBR	1	1600	115	118	118	125	0.072*	0.074*	0.074*	0.078*
EBL	0	0	0	0	0	0	-	-	-	-
EBT	2	3200	70	72	73	138	0.022*	0.023*	0.023*	0.043*
EBR	1	1600	30	31	31	100	0.019	0.019	0.019	0.063
WBL	1	1600	365	376	431	708	0.228*	0.235*	0.269*	0.443*
WBT	2	3200	200	206	206	358	0.063	0.064	0.064	0.112
WBR	0	0	0	0	0	0	-	-	-	-
			LOST TIME:				0.100*	0.100*	0.100*	0.100*
			PROJECT-ADDED V/C:						0.034	
			INTERSECTION CAPACITY UTILIZATION:				**0.42**	**0.43**	**0.47**	**0.66**
			LEVEL OF SERVICE:				**A**	**A**	**A**	**B**

NOTES:
ICU calculations account for trucks @ 2.0 PCEs/truck.

04/23/98

SOLEDAD CANYON - TMC PROJECT (97095) **REFERENCE #1A**

INTERSECTION CAPACITY UTILIZATION WORKSHEET - TMC PHASE I ANALYSIS

COUNT DATE: *JULY 1997*
TIME PERIOD: *A.M. PEAK HOUR*
N/S STREET: *SR 14 SB RAMPS*
E/W STREET: *SOLEDAD CANYON ROAD*
CONTROL TYPE: *SIGNALED - MITIGATED*

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTHBOUND L	NORTHBOUND T	NORTHBOUND R	SOUTHBOUND L	SOUTHBOUND T	SOUTHBOUND R	EAST BOUND L	EAST BOUND T	EAST BOUND R	WESTBOUND L	WESTBOUND T	WESTBOUND R
(A) EXISTING (1997):	0	0	0	15	5	115	0	70	30	365	200	0
(B) 1999 GROWTH:	0	0	0	0	0	3	0	2	1	11	6	0
(C) TMC PHASE I:	0	0	0	0	0	0	0	1	0	55	0	0
(D) RELATED PROJECTS:	0	0	0	24	0	7	0	65	69	277	152	0

GEOMETRICS

GEOMETRICS	NORTHBOUND	SOUTHBOUND LT R	EAST BOUND TT R	WESTBOUND L TT

TRAFFIC SCENARIOS

SCENARIO 1: EXISTING 1997 (A)
SCENARIO 2: EXISTING + GROWTH TO 1999 (A+B)
SCENARIO 3: EXISTING + GROWTH TO 1999 + TMC PHASE I (A+B+C)
SCENARIO 4: EXISTING + GROWTH TO 1999 + TMC PHASE I + RELATED PROJECTS (A+B+C+D)

LEVEL OF SERVICE CALCULATIONS

MOVE	LANES	CAPACITY	SCENARIO VOLUMES 1	2	3	4	SCENARIO V/C RATIOS 1	2	3	4
NBL	0	0	0	0	0	0	-	-	-	-
NBT	0	0	0	0	0	0	-	-	-	-
NBR	0	0	0	0	0	0	-	-	-	-
SBL	0	0	15	15	15	39	-	-	-	-
SBT	1	1600	5	5	5	5	0.013	0.013	0.013	0.028
SBR	1	1600	115	118	118	125	0.072*	0.074*	0.074*	0.078*
EBL	0	0	0	0	0	0	-	-	-	-
EBT	1	1600	70	72	73	138	0.044*	0.045*	0.046*	0.086*
EBR	1	1600	30	31	31	100	0.019	0.019	0.019	0.063
WBL	2	3200	365	376	431	708	0.114*	0.118*	0.135*	0.221*
WBT	1	1600	200	206	206	358	0.125	0.129	0.129	0.224
WBR	0	0	0	0	0	0	-	-	-	-
			LOST TIME:				0.100*	0.100*	0.100*	0.100*
			PROJECT-ADDED V/C:						0.018	
			INTERSECTION CAPACITY UTILIZATION:				**0.33**	**0.34**	**0.36**	**0.49**
			LEVEL OF SERVICE:				**A**	**A**	**A**	**A**

NOTES:
ICU calculations account for trucks @ 2.0 PCEs/truck.

05/05/98

SOLEDAD CANYON - TMC PROJECT (97095) **REFERENCE #1**

INTERSECTION CAPACITY UTILIZATION WORKSHEET - TMC PHASE I ANALYSIS

COUNT DATE: *JULY 1997*
TIME PERIOD: *P.M. PEAK HOUR*
N/S STREET: *SR 14 SB RAMPS*
E/W STREET: *SOLEDAD CANYON ROAD*
CONTROL TYPE: *ONE-WAY STOP*

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTHBOUND L	NORTHBOUND T	NORTHBOUND R	SOUTHBOUND L	SOUTHBOUND T	SOUTHBOUND R	EAST BOUND L	EAST BOUND T	EAST BOUND R	WESTBOUND L	WESTBOUND T	WESTBOUND R
(A) EXISTING (1997):	0	0	0	10	5	55	0	240	45	30	80	0
(B) 1999 GROWTH:	0	0	0	0	0	2	0	7	1	1	2	0
(C) TMC PHASE I:	0	0	0	0	0	0	0	0	0	28	1	0
(D) RELATED PROJECTS:	0	0	0	88	0	23	0	163	44	182	173	0

GEOMETRICS

GEOMETRICS	NORTHBOUND	SOUTHBOUND LT R	EAST BOUND TT R	WESTBOUND L TT

TRAFFIC SCENARIOS

SCENARIO 1: EXISTING 1997 (A)
SCENARIO 2: EXISTING + GROWTH TO 1999 (A+B)
SCENARIO 3: EXISTING + GROWTH TO 1999 + TMC PHASE I (A+B+C)
SCENARIO 4: EXISTING + GROWTH TO 1999 + TMC PHASE I + RELATED PROJECTS (A+B+C+D)

LEVEL OF SERVICE CALCULATIONS

MOVE	LANES	CAPACITY	SCENARIO VOLUMES 1	2	3	4	SCENARIO V/C RATIOS 1	2	3	4
NBL	0	0	0	0	0	0	-	-	-	-
NBT	0	0	0	0	0	0	-	-	-	-
NBR	0	0	0	0	0	0	-	-	-	-
SBL	0	0	10	10	10	98	-	-	-	-
SBT	1	1600	5	5	5	5	0.009	0.009	0.009	0.064
SBR	1	1600	55	57	57	80	0.034*	0.036*	0.036*	0.050*
EBL	0	0	0	0	0	0	-	-	-	-
EBT	2	3200	240	247	247	410	0.075*	0.077*	0.077*	0.128*
EBR	1	1600	45	46	46	90	0.028	0.029	0.029	0.056
WBL	1	1600	30	31	59	241	0.019*	0.019*	0.037*	0.151*
WBT	2	3200	80	82	83	256	0.025	0.026	0.026	0.080
WBR	0	0	0	0	0	0	-	-	-	-
			LOST TIME:				0.100*	0.100*	0.100*	0.100*
			PROJECT-ADDED V/C:						0.018	
			INTERSECTION CAPACITY UTILIZATION:				**0.23**	**0.23**	**0.25**	**0.43**
			LEVEL OF SERVICE:				**A**	**A**	**A**	**A**

NOTES:
ICU calculations account for trucks @ 2.0 PCEs/truck.

04/23/98

SOLEDAD CANYON - TMC PROJECT (97095) **REFERENCE #1A**

INTERSECTION CAPACITY UTILIZATION WORKSHEET - TMC PHASE I ANALYSIS

COUNT DATE: *JULY 1997*
TIME PERIOD: *P.M. PEAK HOUR*
N/S STREET: *SR 14 SB RAMPS*
E/W STREET: *SOLEDAD CANYON ROAD*
CONTROL TYPE: *SIGNALIZED - MITIGATED*

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTHBOUND L	NORTHBOUND T	NORTHBOUND R	SOUTHBOUND L	SOUTHBOUND T	SOUTHBOUND R	EAST BOUND L	EAST BOUND T	EAST BOUND R	WESTBOUND L	WESTBOUND T	WESTBOUND R
(A) EXISTING (1997):	0	0	0	10	5	55	0	240	45	30	80	0
(B) 1999 GROWTH:	0	0	0	0	0	2	0	7	1	1	2	0
(C) TMC PHASE I:	0	0	0	0	0	0	0	0	0	28	1	0
(D) RELATED PROJECTS:	0	0	0	88	0	23	0	163	44	182	173	0

GEOMETRICS

GEOMETRICS	NORTHBOUND	SOUTHBOUND LT R	EAST BOUND TT R	WESTBOUND L TT

TRAFFIC SCENARIOS

SCENARIO 1: EXISTING 1997 (A)
SCENARIO 2: EXISTING + GROWTH TO 1999 (A+B)
SCENARIO 3: EXISTING + GROWTH TO 1999 + TMC PHASE I (A+B+C)
SCENARIO 4: EXISTING + GROWTH TO 1999 + TMC PHASE I + RELATED PROJECTS (A+B+C+D)

LEVEL OF SERVICE CALCULATIONS

MOVE	LANES	CAPACITY	SCENARIO VOLUMES 1	2	3	4	SCENARIO V/C RATIOS 1	2	3	4
NBL	0	0	0	0	0	0	-	-	-	-
NBT	0	0	0	0	0	0	-	-	-	-
NBR	0	0	0	0	0	0	-	-	-	-
SBL	0	0	10	10	10	98	-	-	-	-
SBT	1	1600	5	5	5	5	0.009	0.009	0.009	0.064
SBR	1	1600	55	57	57	80	0.034*	0.036*	0.036*	0.050*
EBL	0	0	0	0	0	0	-	-	-	-
EBT	1	1600	240	247	247	410	0.150*	0.154*	0.154*	0.256*
EBR	1	1600	45	46	46	90	0.028	0.029	0.029	0.056
WBL	2	3200	30	31	59	241	0.009*	0.010*	0.018*	0.075*
WBT	1	1600	80	82	83	256	0.050	0.051	0.052	0.160
WBR	0	0	0	0	0	0	-	-	-	-
			LOST TIME:				0.100*	0.100*	0.100*	0.100*
			PROJECT-ADDED V/C:						0.008	
			INTERSECTION CAPACITY UTILIZATION:				**0.29**	**0.30**	**0.31**	**0.48**
			LEVEL OF SERVICE:				**A**	**A**	**A**	**A**

NOTES:
ICU calculations account for trucks @ 2.0 PCEs/truck.

05/05/98

SOLEDAD CANYON - TMC PROJECT (97095) **REFERENCE #2**

INTERSECTION CAPACITY UTILIZATION WORKSHEET - TMC PHASE I ANALYSIS

COUNT DATE: *JULY 1997*
TIME PERIOD: *A.M. PEAK HOUR*
N/S STREET: *SR 14 NB RAMPS*
E/W STREET: *SOLEDAD CANYON ROAD*
CONTROL TYPE: *ONE-WAY STOP*

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTHBOUND L	NORTHBOUND T	NORTHBOUND R	SOUTHBOUND L	SOUTHBOUND T	SOUTHBOUND R	EAST BOUND L	EAST BOUND T	EAST BOUND R	WESTBOUND L	WESTBOUND T	WESTBOUND R
(A) EXISTING (1997):	20	0	20	0	0	0	55	20	10	5	545	5
(B) 1999 GROWTH:	1	0	1	0	0	0	2	1	0	0	16	0
(C) TMC PHASE I:	0	0	39	0	0	0	0	1	0	0	55	0
(D) RELATED PROJECTS:	24	0	88	0	0	0	19	70	0	0	405	45

GEOMETRICS

GEOMETRICS	NORTHBOUND LT R	SOUTHBOUND	EAST BOUND L T R	WESTBOUND LTR

TRAFFIC SCENARIOS

SCENARIO 1: EXISTING 1997 (A)
SCENARIO 2: EXISTING + GROWTH TO 1999 (A+B)
SCENARIO 3: EXISTING + GROWTH TO 1999 + TMC PHASE I (A+B+C)
SCENARIO 4: EXISTING + GROWTH TO 1999 + TMC PHASE I + RELATED PROJECTS (A+B+C+D)

LEVEL OF SERVICE CALCULATIONS

MOVE	LANES	CAPACITY	SCENARIO VOLUMES 1	2	3	4	SCENARIO V/C RATIOS 1	2	3	4
NBL	0	0	20	21	21	45	-	-	-	-
NBT	1	1600	0	0	0	0	0.013	0.013	0.013	0.028
NBR	1	1600	20	21	60	148	0.013*	0.013*	0.038*	0.093*
SBL	0	0	0	0	0	0	-	-	-	-
SBT	0	0	0	0	0	0	-	-	-	-
SBR	0	0	0	0	0	0	-	-	-	-
EBL	1	1600	55	57	57	76	0.034*	0.036*	0.036*	0.048*
EBT	1	1600	20	21	22	92	0.013	0.013	0.014	0.058
EBR	1	1600	10	10	10	10	0.006	0.006	0.006	0.006
WBL	0	0	5	5	5	5	-	-	-	-
WBT	1	1600	545	561	616	1021	0.347*	0.357*	0.391*	0.673*
WBR	0	0	5	5	5	50	-	-	-	-
			LOST TIME:				0.100*	0.100*	0.100*	0.100*
			PROJECT-ADDED V/C:						0.059	
			INTERSECTION CAPACITY UTILIZATION:				**0.49**	**0.51**	**0.57**	**0.91**
			LEVEL OF SERVICE:				**A**	**A**	**A**	**E**

NOTES:
ICU calculations account for trucks @ 2.0 PCEs/truck.

04/23/98

SOLEDAD CANYON - TMC PROJECT (97095) **REFERENCE #2A**

INTERSECTION CAPACITY UTILIZATION WORKSHEET - TMC PHASE I ANALYSIS

COUNT DATE: *JULY 1997*
TIME PERIOD: *A.M. PEAK HOUR*
N/S STREET: *SR 14 NB RAMPS*
E/W STREET: *SOLEDAD CANYON ROAD*
CONTROL TYPE: *SIGNALIZED - MITIGATED*

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTHBOUND L	NORTHBOUND T	NORTHBOUND R	SOUTHBOUND L	SOUTHBOUND T	SOUTHBOUND R	EAST BOUND L	EAST BOUND T	EAST BOUND R	WESTBOUND L	WESTBOUND T	WESTBOUND R
(A) EXISTING (1997):	20	0	20	0	0	0	55	20	10	5	545	5
(B) 1999 GROWTH:	1	0	1	0	0	0	2	1	0	0	16	0
(C) TMC PHASE I:	0	0	39	0	0	0	0	1	0	0	55	0
(D) RELATED PROJECTS:	24	0	88	0	0	0	19	70	0	0	405	45

GEOMETRICS

GEOMETRICS	NORTHBOUND	SOUTHBOUND	EAST BOUND	WESTBOUND
	LT R		L T R	LTR

TRAFFIC SCENARIOS

SCENARIO 1: EXISTING 1997 (A)
SCENARIO 2: EXISTING + GROWTH TO 1999 (A+B)
SCENARIO 3: EXISTING + GROWTH TO 1999 + TMC PHASE I (A+B+C)
SCENARIO 4: EXISTING + GROWTH TO 1999 + TMC PHASE I + RELATED PROJECTS (A+B+C+D)

LEVEL OF SERVICE CALCULATIONS

MOVE	LANES	CAPACITY	SCENARIO VOLUMES 1	2	3	4	SCENARIO V/C RATIOS 1	2	3	4
NBL	0	0	20	21	21	45	-	-	-	-
NBT	1	1600	0	0	0	0	0.013	0.013	0.013	0.028
NBR	1	1600	20	21	60	148	0.013*	0.013*	0.038*	0.093*
SBL	0	0	0	0	0	0	-	-	-	-
SBT	0	0	0	0	0	0	-	-	-	-
SBR	0	0	0	0	0	0	-	-	-	-
EBL	1	1600	55	57	57	76	0.034*	0.036*	0.036*	0.048*
EBT	1	1600	20	21	22	92	0.019	0.019	0.020	0.064
EBR	0	0	10	10	10	10	-	-	-	-
WBL	0	0	5	5	5	5	-	-	-	-
WBT	2	3200	545	561	616	1021	0.173*	0.178*	0.196*	0.336*
WBR	0	0	5	5	5	50	-	-	-	-
			LOST TIME:				0.100*	0.100*	0.100*	0.100*
			PROJECT-ADDED V/C:						0.043	
			INTERSECTION CAPACITY UTILIZATION:				0.32	0.33	0.37	0.58
			LEVEL OF SERVICE:				A	A	A	A

NOTES:
ICU calculations account for trucks @ 2.0 PCEs/truck.

05/05/98

SOLEDAD CANYON - TMC PROJECT (97095) **REFERENCE #2**

INTERSECTION CAPACITY UTILIZATION WORKSHEET - TMC PHASE I ANALYSIS

COUNT DATE: *JULY 1997*
TIME PERIOD: *P.M. PEAK HOUR*
N/S STREET: *SR 14 NB RAMPS*
E/W STREET: *SOLEDAD CANYON ROAD*
CONTROL TYPE: *ONE-WAY STOP*

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTHBOUND L	NORTHBOUND T	NORTHBOUND R	SOUTHBOUND L	SOUTHBOUND T	SOUTHBOUND R	EAST BOUND L	EAST BOUND T	EAST BOUND R	WESTBOUND L	WESTBOUND T	WESTBOUND R
(A) EXISTING (1997):	40	0	125	0	0	0	120	120	5	5	75	10
(B) 1999 GROWTH:	1	0	4	0	0	0	4	4	0	0	2	0
(C) TMC PHASE I:	0	0	21	0	0	0	0	0	0	0	29	0
(D) RELATED PROJECTS:	83	0	321	0	0	0	12	239	0	0	272	29

GEOMETRICS

GEOMETRICS	NORTHBOUND LT R	SOUTHBOUND	EAST BOUND L T R	WESTBOUND LTR

TRAFFIC SCENARIOS

SCENARIO 1: EXISTING 1997 (A)
SCENARIO 2: EXISTING + GROWTH TO 1999 (A+B)
SCENARIO 3: EXISTING + GROWTH TO 1999 + TMC PHASE I (A+B+C)
SCENARIO 4: EXISTING + GROWTH TO 1999 + TMC PHASE I + RELATED PROJECTS (A+B+C+D)

LEVEL OF SERVICE CALCULATIONS

MOVE	LANES	CAPACITY	SCENARIO VOLUMES 1	2	3	4	SCENARIO V/C RATIOS 1	2	3	4
NBL	0	0	40	41	41	124	-	-	-	-
NBT	1	1600	0	0	0	0	0.025	0.026	0.026	0.078
NBR	1	1600	125	129	150	471	0.078*	0.081*	0.094*	0.294*
SBL	0	0	0	0	0	0	-	-	-	-
SBT	0	0	0	0	0	0	-	-	-	-
SBR	0	0	0	0	0	0	-	-	-	-
EBL	1	1600	120	124	124	136	0.075*	0.078*	0.078*	0.085*
EBT	1	1600	120	124	124	363	0.075	0.078	0.078	0.227
EBR	1	1600	5	5	5	5	0.003	0.003	0.003	0.003
WBL	0	0	5	5	5	5	-	-	-	-
WBT	1	1600	75	77	106	378	0.056*	0.058*	0.076*	0.264*
WBR	0	0	10	10	10	39	-	-	-	-
			LOST TIME:				0.100*	0.100*	0.100*	0.100*
			PROJECT-ADDED V/C:						0.031	
			INTERSECTION CAPACITY UTILIZATION:				0.31	0.32	0.35	0.74
			LEVEL OF SERVICE:				A	A	A	C

NOTES:
ICU calculations account for trucks @ 2.0 PCEs/truck.

04/23/98

SOLEDAD CANYON - TMC PROJECT (97095) **REFERENCE #2A**

INTERSECTION CAPACITY UTILIZATION WORKSHEET - TMC PHASE I ANALYSIS

COUNT DATE: *JULY 1997*
TIME PERIOD: *P.M. PEAK HOUR*
N/S STREET: *SR 14 NB RAMPS*
E/W STREET: *SOLEDAD CANYON ROAD*
CONTROL TYPE: *SIGNALIZED - MITIGATED*

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTHBOUND L	NORTHBOUND T	NORTHBOUND R	SOUTHBOUND L	SOUTHBOUND T	SOUTHBOUND R	EAST BOUND L	EAST BOUND T	EAST BOUND R	WESTBOUND L	WESTBOUND T	WESTBOUND R
(A) EXISTING (1997):	40	0	125	0	0	0	120	120	5	5	75	10
(B) 1999 GROWTH:	1	0	4	0	0	0	4	4	0	0	2	0
(C) TMC PHASE I:	0	0	21	0	0	0	0	0	0	0	29	0
(D) RELATED PROJECTS:	83	0	321	0	0	0	12	239	0	0	272	29

GEOMETRICS

GEOMETRICS	NORTHBOUND LT R	SOUTHBOUND	EAST BOUND L T R	WESTBOUND LTR

TRAFFIC SCENARIOS

SCENARIO 1: EXISTING 1997 (A)
SCENARIO 2: EXISTING + GROWTH TO 1999 (A+B)
SCENARIO 3: EXISTING + GROWTH TO 1999 + TMC PHASE I (A+B+C)
SCENARIO 4: EXISTING + GROWTH TO 1999 + TMC PHASE I + RELATED PROJECTS (A+B+C+D)

LEVEL OF SERVICE CALCULATIONS

MOVE	LANES	CAPACITY	SCENARIO VOLUMES 1	2	3	4	SCENARIO V/C RATIOS 1	2	3	4
NBL	0	0	40	41	41	124	-	-	-	-
NBT	1	1600	0	0	0	0	0.025	0.026	0.026	0.078
NBR	1	1600	125	129	150	471	0.078*	0.081*	0.094*	0.294*
SBL	0	0	0	0	0	0	-	-	-	-
SBT	0	0	0	0	0	0	-	-	-	-
SBR	0	0	0	0	0	0	-	-	-	-
EBL	1	1600	120	124	124	136	0.075*	0.078*	0.078*	0.085*
EBT	1	1600	120	124	124	363	0.078	0.081	0.081	0.230
EBR	0	0	5	5	5	5	-	-	-	-
WBL	0	0	5	5	5	5	-	-	-	-
WBT	2	3200	75	77	106	378	0.028*	0.029*	0.038*	0.132*
WBR	0	0	10	10	10	39	-	-	-	-
			LOST TIME:				0.100*	0.100*	0.100*	0.100*
			PROJECT-ADDED V/C:						0.022	
			INTERSECTION CAPACITY UTILIZATION:				**0.28**	**0.29**	**0.31**	**0.61**
			LEVEL OF SERVICE:				**A**	**A**	**A**	**B**

NOTES:
ICU calculations account for trucks @ 2.0 PCEs/truck.

05/05/98

SOLEDAD CANYON - TMC PROJECT (97095) **REFERENCE #3**

INTERSECTION CAPACITY UTILIZATION WORKSHEET - TMC PHASE I ANALYSIS

COUNT DATE: *JULY 1997*
TIME PERIOD: *A.M. PEAK HOUR*
N/S STREET: *PROJECT ACCESS ROAD*
E/W STREET: *SOLEDAD CANYON ROAD*
CONTROL TYPE: *ONE-WAY STOP*

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTHBOUND L	NORTHBOUND T	NORTHBOUND R	SOUTHBOUND L	SOUTHBOUND T	SOUTHBOUND R	EAST BOUND L	EAST BOUND T	EAST BOUND R	WESTBOUND L	WESTBOUND T	WESTBOUND R
(A) EXISTING (1997):	10	0	10	0	0	0	0	5	10	10	450	0
(B) 1999 GROWTH:	0	0	0	0	0	0	0	0	0	0	14	0
(C) TMC PHASE I:	0	0	0	2	0	55	40	0	0	0	0	4
(D) RELATED PROJECTS:	0	0	0	0	0	0	0	31	0	0	10	0

GEOMETRICS

GEOMETRICS	NORTHBOUND LTR	SOUTHBOUND LTR	EAST BOUND LTR	WESTBOUND LTR

TRAFFIC SCENARIOS

SCENARIO 1: EXISTING 1997 (A)
SCENARIO 2: EXISTING + GROWTH TO 1999 (A+B)
SCENARIO 3: EXISTING + GROWTH TO 1999 + TMC PHASE I (A+B+C)
SCENARIO 4: EXISTING + GROWTH TO 1999 + TMC PHASE I + RELATED PROJECTS (A+B+C+D)

LEVEL OF SERVICE CALCULATIONS

MOVE	LANES	CAPACITY	SCENARIO VOLUMES 1	2	3	4	SCENARIO V/C RATIOS 1	2	3	4
NBL	0	0	10	10	10	10	-	-	-	-
NBT	1	1600	0	0	0	0	0.013*	0.013*	0.013*	0.013*
NBR	0	0	10	10	10	10	-	-	-	-
SBL	0	0	0	0	2	2	-	-	-	-
SBT	1	1600	0	0	0	0	0.000*	0.000*	0.036*	0.036*
SBR	0	0	0	0	55	55	-	-	-	-
EBL	0	0	0	0	40	40	-	-	-	-
EBT	1	1600	5	5	5	36	0.009*	0.009*	0.034*	0.054*
EBR	0	0	10	10	10	10	-	-	-	-
WBL	0	0	10	10	10	10	-	-	-	-
WBT	1	1600	450	464	464	474	0.288*	0.296*	0.299*	0.305*
WBR	0	0	0	0	4	4	-	-	-	-
			LOST TIME:				0.100*	0.100*	0.100*	0.100*
			PROJECT-ADDED V/C:						0.064	
			INTERSECTION CAPACITY UTILIZATION:				**0.41**	**0.42**	**0.48**	**0.51**
			LEVEL OF SERVICE:				**A**	**A**	**A**	**A**

NOTES:
ICU calculations account for trucks @ 2.0 PCEs/truck.

04/23/98

SOLEDAD CANYON - TMC PROJECT (97095) **REFERENCE #3**

INTERSECTION CAPACITY UTILIZATION WORKSHEET - TMC PHASE I ANALYSIS

COUNT DATE: *JULY 1997*
TIME PERIOD: *P.M. PEAK HOUR*
N/S STREET: *PROJECT ACCESS ROAD*
E/W STREET: *SOLEDAD CANYON ROAD*
CONTROL TYPE: *ONE-WAY STOP*

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTHBOUND L	NORTHBOUND T	NORTHBOUND R	SOUTHBOUND L	SOUTHBOUND T	SOUTHBOUND R	EAST BOUND L	EAST BOUND T	EAST BOUND R	WESTBOUND L	WESTBOUND T	WESTBOUND R
(A) EXISTING (1997):	10	0	10	0	0	0	0	230	10	10	20	0
(B) 1999 GROWTH:	0	0	0	0	0	0	0	7	0	0	1	0
(C) TMC PHASE I:	0	0	0	4	0	29	21	0	0	0	0	2
(D) RELATED PROJECTS:	0	0	0	0	0	0	0	20	0	0	37	0

GEOMETRICS

GEOMETRICS	NORTHBOUND LTR	SOUTHBOUND LTR	EAST BOUND LTR	WESTBOUND LTR

TRAFFIC SCENARIOS

SCENARIO 1: EXISTING 1997 (A)
SCENARIO 2: EXISTING + GROWTH TO 1999 (A+B)
SCENARIO 3: EXISTING + GROWTH TO 1999 + TMC PHASE I (A+B+C)
SCENARIO 4: EXISTING + GROWTH TO 1999 + TMC PHASE I + RELATED PROJECTS (A+B+C+D)

LEVEL OF SERVICE CALCULATIONS

MOVE	LANES	CAPACITY	SCENARIO VOLUMES 1	2	3	4	SCENARIO V/C RATIOS 1	2	3	4
NBL	0	0	10	10	10	10	-	-	-	-
NBT	1	1600	0	0	0	0	0.013*	0.013*	0.013*	0.013*
NBR	0	0	10	10	10	10	-	-	-	-
SBL	0	0	0	0	4	4	-	-	-	-
SBT	1	1600	0	0	0	0	0.000*	0.000*	0.021*	0.021*
SBR	0	0	0	0	29	29	-	-	-	-
EBL	0	0	0	0	21	21	-	-	-	-
EBT	1	1600	230	237	237	257	0.150*	0.154*	0.168*	0.180*
EBR	0	0	10	10	10	10	-	-	-	-
WBL	0	0	10	10	10	10	-	-	-	-
WBT	1	1600	20	21	21	58	0.019*	0.019*	0.021*	0.044*
WBR	0	0	0	0	2	2	-	-	-	-
			LOST TIME:				0.100*	0.100*	0.100*	0.100*
			PROJECT-ADDED V/C:						0.037	
			INTERSECTION CAPACITY UTILIZATION:				**0.28**	**0.29**	**0.32**	**0.36**
			LEVEL OF SERVICE:				**A**	**A**	**A**	**A**

NOTES:
ICU calculations account for trucks @ 2.0 PCEs/truck.

04/23/98

SOLEDAD CANYON - TMC PROJECT (97095) **REFERENCE #4**

INTERSECTION CAPACITY UTILIZATION WORKSHEET - TMC PHASE I ANALYSIS

COUNT DATE: *JULY 1997*
TIME PERIOD: *A.M. PEAK HOUR*
N/S STREET: *AGUA DULCE CANYON ROAD*
E/W STREET: *SOLEDAD CANYON ROAD*
CONTROL TYPE: *ONE-WAY STOP*

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTHBOUND L	NORTHBOUND T	NORTHBOUND R	SOUTHBOUND L	SOUTHBOUND T	SOUTHBOUND R	EAST BOUND L	EAST BOUND T	EAST BOUND R	WESTBOUND L	WESTBOUND T	WESTBOUND R
(A) EXISTING (1997):	0	0	0	5	0	5	5	10	0	0	465	5
(B) 1999 GROWTH:	0	0	0	0	0	0	0	0	0	0	14	0
(C) TMC PHASE I:	0	0	0	0	0	4	2	0	0	0	0	0
(D) RELATED PROJECTS:	0	0	0	0	0	5	15	16	0	0	5	0

GEOMETRICS

GEOMETRICS	NORTHBOUND	SOUTHBOUND	EAST BOUND	WESTBOUND
		LR	LT	TR

TRAFFIC SCENARIOS

SCENARIO 1: EXISTING 1997 (A)
SCENARIO 2: EXISTING + GROWTH TO 1999 (A+B)
SCENARIO 3: EXISTING + GROWTH TO 1999 + TMC PHASE I (A+B+C)
SCENARIO 4: EXISTING + GROWTH TO 1999 + TMC PHASE I + RELATED PROJECTS (A+B+C+D)

LEVEL OF SERVICE CALCULATIONS

MOVE	LANES	CAPACITY	SCENARIO VOLUMES 1	2	3	4	SCENARIO V/C RATIOS 1	2	3	4
NBL	0	0	0	0	0	0	-	-	-	-
NBT	0	0	0	0	0	0	-	- *	- *	- *
NBR	0	0	0	0	0	0	-	-	-	-
SBL	0	0	5	5	5	5	-	-	-	-
SBT	1	1600	0	0	0	0	0.006*	0.006*	0.009*	0.012*
SBR	0	0	5	5	9	14	-	-	-	-
EBL	0	0	5	5	7	22	-	-	-	-
EBT	1	1600	10	10	10	26	0.009*	0.009*	0.011*	0.030*
EBR	0	0	0	0	0	0	-	-	-	-
WBL	0	0	0	0	0	0	-	-	-	-
WBT	1	1600	465	479	479	484	0.294*	0.303*	0.303*	0.306*
WBR	0	0	5	5	5	5	-	-	-	-
			LOST TIME:				0.100*	0.100*	0.100*	0.100*
			PROJECT-ADDED V/C:						0.005	
			INTERSECTION CAPACITY UTILIZATION:				**0.41**	**0.42**	**0.42**	**0.45**
			LEVEL OF SERVICE:				**A**	**A**	**A**	**A**

NOTES:
ICU calculations account for trucks @ 2.0 PCEs/truck.

04/23/98

SOLEDAD CANYON - TMC PROJECT (97095) **REFERENCE #4**

INTERSECTION CAPACITY UTILIZATION WORKSHEET - TMC PHASE I ANALYSIS

COUNT DATE: *JULY 1997*
TIME PERIOD: *P.M. PEAK HOUR*
N/S STREET: *AGUA DULCE CANYON ROAD*
E/W STREET: *SOLEDAD CANYON ROAD*
CONTROL TYPE: *ONE-WAY STOP*

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTHBOUND L	NORTHBOUND T	NORTHBOUND R	SOUTHBOUND L	SOUTHBOUND T	SOUTHBOUND R	EAST BOUND L	EAST BOUND T	EAST BOUND R	WESTBOUND L	WESTBOUND T	WESTBOUND R
(A) EXISTING (1997):	0	0	0	5	0	5	5	235	0	0	35	5
(B) 1999 GROWTH:	0	0	0	0	0	0	0	7	0	0	1	0
(C) TMC PHASE I:	0	0	0	0	0	3	1	0	0	0	0	0
(D) RELATED PROJECTS:	0	0	0	0	0	18	10	10	0	0	19	0

GEOMETRICS

GEOMETRICS	NORTHBOUND	SOUTHBOUND	EAST BOUND	WESTBOUND
		LR	LT	TR

TRAFFIC SCENARIOS

SCENARIO 1: EXISTING 1997 (A)
SCENARIO 2: EXISTING + GROWTH TO 1999 (A+B)
SCENARIO 3: EXISTING + GROWTH TO 1999 + TMC PHASE I (A+B+C)
SCENARIO 4: EXISTING + GROWTH TO 1999 + TMC PHASE I + RELATED PROJECTS (A+B+C+D)

LEVEL OF SERVICE CALCULATIONS

MOVE	LANES	CAPACITY	SCENARIO VOLUMES 1	2	3	4	SCENARIO V/C RATIOS 1	2	3	4
NBL	0	0	0	0	0	0	-	-	-	-
NBT	0	0	0	0	0	0	-	- *	- *	- *
NBR	0	0	0	0	0	0	-	-	-	-
SBL	0	0	5	5	5	5	-	-	-	-
SBT	1	1600	0	0	0	0	0.006*	0.006*	0.008*	0.019*
SBR	0	0	5	5	8	26	-	-	-	-
EBL	0	0	5	5	6	16	-	-	-	-
EBT	1	1600	235	242	242	252	0.150*	0.154*	0.155*	0.168*
EBR	0	0	0	0	0	0	-	-	-	-
WBL	0	0	0	0	0	0	-	-	-	-
WBT	1	1600	35	36	36	55	0.025*	0.026*	0.026*	0.038*
WBR	0	0	5	5	5	5	-	-	-	-
			LOST TIME:				0.100*	0.100*	0.100*	0.100*
			PROJECT-ADDED V/C:						0.003	
			INTERSECTION CAPACITY UTILIZATION:				**0.28**	**0.29**	**0.29**	**0.33**
			LEVEL OF SERVICE:				**A**	**A**	**A**	**A**

NOTES:
ICU calculations account for trucks @ 2.0 PCEs/truck.

04/23/98

SOLEDAD CANYON - TMC PROJECT (97095) **REFERENCE #5**

INTERSECTION CAPACITY UTILIZATION WORKSHEET - TMC PHASE I ANALYSIS

COUNT DATE: *JULY 1997*
TIME PERIOD: *A.M. PEAK HOUR*
N/S STREET: *AGUA DULCE CANYON ROAD*
E/W STREET: *SR 14 NB RAMPS*
CONTROL TYPE: *ONE-WAY STOP*

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTHBOUND L	NORTHBOUND T	NORTHBOUND R	SOUTHBOUND L	SOUTHBOUND T	SOUTHBOUND R	EAST BOUND L	EAST BOUND T	EAST BOUND R	WESTBOUND L	WESTBOUND T	WESTBOUND R
(A) EXISTING (1997):	0	15	60	5	40	0	5	0	5	0	0	0
(B) 1999 GROWTH:	0	0	2	0	1	0	0	0	0	0	0	0
(C) TMC PHASE I:	0	0	2	0	4	0	0	0	0	0	0	0
(D) RELATED PROJECTS:	0	20	15	0	5	0	0	0	25	0	0	0

GEOMETRICS

GEOMETRICS	NORTHBOUND	SOUTHBOUND	EAST BOUND	WESTBOUND
	TR	LT	LTR	

TRAFFIC SCENARIOS

SCENARIO 1: EXISTING 1997 (A)
SCENARIO 2: EXISTING + GROWTH TO 1999 (A+B)
SCENARIO 3: EXISTING + GROWTH TO 1999 + TMC PHASE I (A+B+C)
SCENARIO 4: EXISTING + GROWTH TO 1999 + TMC PHASE I + RELATED PROJECTS (A+B+C+D)

LEVEL OF SERVICE CALCULATIONS

MOVE	LANES	CAPACITY	SCENARIO VOLUMES 1	2	3	4	SCENARIO V/C RATIOS 1	2	3	4
NBL	0	0	0	0	0	0	-	-	-	-
NBT	1	1600	15	15	15	35	0.047*	0.048*	0.049*	0.071*
NBR	0	0	60	62	64	79	-	-	-	-
SBL	0	0	5	5	5	5	-	-	-	-
SBT	1	1600	40	41	45	50	0.028*	0.029*	0.031*	0.034*
SBR	0	0	0	0	0	0	-	-	-	-
EBL	0	0	5	5	5	5	-	-	-	-
EBT	1	1600	0	0	0	0	0.006*	0.006*	0.006*	0.022*
EBR	0	0	5	5	5	30	-	-	-	-
WBL	0	0	0	0	0	0	-	-	-	-
WBT	0	0	0	0	0	0	-	-	-	-
WBR	0	0	0	0	0	0	-	-	-	-
			LOST TIME:				0.100*	0.100*	0.100*	0.100*
			PROJECT-ADDED V/C:						0.003	
			INTERSECTION CAPACITY UTILIZATION:				**0.18**	**0.18**	**0.19**	**0.23**
			LEVEL OF SERVICE:				**A**	**A**	**A**	**A**

NOTES:
ICU calculations account for trucks @ 2.0 PCEs/truck.

04/23/98

SOLEDAD CANYON - TMC PROJECT (97095) **REFERENCE #5**

INTERSECTION CAPACITY UTILIZATION WORKSHEET - TMC PHASE I ANALYSIS

COUNT DATE: ***JULY 1997***
TIME PERIOD: ***P.M. PEAK HOUR***
N/S STREET: ***AGUA DULCE CANYON ROAD***
E/W STREET: ***SR 14 NB RAMPS***
CONTROL TYPE: ***ONE-WAY STOP***

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTHBOUND L	NORTHBOUND T	NORTHBOUND R	SOUTHBOUND L	SOUTHBOUND T	SOUTHBOUND R	EAST BOUND L	EAST BOUND T	EAST BOUND R	WESTBOUND L	WESTBOUND T	WESTBOUND R
(A) EXISTING (1997):	0	10	50	10	100	0	5	0	5	0	0	0
(B) 1999 GROWTH:	0	0	2	0	3	0	0	0	0	0	0	0
(C) TMC PHASE I:	0	0	3	0	2	0	0	0	0	0	0	0
(D) RELATED PROJECTS:	0	5	10	0	18	0	0	0	5	0	0	0

GEOMETRICS

GEOMETRICS	NORTHBOUND	SOUTHBOUND	EAST BOUND	WESTBOUND
	TR	LT	LTR	

TRAFFIC SCENARIOS

SCENARIO 1: EXISTING 1997 (A)
SCENARIO 2: EXISTING + GROWTH TO 1999 (A+B)
SCENARIO 3: EXISTING + GROWTH TO 1999 + TMC PHASE I (A+B+C)
SCENARIO 4: EXISTING + GROWTH TO 1999 + TMC PHASE I + RELATED PROJECTS (A+B+C+D)

LEVEL OF SERVICE CALCULATIONS

MOVE	LANES	CAPACITY	SCENARIO VOLUMES 1	2	3	4	SCENARIO V/C RATIOS 1	2	3	4
NBL	0	0	0	0	0	0	-	-	-	-
NBT	1	1600	10	10	10	15	0.038*	0.039*	0.041*	0.050*
NBR	0	0	50	52	55	65	-	-	-	-
SBL	0	0	10	10	10	10	-	-	-	-
SBT	1	1600	100	103	105	123	0.069*	0.071*	0.072*	0.083*
SBR	0	0	0	0	0	0	-	-	-	-
EBL	0	0	5	5	5	5	-	-	-	-
EBT	1	1600	0	0	0	0	0.006*	0.006*	0.006*	0.009*
EBR	0	0	5	5	5	10	-	-	-	-
WBL	0	0	0	0	0	0	-	-	-	-
WBT	0	0	0	0	0	0	-	-	-	-
WBR	0	0	0	0	0	0	-	-	-	-
			LOST TIME:				0.100*	0.100*	0.100*	0.100*
			PROJECT-ADDED V/C:						0.003	
			INTERSECTION CAPACITY UTILIZATION:				**0.21**	**0.22**	**0.22**	**0.24**
			LEVEL OF SERVICE:				**A**	**A**	**A**	**A**

NOTES:
ICU calculations account for trucks @ 2.0 PCEs/truck.

04/23/98

SOLEDAD CANYON - TMC PROJECT (97095) **REFERENCE #6**

INTERSECTION CAPACITY UTILIZATION WORKSHEET - TMC PHASE I ANALYSIS

COUNT DATE: *JULY 1997*
TIME PERIOD: *A.M. PEAK HOUR*
N/S STREET: *AGUA DULCE CANYON ROAD*
E/W STREET: *SR 14 SB RAMPS*
CONTROL TYPE: *ONE-WAY STOP*

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTHBOUND L	NORTHBOUND T	NORTHBOUND R	SOUTHBOUND L	SOUTHBOUND T	SOUTHBOUND R	EAST BOUND L	EAST BOUND T	EAST BOUND R	WESTBOUND L	WESTBOUND T	WESTBOUND R
(A) EXISTING (1997):	5	10	0	0	5	5	0	0	0	40	0	5
(B) 1999 GROWTH:	0	0	0	0	0	0	0	0	0	1	0	0
(C) TMC PHASE I:	0	0	0	0	0	0	0	0	0	4	0	0
(D) RELATED PROJECTS:	20	0	0	0	0	0	0	0	0	5	0	0

GEOMETRICS

GEOMETRICS	NORTHBOUND	SOUTHBOUND	EAST BOUND	WESTBOUND
	LT	TR		LTR

TRAFFIC SCENARIOS

SCENARIO 1: EXISTING 1997 (A)
SCENARIO 2: EXISTING + GROWTH TO 1999 (A+B)
SCENARIO 3: EXISTING + GROWTH TO 1999 + TMC PHASE I (A+B+C)
SCENARIO 4: EXISTING + GROWTH TO 1999 + TMC PHASE I + RELATED PROJECTS (A+B+C+D)

LEVEL OF SERVICE CALCULATIONS

MOVE	LANES	CAPACITY	SCENARIO VOLUMES 1	2	3	4	SCENARIO V/C RATIOS 1	2	3	4
NBL	0	0	5	5	5	25	-	-	-	-
NBT	1	1600	10	10	10	10	0.009*	0.009*	0.009*	0.022*
NBR	0	0	0	0	0	0	-	-	-	-
SBL	0	0	0	0	0	0	-	-	-	-
SBT	1	1600	5	5	5	5	0.006*	0.006*	0.006*	0.006*
SBR	0	0	5	5	5	5	-	-	-	-
EBL	0	0	0	0	0	0	-	-	-	-
EBT	0	0	0	0	0	0	-	-	-	-
EBR	0	0	0	0	0	0	-	-	-	-
WBL	0	0	40	41	45	50	-	-	-	-
WBT	1	1600	0	0	0	0	0.028*	0.029*	0.031*	0.034*
WBR	0	0	5	5	5	5	-	-	-	-
			LOST TIME:				0.100*	0.100*	0.100*	0.100*
			PROJECT-ADDED V/C:						0.002	
			INTERSECTION CAPACITY UTILIZATION:				**0.14**	**0.14**	**0.15**	**0.16**
			LEVEL OF SERVICE:				**A**	**A**	**A**	**A**

NOTES:
ICU calculations account for trucks @ 2.0 PCEs/truck.

04/23/98

SOLEDAD CANYON - TMC PROJECT (97095) **REFERENCE #6**

INTERSECTION CAPACITY UTILIZATION WORKSHEET - TMC PHASE I ANALYSIS

COUNT DATE: *JULY 1997*
TIME PERIOD: *P.M. PEAK HOUR*
N/S STREET: *AGUA DULCE CANYON ROAD*
E/W STREET: *SR 14 SB RAMPS*
CONTROL TYPE: *ONE-WAY STOP*

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTHBOUND L	NORTHBOUND T	NORTHBOUND R	SOUTHBOUND L	SOUTHBOUND T	SOUTHBOUND R	EAST BOUND L	EAST BOUND T	EAST BOUND R	WESTBOUND L	WESTBOUND T	WESTBOUND R
(A) EXISTING (1997):	5	10	0	0	15	10	0	0	0	100	0	5
(B) 1999 GROWTH:	0	0	0	0	0	0	0	0	0	3	0	0
(C) TMC PHASE I:	0	0	0	0	0	0	0	0	0	2	0	0
(D) RELATED PROJECTS:	5	0	0	0	0	0	0	0	0	18	0	0

GEOMETRICS

GEOMETRICS	NORTHBOUND	SOUTHBOUND	EAST BOUND	WESTBOUND
	LT	TR		LTR

TRAFFIC SCENARIOS

SCENARIO 1: EXISTING 1997 (A)
SCENARIO 2: EXISTING + GROWTH TO 1999 (A+B)
SCENARIO 3: EXISTING + GROWTH TO 1999 + TMC PHASE I (A+B+C)
SCENARIO 4: EXISTING + GROWTH TO 1999 + TMC PHASE I + RELATED PROJECTS (A+B+C+D)

LEVEL OF SERVICE CALCULATIONS

MOVE	LANES	CAPACITY	SCENARIO VOLUMES 1	2	3	4	SCENARIO V/C RATIOS 1	2	3	4
NBL	0	0	5	5	5	10	-	-	-	-
NBT	1	1600	10	10	10	10	0.009*	0.009*	0.009*	0.013*
NBR	0	0	0	0	0	0	-	-	-	-
SBL	0	0	0	0	0	0	-	-	-	-
SBT	1	1600	15	15	15	15	0.016*	0.016*	0.016*	0.016*
SBR	0	0	10	10	10	10	-	-	-	-
EBL	0	0	0	0	0	0	-	-	-	-
EBT	0	0	0	0	0	0	-	-	-	-
EBR	0	0	0	0	0	0	-	-	-	-
WBL	0	0	100	103	105	123	-	-	-	-
WBT	1	1600	0	0	0	0	0.066*	0.068*	0.069*	0.080*
WBR	0	0	5	5	5	5	-	-	-	-
			LOST TIME:				0.100*	0.100*	0.100*	0.100*
			PROJECT-ADDED V/C:						0.001	
			INTERSECTION CAPACITY UTILIZATION:				**0.19**	**0.19**	**0.19**	**0.21**
			LEVEL OF SERVICE:				**A**	**A**	**A**	**A**

NOTES:
ICU calculations account for trucks @ 2.0 PCEs/truck.

04/23/98

SOLEDAD CANYON - TMC PROJECT (97095) **REFERENCE #1**

INTERSECTION CAPACITY UTILIZATION WORKSHEET - TMC PHASE II ANALYSIS

COUNT DATE: *JULY 1997*
TIME PERIOD: *A.M. PEAK HOUR*
N/S STREET: *SR 14 SB RAMPS*
E/W STREET: *SOLEDAD CANYON ROAD*
CONTROL TYPE: *ONE-WAY STOP*

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTHBOUND L	NORTHBOUND T	NORTHBOUND R	SOUTHBOUND L	SOUTHBOUND T	SOUTHBOUND R	EAST BOUND L	EAST BOUND T	EAST BOUND R	WESTBOUND L	WESTBOUND T	WESTBOUND R
(A) EXISTING (1997):	0	0	0	15	5	115	0	70	30	365	200	0
(B) 2009 GROWTH:	0	0	0	3	1	23	0	14	6	72	39	0
(C) TMC PHASE II:	0	0	0	0	0	0	0	2	0	91	0	0
(D) RELATED PROJECTS:	0	0	0	24	0	7	0	77	69	277	186	0

GEOMETRICS

GEOMETRICS	NORTHBOUND	SOUTHBOUND LT R	EAST BOUND TT R	WESTBOUND L TT

TRAFFIC SCENARIOS

SCENARIO 5: EXISTING + GROWTH TO 2009 (A+B)
SCENARIO 6: EXISTING + GROWTH TO 2009 + TMC PHASE II (A+B+C)
SCENARIO 7: EXISTING + GROWTH TO 2009 + TMC PHASE II + RELATED PROJECTS (A+B+C+D)

LEVEL OF SERVICE CALCULATIONS

MOVE	LANES	CAPACITY	SCENARIO VOLUMES 5	6	7	SCENARIO V/C RATIOS 5	6	7
NBL	0	0	0	0	0	-	-	-
NBT	0	0	0	0	0	-	-	-
NBR	0	0	0	0	0	-	-	-
SBL	0	0	18	18	42	-	-	-
SBT	1	1600	6	6	6	0.015	0.015	0.030
SBR	1	1600	138	138	145	0.086*	0.086*	0.091*
EBL	0	0	0	0	0	-	-	-
EBT	2	3200	84	86	163	0.026*	0.027*	0.051*
EBR	1	1600	36	36	105	0.023	0.023	0.066
WBL	1	1600	437	528	805	0.273*	0.330*	0.503*
WBT	2	3200	239	239	425	0.075	0.075	0.133
WBR	0	0	0	0	0	-	-	-
			LOST TIME:			0.100*	0.100*	0.100*
			PROJECT-ADDED V/C:				0.058	
			INTERSECTION CAPACITY UTILIZATION:			**0.49**	**0.54**	**0.75**
			LEVEL OF SERVICE:			**A**	**A**	**C**

NOTES:
ICU calculations account for trucks @ 2.0 PCEs/truck.

04/30/98

SOLEDAD CANYON - TMC PROJECT (97095) **REFERENCE #1A**

INTERSECTION CAPACITY UTILIZATION WORKSHEET - TMC PHASE II ANALYSIS

COUNT DATE: *JULY 1997*
TIME PERIOD: *A.M. PEAK HOUR*
N/S STREET: *SR 14 SB RAMPS*
E/W STREET: *SOLEDAD CANYON ROAD*
CONTROL TYPE: *SIGNALIZED - MITIGATED*

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTHBOUND L	NORTHBOUND T	NORTHBOUND R	SOUTHBOUND L	SOUTHBOUND T	SOUTHBOUND R	EAST BOUND L	EAST BOUND T	EAST BOUND R	WESTBOUND L	WESTBOUND T	WESTBOUND R
(A) EXISTING (1997):	0	0	0	15	5	115	0	70	30	365	200	0
(B) 2009 GROWTH:	0	0	0	3	1	23	0	14	6	72	39	0
(C) TMC PHASE II:	0	0	0	0	0	0	0	2	0	91	0	0
(D) RELATED PROJECTS:	0	0	0	24	0	7	0	77	69	277	186	0

GEOMETRICS

GEOMETRICS	NORTHBOUND	SOUTHBOUND LT R	EAST BOUND TT R	WESTBOUND L TT

TRAFFIC SCENARIOS

SCENARIO 5: EXISTING + GROWTH TO 2009 (A+B)
SCENARIO 6: EXISTING + GROWTH TO 2009 + TMC PHASE II (A+B+C)
SCENARIO 7: EXISTING + GROWTH TO 2009 + TMC PHASE II + RELATED PROJECTS (A+B+C+D)

LEVEL OF SERVICE CALCULATIONS

MOVE	LANES	CAPACITY	SCENARIO VOLUMES 5	6	7	SCENARIO V/C RATIOS 5	6	7
NBL	0	0	0	0	0	-	-	-
NBT	0	0	0	0	0	-	-	-
NBR	0	0	0	0	0	-	-	-
SBL	0	0	18	18	42	-	-	-
SBT	1	1600	6	6	6	0.015	0.015	0.030
SBR	1	1600	138	138	145	0.086*	0.086*	0.091*
EBL	0	0	0	0	0	-	-	-
EBT	1	1600	84	86	163	0.053*	0.054*	0.102*
EBR	1	1600	36	36	105	0.023	0.023	0.066
WBL	2	3200	437	528	805	0.137*	0.165*	0.252*
WBT	1	1600	239	239	425	0.149	0.149	0.266
WBR	0	0	0	0	0	-	-	-
			LOST TIME:			0.100*	0.100*	0.100*
			PROJECT-ADDED V/C:				0.029	
			INTERSECTION CAPACITY UTILIZATION:			0.38	0.41	0.55
			LEVEL OF SERVICE:			A	A	A

NOTES:
ICU calculations account for trucks @ 2.0 PCEs/truck.

05/05/98

SOLEDAD CANYON - TMC PROJECT (97095) **REFERENCE #1**
INTERSECTION CAPACITY UTILIZATION WORKSHEET - TMC PHASE II ANALYSIS

COUNT DATE: *JULY 1997*
TIME PERIOD: *P.M. PEAK HOUR*
N/S STREET: *SR 14 SB RAMPS*
E/W STREET: *SOLEDAD CANYON ROAD*
CONTROL TYPE: *ONE-WAY STOP*

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTHBOUND L	NORTHBOUND T	NORTHBOUND R	SOUTHBOUND L	SOUTHBOUND T	SOUTHBOUND R	EAST BOUND L	EAST BOUND T	EAST BOUND R	WESTBOUND L	WESTBOUND T	WESTBOUND R
(A) EXISTING (1997):	0	0	0	10	5	55	0	240	45	30	80	0
(B) 2009 GROWTH:	0	0	0	2	1	11	0	47	9	6	16	0
(C) TMC PHASE II:	0	0	0	0	0	0	0	0	0	51	3	0
(D) RELATED PROJECTS:	0	0	0	88	0	23	0	203	44	182	195	0

GEOMETRICS

GEOMETRICS	NORTHBOUND	SOUTHBOUND LT R	EAST BOUND TT R	WESTBOUND L TT

TRAFFIC SCENARIOS

SCENARIO 5: EXISTING + GROWTH TO 2009 (A+B)
SCENARIO 6: EXISTING + GROWTH TO 2009 + TMC PHASE II (A+B+C)
SCENARIO 7: EXISTING + GROWTH TO 2009 + TMC PHASE II + RELATED PROJECTS (A+B+C+D)

LEVEL OF SERVICE CALCULATIONS

MOVE	LANES	CAPACITY	SCENARIO VOLUMES 5	6	7	SCENARIO V/C RATIOS 5	6	7
NBL	0	0	0	0	0	-	-	-
NBT	0	0	0	0	0	-	-	-
NBR	0	0	0	0	0	-	-	-
SBL	0	0	12	12	100	-	-	-
SBT	1	1600	6	6	6	0.011	0.011	0.066
SBR	1	1600	66	66	89	0.041*	0.041*	0.056*
EBL	0	0	0	0	0	-	-	-
EBT	2	3200	287	287	490	0.090*	0.090*	0.153*
EBR	1	1600	54	54	98	0.034	0.034	0.061
WBL	1	1600	36	87	269	0.023*	0.054*	0.168*
WBT	2	3200	96	99	294	0.030	0.031	0.092
WBR	0	0	0	0	0	-	-	-
			LOST TIME:			0.100*	0.100*	0.100*
			PROJECT-ADDED V/C:				0.031	
			INTERSECTION CAPACITY UTILIZATION:			0.25	0.29	0.48
			LEVEL OF SERVICE:			A	A	A

NOTES:
ICU calculations account for trucks @ 2.0 PCEs/truck.

04/30/98

SOLEDAD CANYON - TMC PROJECT (97095) **REFERENCE #1A**

INTERSECTION CAPACITY UTILIZATION WORKSHEET - TMC PHASE II ANALYSIS

COUNT DATE: *JULY 1997*
TIME PERIOD: *P.M. PEAK HOUR*
N/S STREET: *SR 14 SB RAMPS*
E/W STREET: *SOLEDAD CANYON ROAD*
CONTROL TYPE: *SIGNALIZED - MITIGATED*

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTHBOUND L	NORTHBOUND T	NORTHBOUND R	SOUTHBOUND L	SOUTHBOUND T	SOUTHBOUND R	EAST BOUND L	EAST BOUND T	EAST BOUND R	WESTBOUND L	WESTBOUND T	WESTBOUND R
(A) EXISTING (1997):	0	0	0	10	5	55	0	240	45	30	80	0
(B) 2009 GROWTH:	0	0	0	2	1	11	0	47	9	6	16	0
(C) TMC PHASE II:	0	0	0	0	0	0	0	0	0	51	3	0
(D) RELATED PROJECTS:	0	0	0	88	0	23	0	203	44	182	195	0

GEOMETRICS

GEOMETRICS	NORTHBOUND	SOUTHBOUND LT R	EAST BOUND TT R	WESTBOUND L TT

TRAFFIC SCENARIOS

SCENARIO 5: EXISTING + GROWTH TO 2009 (A+B)
SCENARIO 6: EXISTING + GROWTH TO 2009 + TMC PHASE II (A+B+C)
SCENARIO 7: EXISTING + GROWTH TO 2009 + TMC PHASE II + RELATED PROJECTS (A+B+C+D)

LEVEL OF SERVICE CALCULATIONS

MOVE	LANES	CAPACITY	SCENARIO VOLUMES 5	SCENARIO VOLUMES 6	SCENARIO VOLUMES 7	SCENARIO V/C RATIOS 5	SCENARIO V/C RATIOS 6	SCENARIO V/C RATIOS 7
NBL	0	0	0	0	0	-	-	-
NBT	0	0	0	0	0	-	-	-
NBR	0	0	0	0	0	-	-	-
SBL	0	0	12	12	100	-	-	-
SBT	1	1600	6	6	6	0.011	0.011	0.066
SBR	1	1600	66	66	89	0.041*	0.041*	0.056*
EBL	0	0	0	0	0	-	-	-
EBT	1	1600	287	287	490	0.179*	0.179*	0.306*
EBR	1	1600	54	54	98	0.034	0.034	0.061
WBL	2	3200	36	87	269	0.011*	0.027*	0.084*
WBT	1	1600	96	99	294	0.060	0.062	0.184
WBR	0	0	0	0	0	-	-	-
			LOST TIME:			0.100*	0.100*	0.100*
			PROJECT-ADDED V/C:				0.016	
			INTERSECTION CAPACITY UTILIZATION:			0.33	0.35	0.55
			LEVEL OF SERVICE:			A	A	A

NOTES:
ICU calculations account for trucks @ 2.0 PCEs/truck.

05/05/98

SOLEDAD CANYON - TMC PROJECT (97095) **REFERENCE #2**

INTERSECTION CAPACITY UTILIZATION WORKSHEET - TMC PHASE II ANALYSIS

COUNT DATE: ***JULY 1997***
TIME PERIOD: ***A.M. PEAK HOUR***
N/S STREET: ***SR 14 NB RAMPS***
E/W STREET: ***SOLEDAD CANYON ROAD***
CONTROL TYPE: ***ONE-WAY STOP***

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTHBOUND L	NORTHBOUND T	NORTHBOUND R	SOUTHBOUND L	SOUTHBOUND T	SOUTHBOUND R	EAST BOUND L	EAST BOUND T	EAST BOUND R	WESTBOUND L	WESTBOUND T	WESTBOUND R
(A) EXISTING (1997):	20	0	20	0	0	0	55	20	10	5	545	5
(B) 2009 GROWTH:	4	0	4	0	0	0	11	4	2	1	107	1
(C) TMC PHASE II:	0	0	72	0	0	0	0	2	0	0	91	0
(D) RELATED PROJECTS:	24	0	88	0	0	0	19	82	0	0	439	45

GEOMETRICS

GEOMETRICS	NORTHBOUND LT R	SOUTHBOUND	EAST BOUND L T R	WESTBOUND LTR

TRAFFIC SCENARIOS

SCENARIO 5: EXISTING + GROWTH TO 2009 (A+B)
SCENARIO 6: EXISTING + GROWTH TO 2009 + TMC PHASE II (A+B+C)
SCENARIO 7: EXISTING + GROWTH TO 2009 + TMC PHASE II + RELATED PROJECTS (A+B+C+D)

LEVEL OF SERVICE CALCULATIONS

MOVE	LANES	CAPACITY	SCENARIO VOLUMES 5	6	7	SCENARIO V/C RATIOS 5	6	7
NBL	0	0	24	24	48	-	-	-
NBT	1	1600	0	0	0	0.015	0.015	0.030
NBR	1	1600	24	96	184	0.015*	0.060*	0.115*
SBL	0	0	0	0	0	-	-	-
SBT	0	0	0	0	0	-	-	-
SBR	0	0	0	0	0	-	-	-
EBL	1	1600	66	66	85	0.041*	0.041*	0.053*
EBT	1	1600	24	26	108	0.015	0.016	0.068
EBR	1	1600	12	12	12	0.008	0.008	0.008
WBL	0	0	6	6	6	-	-	-
WBT	1	1600	652	743	1182	0.415*	0.472*	0.774*
WBR	0	0	6	6	51	-	-	-
			LOST TIME:			0.100*	0.100*	0.100*
			PROJECT-ADDED V/C:				0.102	
			INTERSECTION CAPACITY UTILIZATION:			**0.57**	**0.67**	**1.04**
			LEVEL OF SERVICE:			**A**	**B**	**F**

NOTES:
ICU calculations account for trucks @ 2.0 PCEs/truck.

04/30/98

SOLEDAD CANYON - TMC PROJECT (97095) **REFERENCE #2A**

INTERSECTION CAPACITY UTILIZATION WORKSHEET - TMC PHASE II ANALYSIS

COUNT DATE: *JULY 1997*
TIME PERIOD: *A.M. PEAK HOUR*
N/S STREET: *SR 14 NB RAMPS*
E/W STREET: *SOLEDAD CANYON ROAD*
CONTROL TYPE: *SIGNALIZED - MITIGATED*

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTHBOUND L	NORTHBOUND T	NORTHBOUND R	SOUTHBOUND L	SOUTHBOUND T	SOUTHBOUND R	EAST BOUND L	EAST BOUND T	EAST BOUND R	WESTBOUND L	WESTBOUND T	WESTBOUND R
(A) EXISTING (1997):	20	0	20	0	0	0	55	20	10	5	545	5
(B) 2009 GROWTH:	4	0	4	0	0	0	11	4	2	1	107	1
(C) TMC PHASE II:	0	0	72	0	0	0	0	2	0	0	91	0
(D) RELATED PROJECTS:	24	0	88	0	0	0	19	82	0	0	439	45

GEOMETRICS

GEOMETRICS	NORTHBOUND LT R	SOUTHBOUND	EAST BOUND L T R	WESTBOUND LTR

TRAFFIC SCENARIOS

SCENARIO 5: EXISTING + GROWTH TO 2009 (A+B)
SCENARIO 6: EXISTING + GROWTH TO 2009 + TMC PHASE II (A+B+C)
SCENARIO 7: EXISTING + GROWTH TO 2009 + TMC PHASE II + RELATED PROJECTS (A+B+C+D)

LEVEL OF SERVICE CALCULATIONS

MOVE	LANES	CAPACITY	SCENARIO VOLUMES 5	6	7	SCENARIO V/C RATIOS 5	6	7
NBL	0	0	24	24	48	-	-	-
NBT	1	1600	0	0	0	0.015	0.015	0.030
NBR	1	1600	24	96	184	0.015*	0.060*	0.115*
SBL	0	0	0	0	0	-	-	-
SBT	0	0	0	0	0	-	-	-
SBR	0	0	0	0	0	-	-	-
EBL	1	1600	66	66	85	0.041*	0.041*	0.053*
EBT	1	1600	24	26	108	0.023	0.024	0.075
EBR	0	0	12	12	12	-	-	-
WBL	0	0	6	6	6	-	-	-
WBT	2	3200	652	743	1182	0.208*	0.236*	0.387*
WBR	0	0	6	6	51	-	-	-
			LOST TIME:			0.100*	0.100*	0.100*
			PROJECT-ADDED V/C:				0.073	
			INTERSECTION CAPACITY UTILIZATION:			0.36	0.44	0.66
			LEVEL OF SERVICE:			A	A	B

NOTES:
ICU calculations account for trucks @ 2.0 PCEs/truck.

05/05/98

SOLEDAD CANYON - TMC PROJECT (97095) **REFERENCE #2**

INTERSECTION CAPACITY UTILIZATION WORKSHEET - TMC PHASE II ANALYSIS

COUNT DATE: *JULY 1997*
TIME PERIOD: *P.M. PEAK HOUR*
N/S STREET: *SR 14 NB RAMPS*
E/W STREET: *SOLEDAD CANYON ROAD*
CONTROL TYPE: *ONE-WAY STOP*

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTHBOUND L	NORTHBOUND T	NORTHBOUND R	SOUTHBOUND L	SOUTHBOUND T	SOUTHBOUND R	EAST BOUND L	EAST BOUND T	EAST BOUND R	WESTBOUND L	WESTBOUND T	WESTBOUND R
(A) EXISTING (1997):	40	0	125	0	0	0	120	120	5	5	75	10
(B) 2009 GROWTH:	8	0	25	0	0	0	24	24	1	1	15	2
(C) TMC PHASE II:	0	0	38	0	0	0	0	0	0	0	52	0
(D) RELATED PROJECTS:	83	0	321	0	0	0	12	279	0	0	294	29

GEOMETRICS

GEOMETRICS	NORTHBOUND LT R	SOUTHBOUND	EAST BOUND L T R	WESTBOUND LTR

TRAFFIC SCENARIOS

SCENARIO 5: EXISTING + GROWTH TO 2009 (A+B)
SCENARIO 6: EXISTING + GROWTH TO 2009 + TMC PHASE II (A+B+C)
SCENARIO 7: EXISTING + GROWTH TO 2009 + TMC PHASE II + RELATED PROJECTS (A+B+C+D)

LEVEL OF SERVICE CALCULATIONS

MOVE	LANES	CAPACITY	SCENARIO VOLUMES 5	6	7	SCENARIO V/C RATIOS 5	6	7
NBL	0	0	48	48	131	-	-	-
NBT	1	1600	0	0	0	0.030	0.030	0.082
NBR	1	1600	150	188	509	0.094*	0.118*	0.318*
SBL	0	0	0	0	0	-	-	-
SBT	0	0	0	0	0	-	-	-
SBR	0	0	0	0	0	-	-	-
EBL	1	1600	144	144	156	0.090*	0.090*	0.098*
EBT	1	1600	144	144	423	0.090	0.090	0.264
EBR	1	1600	6	6	6	0.004	0.004	0.004
WBL	0	0	6	6	6	-	-	-
WBT	1	1600	90	142	436	0.068*	0.100*	0.302*
WBR	0	0	12	12	41	-	-	-
			LOST TIME:			0.100*	0.100*	0.100*
			PROJECT-ADDED V/C:				0.056	
			INTERSECTION CAPACITY UTILIZATION:			**0.35**	**0.41**	**0.82**
			LEVEL OF SERVICE:			**A**	**A**	**D**

NOTES:
ICU calculations account for trucks @ 2.0 PCEs/truck.

04/30/98

SOLEDAD CANYON - TMC PROJECT (97095) **REFERENCE #2A**

INTERSECTION CAPACITY UTILIZATION WORKSHEET - TMC PHASE II ANALYSIS

COUNT DATE: *JULY 1997*
TIME PERIOD: *P.M. PEAK HOUR*
N/S STREET: *SR 14 NB RAMPS*
E/W STREET: *SOLEDAD CANYON ROAD*
CONTROL TYPE: *SIGNALIZED - MITIGATED*

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTHBOUND L	NORTHBOUND T	NORTHBOUND R	SOUTHBOUND L	SOUTHBOUND T	SOUTHBOUND R	EAST BOUND L	EAST BOUND T	EAST BOUND R	WESTBOUND L	WESTBOUND T	WESTBOUND R
(A) EXISTING (1997):	40	0	125	0	0	0	120	120	5	5	75	10
(B) 2009 GROWTH:	8	0	25	0	0	0	24	24	1	1	15	2
(C) TMC PHASE II:	0	0	38	0	0	0	0	0	0	0	52	0
(D) RELATED PROJECTS:	83	0	321	0	0	0	12	279	0	0	294	29

GEOMETRICS

GEOMETRICS	NORTHBOUND	SOUTHBOUND	EAST BOUND	WESTBOUND
	LT R		L T R	LTR

TRAFFIC SCENARIOS

SCENARIO 5: EXISTING + GROWTH TO 2009 (A+B)
SCENARIO 6: EXISTING + GROWTH TO 2009 + TMC PHASE II (A+B+C)
SCENARIO 7: EXISTING + GROWTH TO 2009 + TMC PHASE II + RELATED PROJECTS (A+B+C+D)

LEVEL OF SERVICE CALCULATIONS

MOVE	LANES	CAPACITY	SCENARIO VOLUMES 5	6	7	SCENARIO V/C RATIOS 5	6	7
NBL	0	0	48	48	131	-	-	-
NBT	1	1600	0	0	0	0.030	0.030	0.082
NBR	1	1600	150	188	509	0.094*	0.118*	0.318*
SBL	0	0	0	0	0	-	-	-
SBT	0	0	0	0	0	-	-	-
SBR	0	0	0	0	0	-	-	-
EBL	1	1600	144	144	156	0.090*	0.090*	0.098*
EBT	1	1600	144	144	423	0.094	0.094	0.268
EBR	0	0	6	6	6	-	-	-
WBL	0	0	6	6	6	-	-	-
WBT	2	3200	90	142	436	0.034*	0.050*	0.151*
WBR	0	0	12	12	41	-	-	-
			LOST TIME:			0.100*	0.100*	0.100*
			PROJECT-ADDED V/C:				0.040	
			INTERSECTION CAPACITY UTILIZATION:			0.32	0.36	0.67
			LEVEL OF SERVICE:			A	A	B

NOTES:
ICU calculations account for trucks @ 2.0 PCEs/truck.

05/05/98

SOLEDAD CANYON - TMC PROJECT (97095) **REFERENCE #3**

INTERSECTION CAPACITY UTILIZATION WORKSHEET - TMC PHASE II ANALYSIS

COUNT DATE: *JULY 1997*
TIME PERIOD: *A.M. PEAK HOUR*
N/S STREET: *PROJECT ACCESS ROAD*
E/W STREET: *SOLEDAD CANYON ROAD*
CONTROL TYPE: *ONE-WAY STOP*

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTHBOUND L	NORTHBOUND T	NORTHBOUND R	SOUTHBOUND L	SOUTHBOUND T	SOUTHBOUND R	EAST BOUND L	EAST BOUND T	EAST BOUND R	WESTBOUND L	WESTBOUND T	WESTBOUND R
(A) EXISTING (1997):	10	0	10	0	0	0	0	5	10	10	450	0
(B) 2009 GROWTH:	2	0	2	0	0	0	0	1	2	2	88	0
(C) TMC PHASE II:	0	0	0	5	0	91	74	0	0	0	0	8
(D) RELATED PROJECTS:	0	0	0	0	0	0	0	43	0	0	44	0

GEOMETRICS

GEOMETRICS	NORTHBOUND LTR	SOUTHBOUND LTR	EAST BOUND LTR	WESTBOUND LTR

TRAFFIC SCENARIOS

SCENARIO 5: EXISTING + GROWTH TO 2009 (A+B)
SCENARIO 6: EXISTING + GROWTH TO 2009 + TMC PHASE II (A+B+C)
SCENARIO 7: EXISTING + GROWTH TO 2009 + TMC PHASE II + RELATED PROJECTS (A+B+C+D)

LEVEL OF SERVICE CALCULATIONS

MOVE	LANES	CAPACITY	SCENARIO VOLUMES 5	SCENARIO VOLUMES 6	SCENARIO VOLUMES 7	SCENARIO V/C RATIOS 5	SCENARIO V/C RATIOS 6	SCENARIO V/C RATIOS 7
NBL	0	0	12	12	12	-	-	-
NBT	1	1600	0	0	0	0.015*	0.015*	0.015*
NBR	0	0	12	12	12	-	-	-
SBL	0	0	0	5	5	-	-	-
SBT	1	1600	0	0	0	0.000*	0.060*	0.060*
SBR	0	0	0	91	91	-	-	-
EBL	0	0	0	74	74	-	-	-
EBT	1	1600	6	6	49	0.011*	0.058*	0.084*
EBR	0	0	12	12	12	-	-	-
WBL	0	0	12	12	12	-	-	-
WBT	1	1600	538	538	582	0.344*	0.349*	0.376*
WBR	0	0	0	8	8	-	-	-
			LOST TIME:			0.100*	0.100*	0.100*
			PROJECT-ADDED V/C:				0.112	
			INTERSECTION CAPACITY UTILIZATION:			0.47	0.58	0.64
			LEVEL OF SERVICE:			A	A	B

NOTES:
ICU calculations account for trucks @ 2.0 PCEs/truck.

04/30/98

SOLEDAD CANYON - TMC PROJECT (97095) **REFERENCE #3**
INTERSECTION CAPACITY UTILIZATION WORKSHEET - TMC PHASE II ANALYSIS
COUNT DATE: ***JULY 1997***
TIME PERIOD: ***P.M. PEAK HOUR***
N/S STREET: ***PROJECT ACCESS ROAD***
E/W STREET: ***SOLEDAD CANYON ROAD***
CONTROL TYPE: ***ONE-WAY STOP***

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTHBOUND L	NORTHBOUND T	NORTHBOUND R	SOUTHBOUND L	SOUTHBOUND T	SOUTHBOUND R	EAST BOUND L	EAST BOUND T	EAST BOUND R	WESTBOUND L	WESTBOUND T	WESTBOUND R
(A) EXISTING (1997):	10	0	10	0	0	0	0	230	10	10	20	0
(B) 2009 GROWTH:	2	0	2	0	0	0	0	45	2	2	4	0
(C) TMC PHASE II:	0	0	0	6	0	52	38	0	0	0	0	2
(D) RELATED PROJECTS:	0	0	0	0	0	0	0	60	0	0	59	0

GEOMETRICS

GEOMETRICS	NORTHBOUND LTR	SOUTHBOUND LTR	EAST BOUND LTR	WESTBOUND LTR

TRAFFIC SCENARIOS

SCENARIO 5: EXISTING + GROWTH TO 2009 (A+B)
SCENARIO 6: EXISTING + GROWTH TO 2009 + TMC PHASE II (A+B+C)
SCENARIO 7: EXISTING + GROWTH TO 2009 + TMC PHASE II + RELATED PROJECTS (A+B+C+D)

LEVEL OF SERVICE CALCULATIONS

MOVE	LANES	CAPACITY	SCENARIO VOLUMES 5	6	7	SCENARIO V/C RATIOS 5	6	7
NBL	0	0	12	12	12	-	-	-
NBT	1	1600	0	0	0	0.015*	0.015*	0.015*
NBR	0	0	12	12	12	-	-	-
SBL	0	0	0	6	6	-	-	-
SBT	1	1600	0	0	0	0.000*	0.036*	0.036*
SBR	0	0	0	52	52	-	-	-
EBL	0	0	0	38	38	-	-	-
EBT	1	1600	275	275	335	0.179*	0.203*	0.241*
EBR	0	0	12	12	12	-	-	-
WBL	0	0	12	12	12	-	-	-
WBT	1	1600	24	24	83	0.023*	0.024*	0.061*
WBR	0	0	0	2	2	-	-	-
			LOST TIME:			0.100*	0.100*	0.100*
			PROJECT-ADDED V/C:				0.061	
			INTERSECTION CAPACITY UTILIZATION:			0.32	0.38	0.45
			LEVEL OF SERVICE:			A	A	A

NOTES:
ICU calculations account for trucks @ 2.0 PCEs/truck.

04/30/98

SOLEDAD CANYON - TMC PROJECT (97095) **REFERENCE #4**

INTERSECTION CAPACITY UTILIZATION WORKSHEET - TMC PHASE II ANALYSIS

COUNT DATE: *JULY 1997*
TIME PERIOD: *A.M. PEAK HOUR*
N/S STREET: *AGUA DULCE CANYON ROAD*
E/W STREET: *SOLEDAD CANYON ROAD*
CONTROL TYPE: *ONE-WAY STOP*

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTHBOUND L	NORTHBOUND T	NORTHBOUND R	SOUTHBOUND L	SOUTHBOUND T	SOUTHBOUND R	EAST BOUND L	EAST BOUND T	EAST BOUND R	WESTBOUND L	WESTBOUND T	WESTBOUND R
(A) EXISTING (1997):	0	0	0	5	0	5	5	10	0	0	465	5
(B) 2009 GROWTH:	0	0	0	1	0	1	1	2	0	0	91	1
(C) TMC PHASE II:	0	0	0	0	0	7	5	0	0	0	1	0
(D) RELATED PROJECTS:	0	0	0	51	0	39	27	16	0	0	5	18

GEOMETRICS

GEOMETRICS	NORTHBOUND	SOUTHBOUND	EAST BOUND	WESTBOUND
		LR	LT	TR

TRAFFIC SCENARIOS

SCENARIO 5: EXISTING + GROWTH TO 2009 (A+B)
SCENARIO 6: EXISTING + GROWTH TO 2009 + TMC PHASE II (A+B+C)
SCENARIO 7: EXISTING + GROWTH TO 2009 + TMC PHASE II + RELATED PROJECTS (A+B+C+D)

LEVEL OF SERVICE CALCULATIONS

MOVE	LANES	CAPACITY	SCENARIO VOLUMES 5	6	7	SCENARIO V/C RATIOS 5	6	7
NBL	0	0	0	0	0	-	-	-
NBT	0	0	0	0	0	- *	- *	- *
NBR	0	0	0	0	0	-	-	-
SBL	0	0	6	6	57	-	-	-
SBT	1	1600	0	0	0	0.008 *	0.012 *	0.068 *
SBR	0	0	6	13	52	-	-	-
EBL	0	0	6	11	38	-	-	-
EBT	1	1600	12	12	28	0.011 *	0.014 *	0.041 *
EBR	0	0	0	0	0	-	-	-
WBL	0	0	0	0	0	-	-	-
WBT	1	1600	556	557	562	0.351 *	0.352 *	0.366 *
WBR	0	0	6	6	24	-	-	-
			LOST TIME:			0.100 *	0.100 *	0.100 *
			PROJECT-ADDED V/C:				0.008	
			INTERSECTION CAPACITY UTILIZATION:			0.47	0.48	0.58
			LEVEL OF SERVICE:			A	A	A

NOTES:
ICU calculations account for trucks @ 2.0 PCEs/truck.

04/30/98

SOLEDAD CANYON - TMC PROJECT (97095) **REFERENCE #4**

INTERSECTION CAPACITY UTILIZATION WORKSHEET - TMC PHASE II ANALYSIS

COUNT DATE: *JULY 1997*
TIME PERIOD: *P.M. PEAK HOUR*
N/S STREET: *AGUA DULCE CANYON ROAD*
E/W STREET: *SOLEDAD CANYON ROAD*
CONTROL TYPE: *ONE-WAY STOP*

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTHBOUND L	NORTHBOUND T	NORTHBOUND R	SOUTHBOUND L	SOUTHBOUND T	SOUTHBOUND R	EAST BOUND L	EAST BOUND T	EAST BOUND R	WESTBOUND L	WESTBOUND T	WESTBOUND R
(A) EXISTING (1997):	0	0	0	5	0	5	5	235	0	0	35	5
(B) 2009 GROWTH:	0	0	0	1	0	1	1	46	0	0	7	1
(C) TMC PHASE II:	0	0	0	0	0	2	5	1	0	0	0	0
(D) RELATED PROJECTS:	0	0	0	33	0	40	50	10	0	0	19	61

GEOMETRICS

GEOMETRICS	NORTHBOUND	SOUTHBOUND	EAST BOUND	WESTBOUND
		LR	LT	TR

TRAFFIC SCENARIOS

SCENARIO 5: EXISTING + GROWTH TO 2009 (A+B)
SCENARIO 6: EXISTING + GROWTH TO 2009 + TMC PHASE II (A+B+C)
SCENARIO 7: EXISTING + GROWTH TO 2009 + TMC PHASE II + RELATED PROJECTS (A+B+C+D)

LEVEL OF SERVICE CALCULATIONS

MOVE	LANES	CAPACITY	SCENARIO VOLUMES 5	SCENARIO VOLUMES 6	SCENARIO VOLUMES 7	SCENARIO V/C RATIOS 5	SCENARIO V/C RATIOS 6	SCENARIO V/C RATIOS 7
NBL	0	0	0	0	0	-	-	-
NBT	0	0	0	0	0	- *	- *	- *
NBR	0	0	0	0	0	-	-	-
SBL	0	0	6	6	39	-	-	-
SBT	1	1600	0	0	0	0.008 *	0.009 *	0.054 *
SBR	0	0	6	8	48	-	-	-
EBL	0	0	6	11	61	-	-	-
EBT	1	1600	281	282	292	0.179 *	0.183 *	0.221 *
EBR	0	0	0	0	0	-	-	-
WBL	0	0	0	0	0	-	-	-
WBT	1	1600	42	42	61	0.030 *	0.030 *	0.080 *
WBR	0	0	6	6	67	-	-	-
			LOST TIME:			0.100 *	0.100 *	0.100 *
			PROJECT-ADDED V/C:				0.005	
			INTERSECTION CAPACITY UTILIZATION:			0.32	0.32	0.46
			LEVEL OF SERVICE:			A	A	A

NOTES:
ICU calculations account for trucks @ 2.0 PCEs/truck.

04/30/98

SOLEDAD CANYON - TMC PROJECT (97095) **REFERENCE #5**

INTERSECTION CAPACITY UTILIZATION WORKSHEET - TMC PHASE II ANALYSIS

COUNT DATE: *JULY 1997*
TIME PERIOD: *A.M. PEAK HOUR*
N/S STREET: *AGUA DULCE CANYON ROAD*
E/W STREET: *SR 14 NB RAMPS*
CONTROL TYPE: *ONE-WAY STOP*

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTHBOUND L	NORTHBOUND T	NORTHBOUND R	SOUTHBOUND L	SOUTHBOUND T	SOUTHBOUND R	EAST BOUND L	EAST BOUND T	EAST BOUND R	WESTBOUND L	WESTBOUND T	WESTBOUND R
(A) EXISTING (1997):	0	15	60	5	40	0	5	0	5	0	0	0
(B) 2009 GROWTH:	0	3	12	1	8	0	1	0	1	0	0	0
(C) TMC PHASE II:	0	0	5	0	7	0	0	0	0	0	0	0
(D) RELATED PROJECTS:	0	205	82	0	29	0	0	0	90	0	0	0

GEOMETRICS

GEOMETRICS	NORTHBOUND	SOUTHBOUND	EAST BOUND	WESTBOUND
	TR	LT	LTR	

TRAFFIC SCENARIOS

SCENARIO 5: EXISTING + GROWTH TO 2009 (A+B)
SCENARIO 6: EXISTING + GROWTH TO 2009 + TMC PHASE II (A+B+C)
SCENARIO 7: EXISTING + GROWTH TO 2009 + TMC PHASE II + RELATED PROJECTS (A+B+C+D)

LEVEL OF SERVICE CALCULATIONS

MOVE	LANES	CAPACITY	SCENARIO VOLUMES 5	SCENARIO VOLUMES 6	SCENARIO VOLUMES 7	SCENARIO V/C RATIOS 5	SCENARIO V/C RATIOS 6	SCENARIO V/C RATIOS 7
NBL	0	0	0	0	0	-	-	-
NBT	1	1600	18	18	223	0.056*	0.059*	0.239*
NBR	0	0	72	77	159	-	-	-
SBL	0	0	6	6	6	-	-	-
SBT	1	1600	48	55	84	0.034*	0.038*	0.056*
SBR	0	0	0	0	0	-	-	-
EBL	0	0	6	6	6	-	-	-
EBT	1	1600	0	0	0	0.008*	0.008*	0.064*
EBR	0	0	6	6	96	-	-	-
WBL	0	0	0	0	0	-	-	-
WBT	0	0	0	0	0	-	-	-
WBR	0	0	0	0	0	-	-	-
			LOST TIME:			0.100*	0.100*	0.100*
			PROJECT-ADDED V/C:				0.007	
			INTERSECTION CAPACITY UTILIZATION:			0.20	0.21	0.46
			LEVEL OF SERVICE:			A	A	A

NOTES:
ICU calculations account for trucks @ 2.0 PCEs/truck.

04/30/98

SOLEDAD CANYON - TMC PROJECT (97095) **REFERENCE #5**

INTERSECTION CAPACITY UTILIZATION WORKSHEET - TMC PHASE II ANALYSIS

COUNT DATE: *JULY 1997*
TIME PERIOD: *P.M. PEAK HOUR*
N/S STREET: *AGUA DULCE CANYON ROAD*
E/W STREET: *SR 14 NB RAMPS*
CONTROL TYPE: *ONE-WAY STOP*

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTHBOUND L	NORTHBOUND T	NORTHBOUND R	SOUTHBOUND L	SOUTHBOUND T	SOUTHBOUND R	EAST BOUND L	EAST BOUND T	EAST BOUND R	WESTBOUND L	WESTBOUND T	WESTBOUND R
(A) EXISTING (1997):	0	10	50	10	100	0	5	0	5	0	0	0
(B) 2009 GROWTH:	0	2	10	2	20	0	1	0	1	0	0	0
(C) TMC PHASE II:	0	0	5	0	2	0	0	0	0	0	0	0
(D) RELATED PROJECTS:	0	125	54	0	99	0	0	0	227	0	0	0

GEOMETRICS

GEOMETRICS	NORTHBOUND	SOUTHBOUND	EAST BOUND	WESTBOUND
	TR	LT	LTR	

TRAFFIC SCENARIOS

SCENARIO 5: EXISTING + GROWTH TO 2009 (A+B)
SCENARIO 6: EXISTING + GROWTH TO 2009 + TMC PHASE II (A+B+C)
SCENARIO 7: EXISTING + GROWTH TO 2009 + TMC PHASE II + RELATED PROJECTS (A+B+C+D)

LEVEL OF SERVICE CALCULATIONS

MOVE	LANES	CAPACITY	SCENARIO VOLUMES 5	SCENARIO VOLUMES 6	SCENARIO VOLUMES 7	SCENARIO V/C RATIOS 5	SCENARIO V/C RATIOS 6	SCENARIO V/C RATIOS 7
NBL	0	0	0	0	0	-	-	-
NBT	1	1600	12	12	137	0.045*	0.048*	0.160*
NBR	0	0	60	65	119	-	-	-
SBL	0	0	12	12	12	-	-	-
SBT	1	1600	120	122	221	0.083*	0.084*	0.146*
SBR	0	0	0	0	0	-	-	-
EBL	0	0	6	6	6	-	-	-
EBT	1	1600	0	0	0	0.008*	0.008*	0.149*
EBR	0	0	6	6	233	-	-	-
WBL	0	0	0	0	0	-	-	-
WBT	0	0	0	0	0	-	-	-
WBR	0	0	0	0	0	-	-	-
			LOST TIME:			0.100*	0.100*	0.100*
			PROJECT-ADDED V/C:				0.004	
			INTERSECTION CAPACITY UTILIZATION:			**0.24**	**0.24**	**0.56**
			LEVEL OF SERVICE:			**A**	**A**	**A**

NOTES:
ICU calculations account for trucks @ 2.0 PCEs/truck.

04/30/98

SOLEDAD CANYON - TMC PROJECT (97095) **REFERENCE #6**

INTERSECTION CAPACITY UTILIZATION WORKSHEET - TMC PHASE II ANALYSIS

COUNT DATE: ***JULY 1997***
TIME PERIOD: ***A.M. PEAK HOUR***
N/S STREET: ***AGUA DULCE CANYON ROAD***
E/W STREET: ***SR 14 SB RAMPS***
CONTROL TYPE: ***ONE-WAY STOP***

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTHBOUND L	NORTHBOUND T	NORTHBOUND R	SOUTHBOUND L	SOUTHBOUND T	SOUTHBOUND R	EAST BOUND L	EAST BOUND T	EAST BOUND R	WESTBOUND L	WESTBOUND T	WESTBOUND R
(A) EXISTING (1997):	5	10	0	0	5	5	0	0	0	40	0	5
(B) 2009 GROWTH:	1	2	0	0	1	1	0	0	0	8	0	1
(C) TMC PHASE II:	0	0	0	0	0	0	0	0	0	7	0	0
(D) RELATED PROJECTS:	205	0	0	0	0	0	0	0	0	29	0	0

GEOMETRICS

GEOMETRICS	NORTHBOUND	SOUTHBOUND	EAST BOUND	WESTBOUND
	LT	TR		LTR

TRAFFIC SCENARIOS

SCENARIO 5: EXISTING + GROWTH TO 2009 (A+B)
SCENARIO 6: EXISTING + GROWTH TO 2009 + TMC PHASE II (A+B+C)
SCENARIO 7: EXISTING + GROWTH TO 2009 + TMC PHASE II + RELATED PROJECTS (A+B+C+D)

LEVEL OF SERVICE CALCULATIONS

MOVE	LANES	CAPACITY	SCENARIO VOLUMES 5	SCENARIO VOLUMES 6	SCENARIO VOLUMES 7	SCENARIO V/C RATIOS 5	SCENARIO V/C RATIOS 6	SCENARIO V/C RATIOS 7
NBL	0	0	6	6	211	-	-	-
NBT	1	1600	12	12	12	0.011*	0.011*	0.139*
NBR	0	0	0	0	0	-	-	-
SBL	0	0	0	0	0	-	-	-
SBT	1	1600	6	6	6	0.008*	0.008*	0.008*
SBR	0	0	6	6	6	-	-	-
EBL	0	0	0	0	0	-	-	-
EBT	0	0	0	0	0	-	-	-
EBR	0	0	0	0	0	-	-	-
WBL	0	0	48	55	84	-	-	-
WBT	1	1600	0	0	0	0.034*	0.038*	0.056*
WBR	0	0	6	6	6	-	-	-
			LOST TIME:			0.100*	0.100*	0.100*
			PROJECT-ADDED V/C:				0.004	
			INTERSECTION CAPACITY UTILIZATION:			**0.15**	**0.16**	**0.30**
			LEVEL OF SERVICE:			**A**	**A**	**A**

NOTES:
ICU calculations account for trucks @ 2.0 PCEs/truck.

04/30/98

SOLEDAD CANYON - TMC PROJECT (97095) **REFERENCE #6**

INTERSECTION CAPACITY UTILIZATION WORKSHEET - TMC PHASE II ANALYSIS

COUNT DATE: *JULY 1997*
TIME PERIOD: *P.M. PEAK HOUR*
N/S STREET: *AGUA DULCE CANYON ROAD*
E/W STREET: *SR 14 SB RAMPS*
CONTROL TYPE: *ONE-WAY STOP*

TRAFFIC VOLUME SUMMARY

VOLUMES	NORTHBOUND L	NORTHBOUND T	NORTHBOUND R	SOUTHBOUND L	SOUTHBOUND T	SOUTHBOUND R	EAST BOUND L	EAST BOUND T	EAST BOUND R	WESTBOUND L	WESTBOUND T	WESTBOUND R
(A) EXISTING (1997):	5	10	0	0	15	10	0	0	0	100	0	5
(B) 2009 GROWTH:	1	2	0	0	3	2	0	0	0	20	0	1
(C) TMC PHASE II:	0	0	0	0	0	0	0	0	0	2	0	0
(D) RELATED PROJECTS:	125	0	0	0	0	0	0	0	0	99	0	0

GEOMETRICS

GEOMETRICS	NORTHBOUND	SOUTHBOUND	EAST BOUND	WESTBOUND
	LT	TR		LTR

TRAFFIC SCENARIOS

SCENARIO 5: EXISTING + GROWTH TO 2009 (A+B)
SCENARIO 6: EXISTING + GROWTH TO 2009 + TMC PHASE II (A+B+C)
SCENARIO 7: EXISTING + GROWTH TO 2009 + TMC PHASE II + RELATED PROJECTS (A+B+C+D)

LEVEL OF SERVICE CALCULATIONS

MOVE	LANES	CAPACITY	SCENARIO VOLUMES 5	SCENARIO VOLUMES 6	SCENARIO VOLUMES 7	SCENARIO V/C RATIOS 5	SCENARIO V/C RATIOS 6	SCENARIO V/C RATIOS 7
NBL	0	0	6	6	131	-	-	-
NBT	1	1600	12	12	12	0.011*	0.011*	0.089*
NBR	0	0	0	0	0	-	-	-
SBL	0	0	0	0	0	-	-	-
SBT	1	1600	18	18	18	0.019*	0.019*	0.019*
SBR	0	0	12	12	12	-	-	-
EBL	0	0	0	0	0	-	-	-
EBT	0	0	0	0	0	-	-	-
EBR	0	0	0	0	0	-	-	-
WBL	0	0	120	122	221	-	-	-
WBT	1	1600	0	0	0	0.079*	0.080*	0.142*
WBR	0	0	6	6	6	-	-	-
			LOST TIME:			0.100*	0.100*	0.100*
			PROJECT-ADDED V/C:				0.001	
			INTERSECTION CAPACITY UTILIZATION:			0.21	0.21	0.35
			LEVEL OF SERVICE:			A	A	A

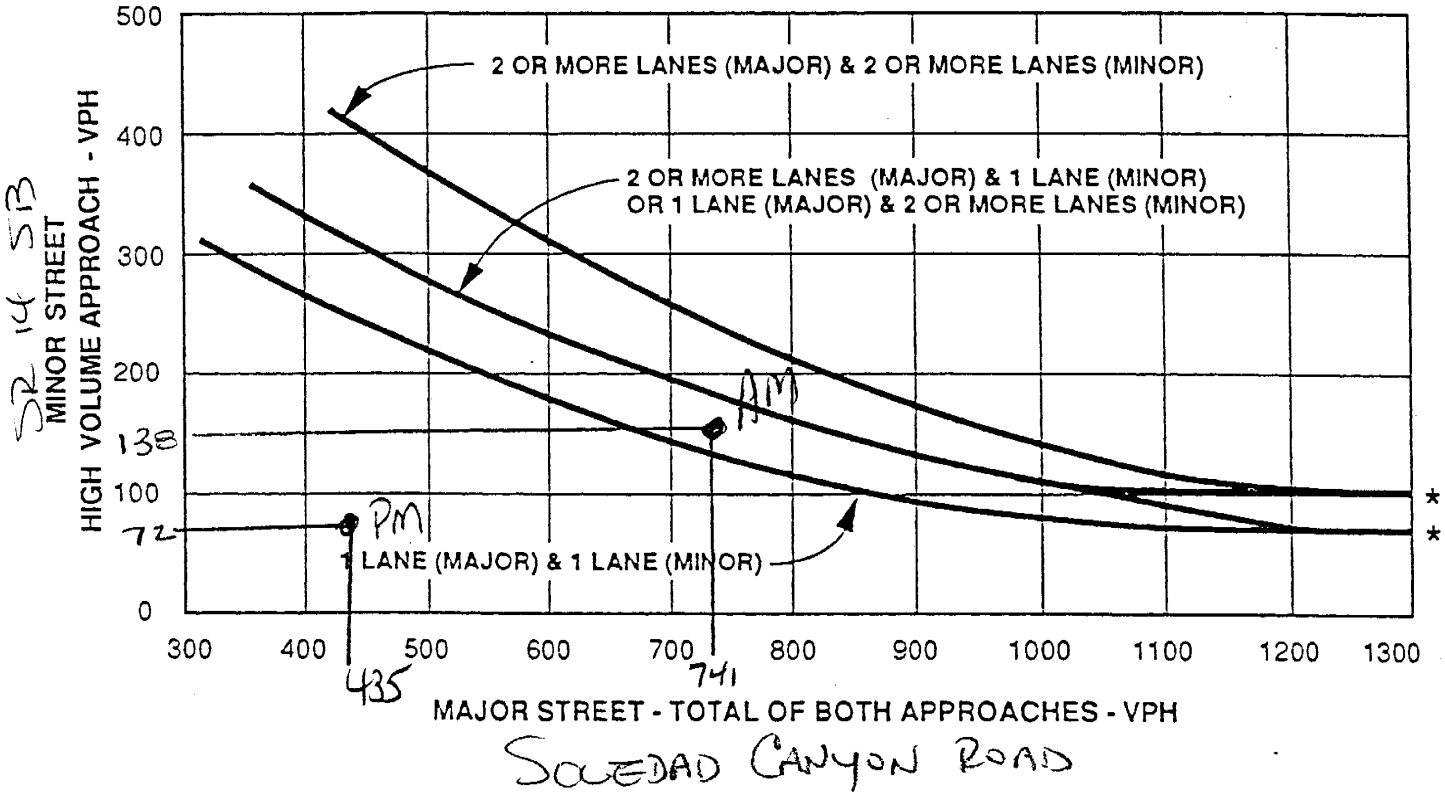
NOTES:
ICU calculations account for trucks @ 2.0 PCEs/truck.

04/30/98

SIGNAL WARRANT WORKSHEETS

Figure 9-9
PEAK HOUR VOLUME WARRANT
(Rural Areas)

1999 + TMC PHASE I



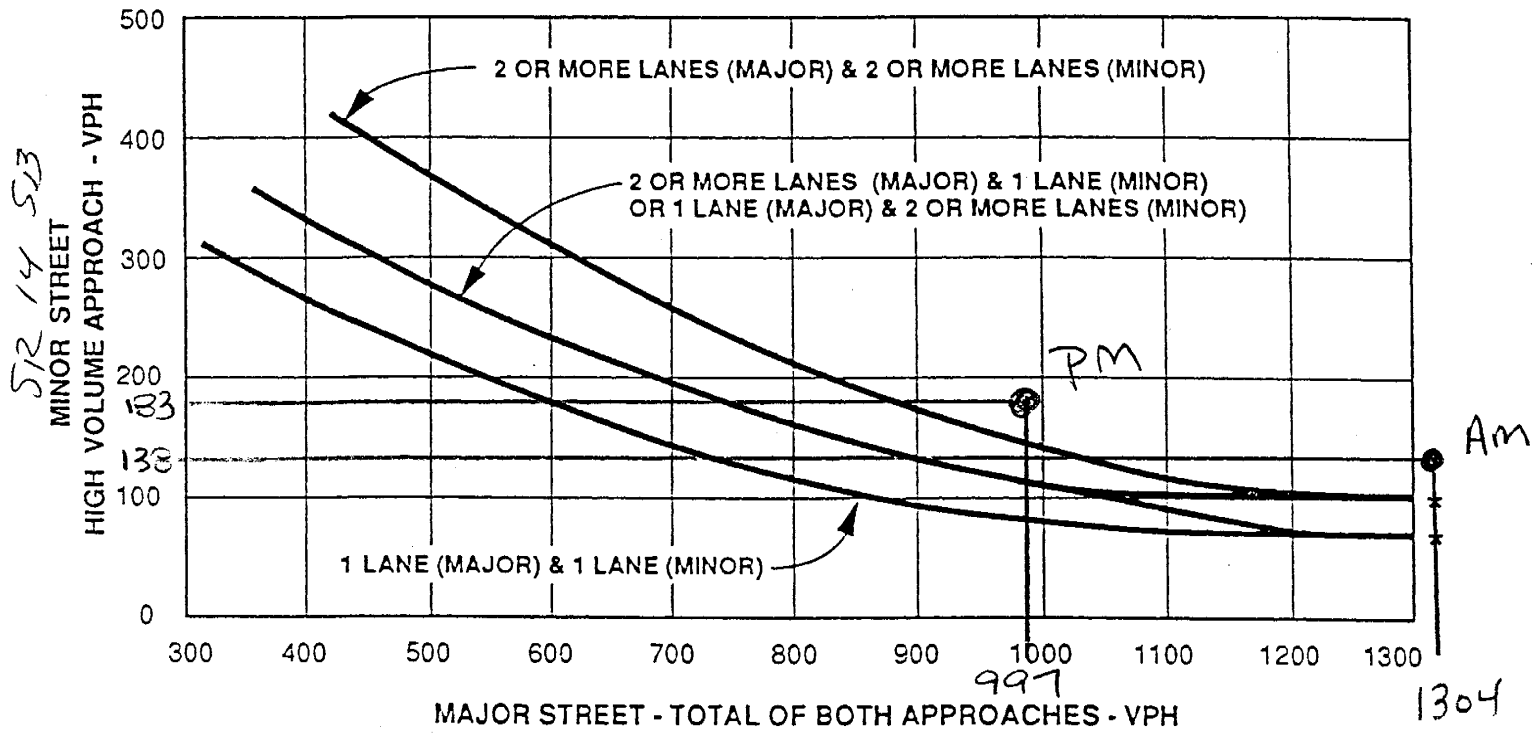
* NOTE:

100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

NO

Figure 9-9
PEAK HOUR VOLUME WARRANT
(Rural Areas)

1999 + TMC PHASE I + RELATED Projects



SOLEDAD CANYON ROAD

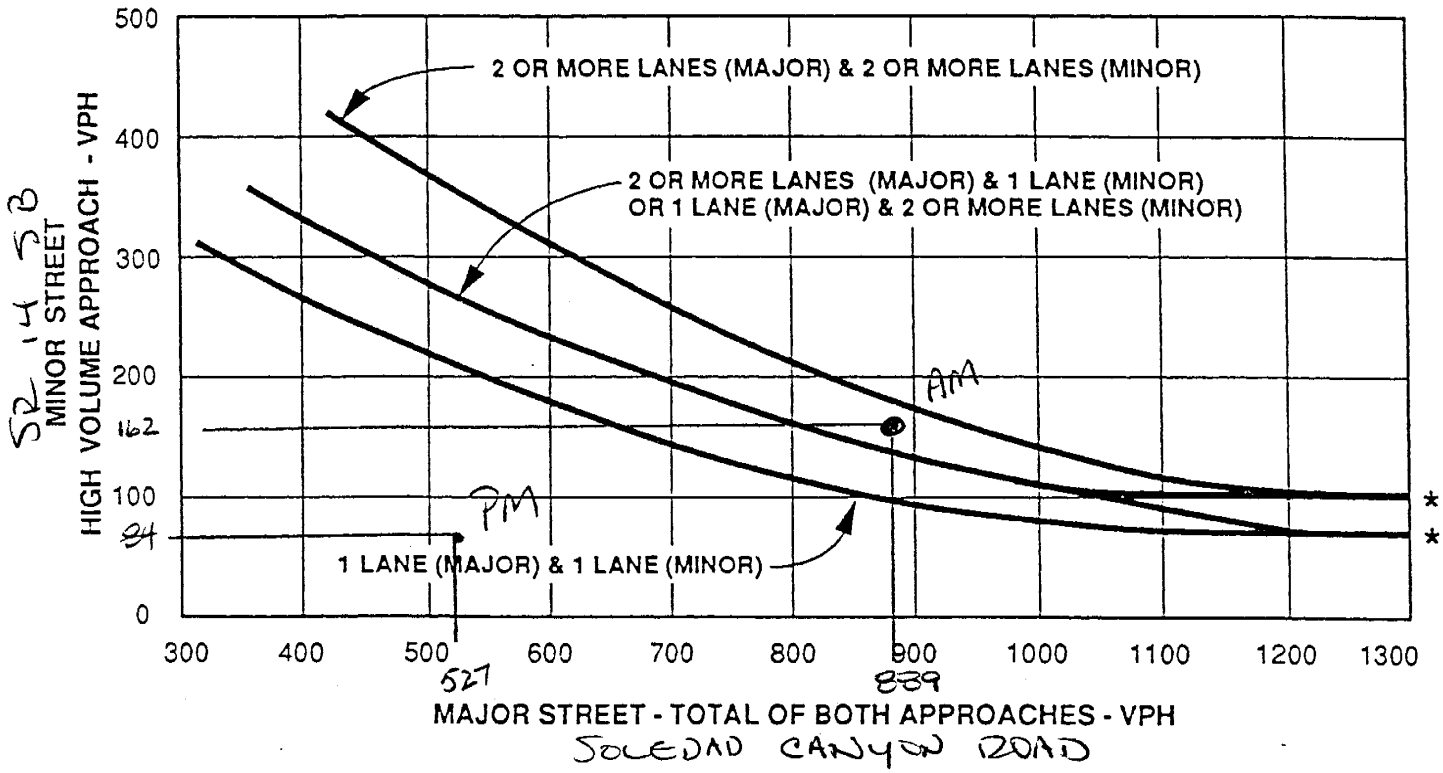
* NOTE:

100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

YES

Figure 9-9
PEAK HOUR VOLUME WARRANT
(Rural Areas)

2009 + TMC PHASE II



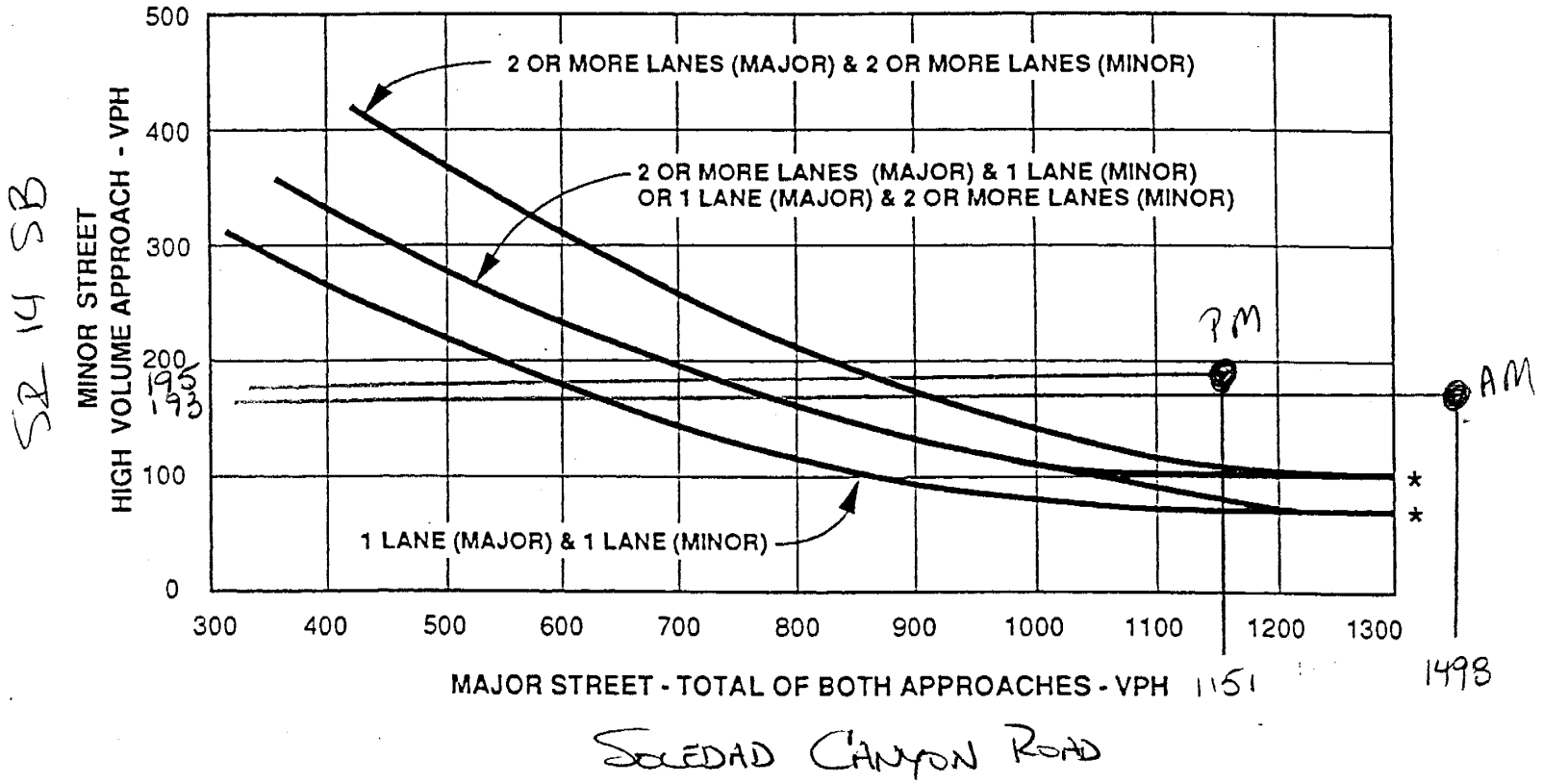
* NOTE:

100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

AM → NO
PM → NO

Figure 9-9
PEAK HOUR VOLUME WARRANT
(Rural Areas)

2009 + TMC PHASE II + RELATED PROJECTS



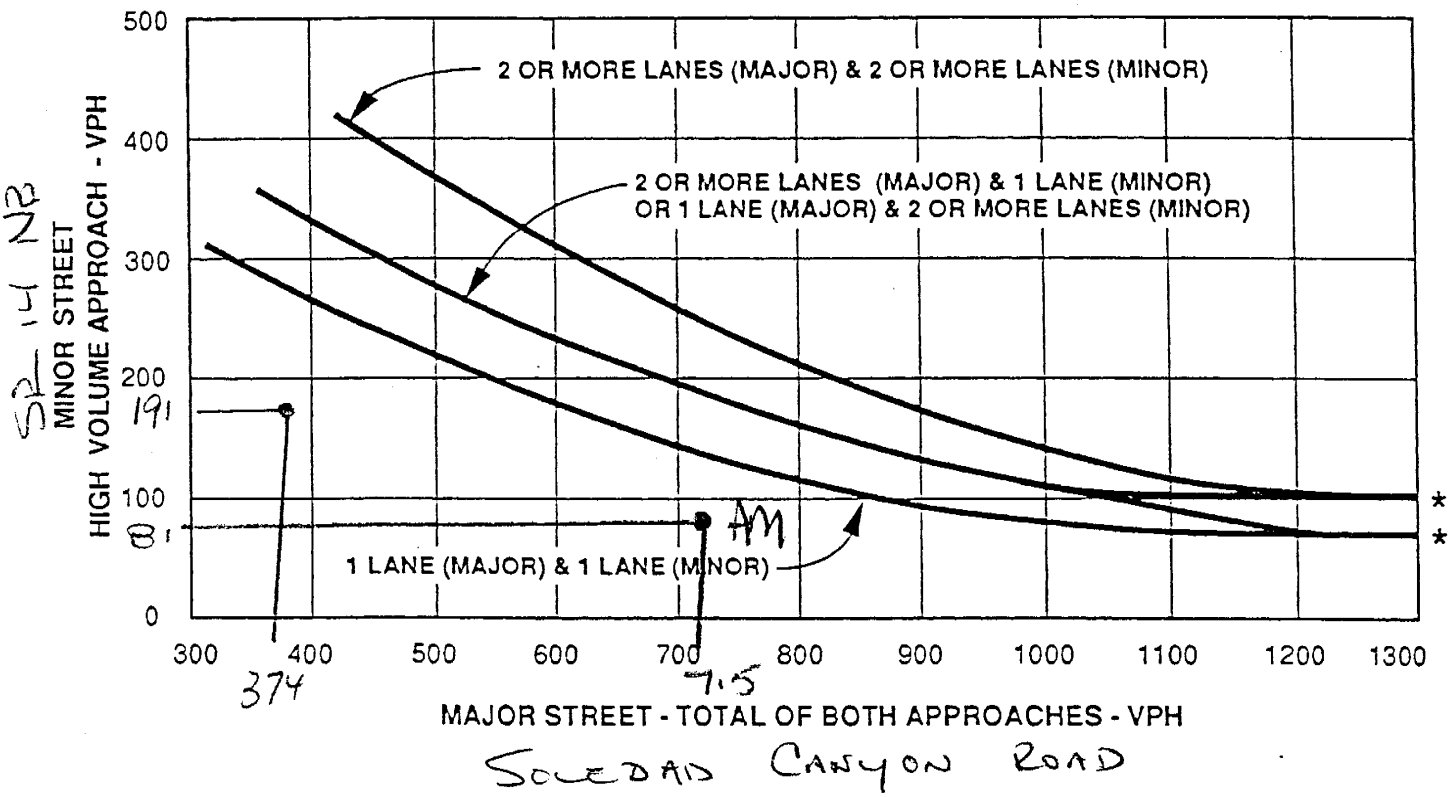
* NOTE:

100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

YES

Figure 9-9
PEAK HOUR VOLUME WARRANT
(Rural Areas)

1999 + TINC I



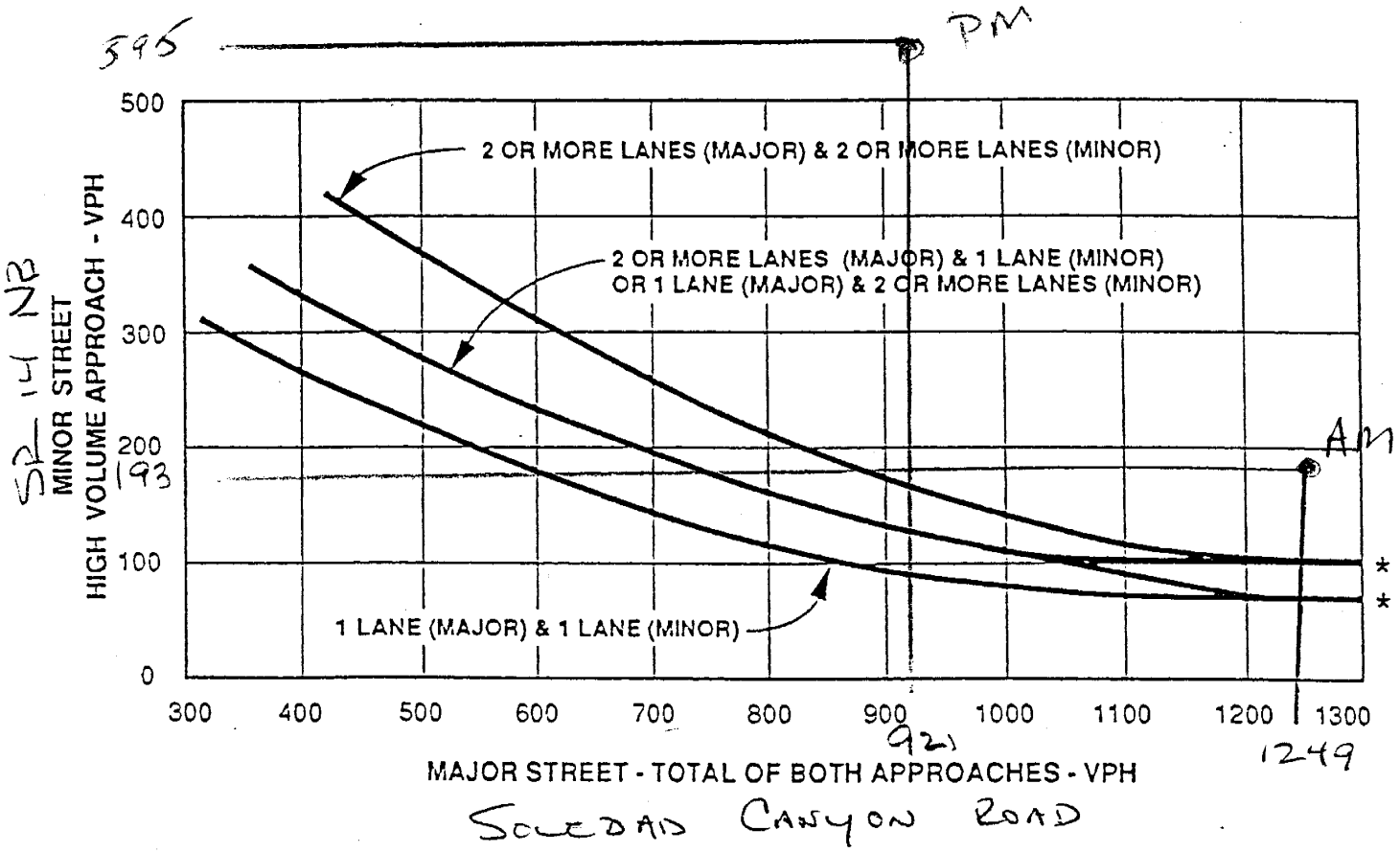
* NOTE:

100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

NO

Figure 9-9
PEAK HOUR VOLUME WARRANT
(Rural Areas)

1999 + TMC I + RELATED PROJECTS



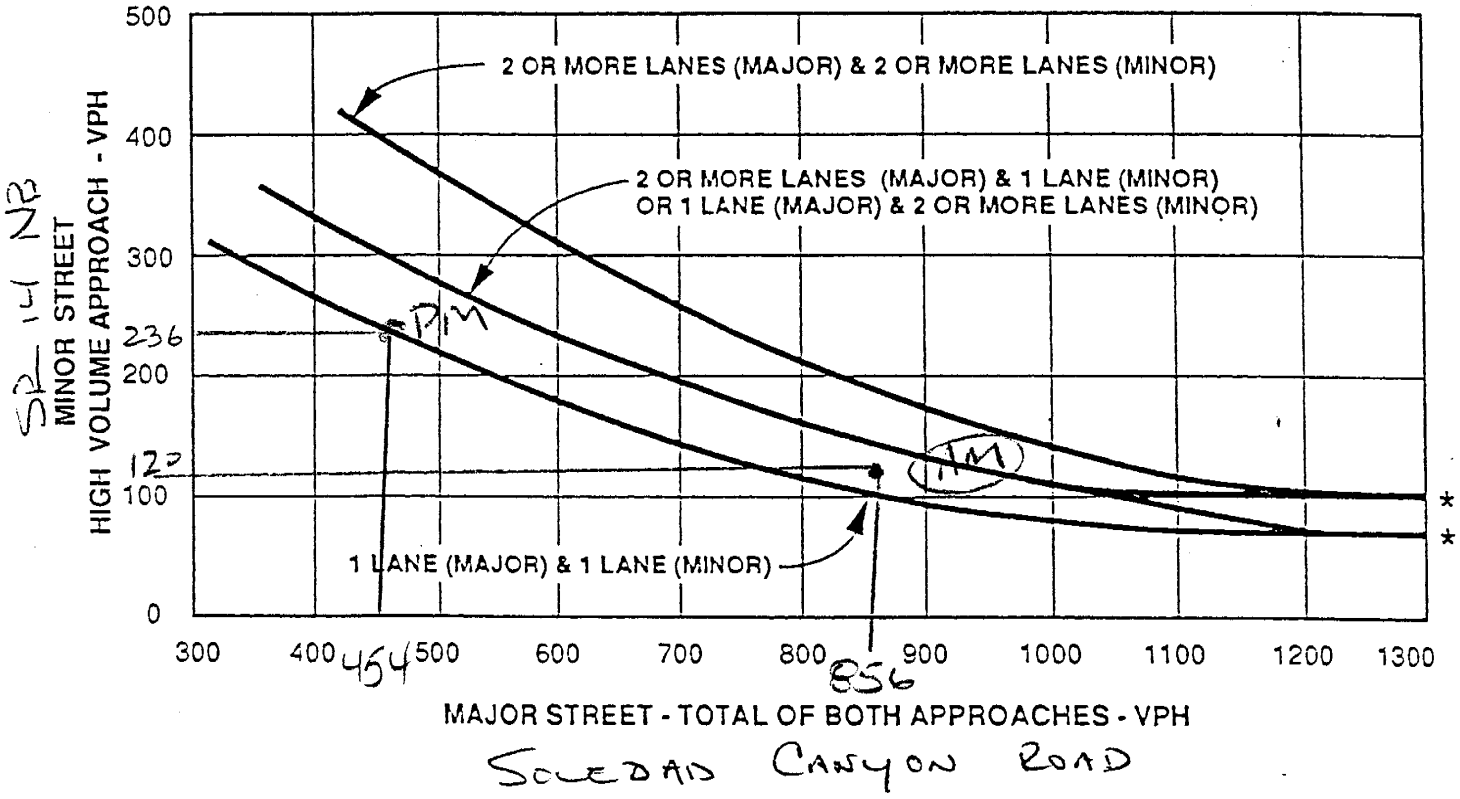
* NOTE:

100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR ~~A MINOR STREET~~ APPROACHING WITH ONE LANE.

YES

Figure 9-9
PEAK HOUR VOLUME WARRANT
(Rural Areas)

2009 + TMC II



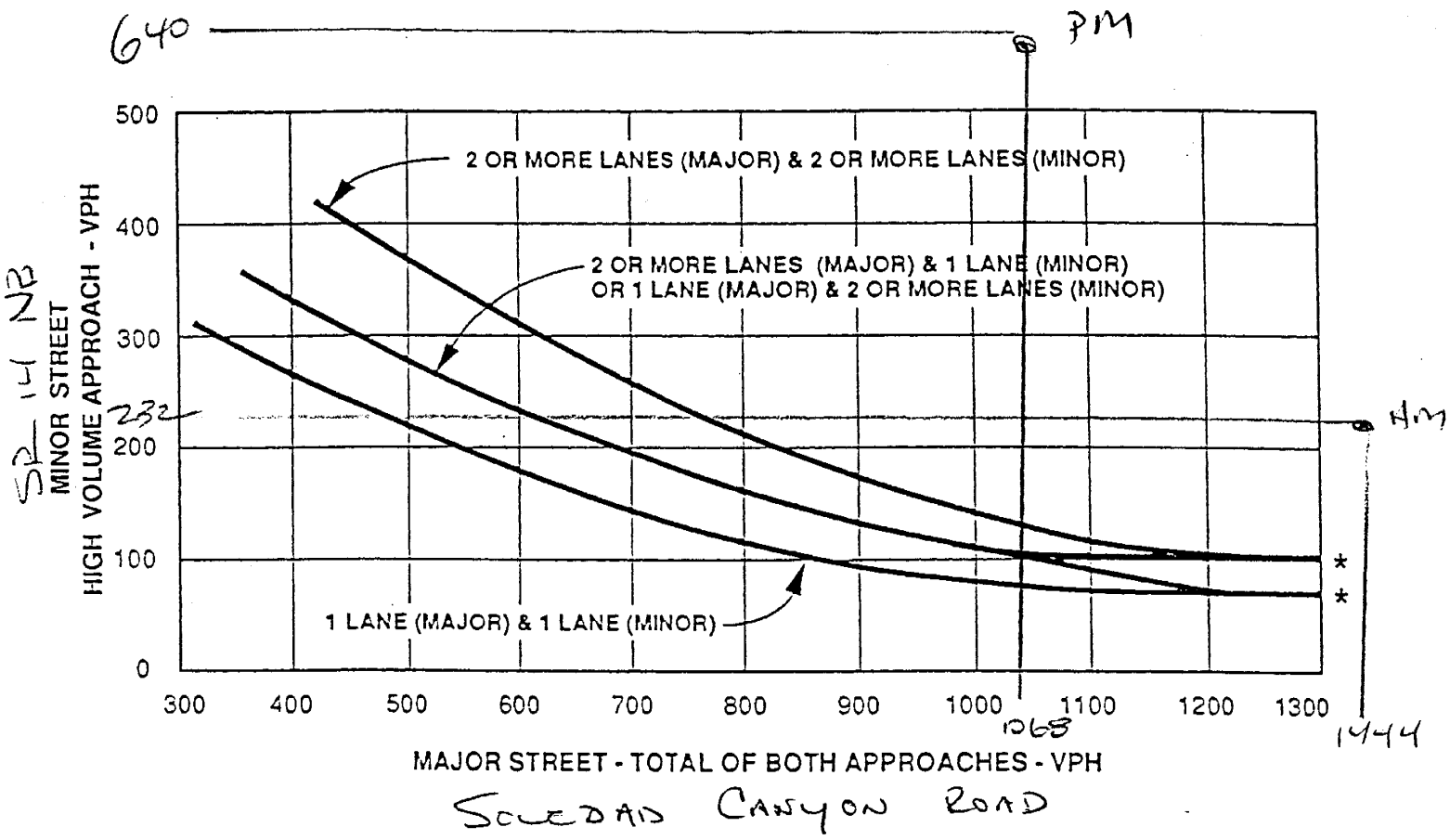
* NOTE:

100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

NO

Figure 9-9
PEAK HOUR VOLUME WARRANT
(Rural Areas)

2009 + TMC II + RELATED PROJECTS



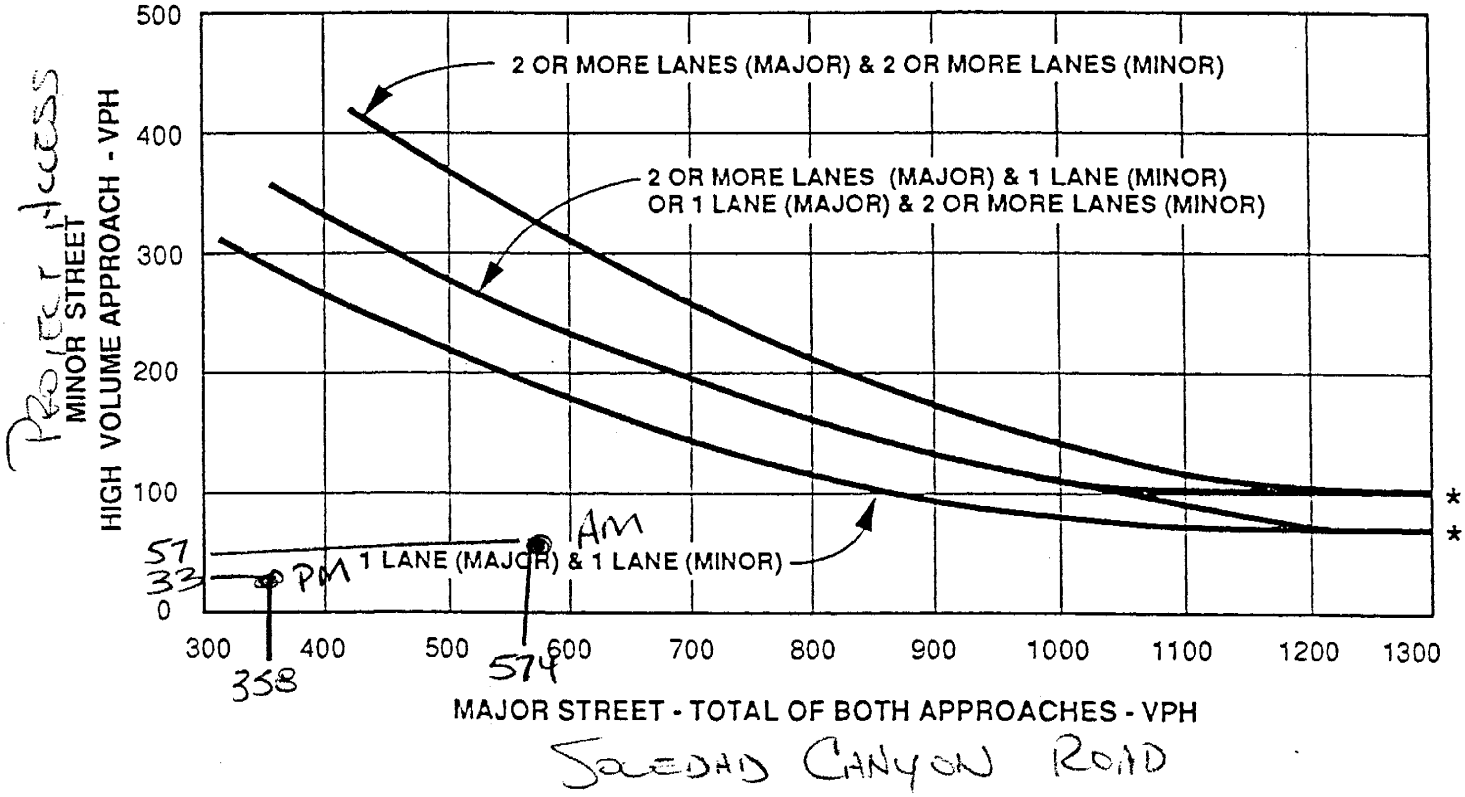
* NOTE:

100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

YES

Figure 9-9
PEAK HOUR VOLUME WARRANT
(Rural Areas)

2009 + TMC I + RELATED PROJECTS



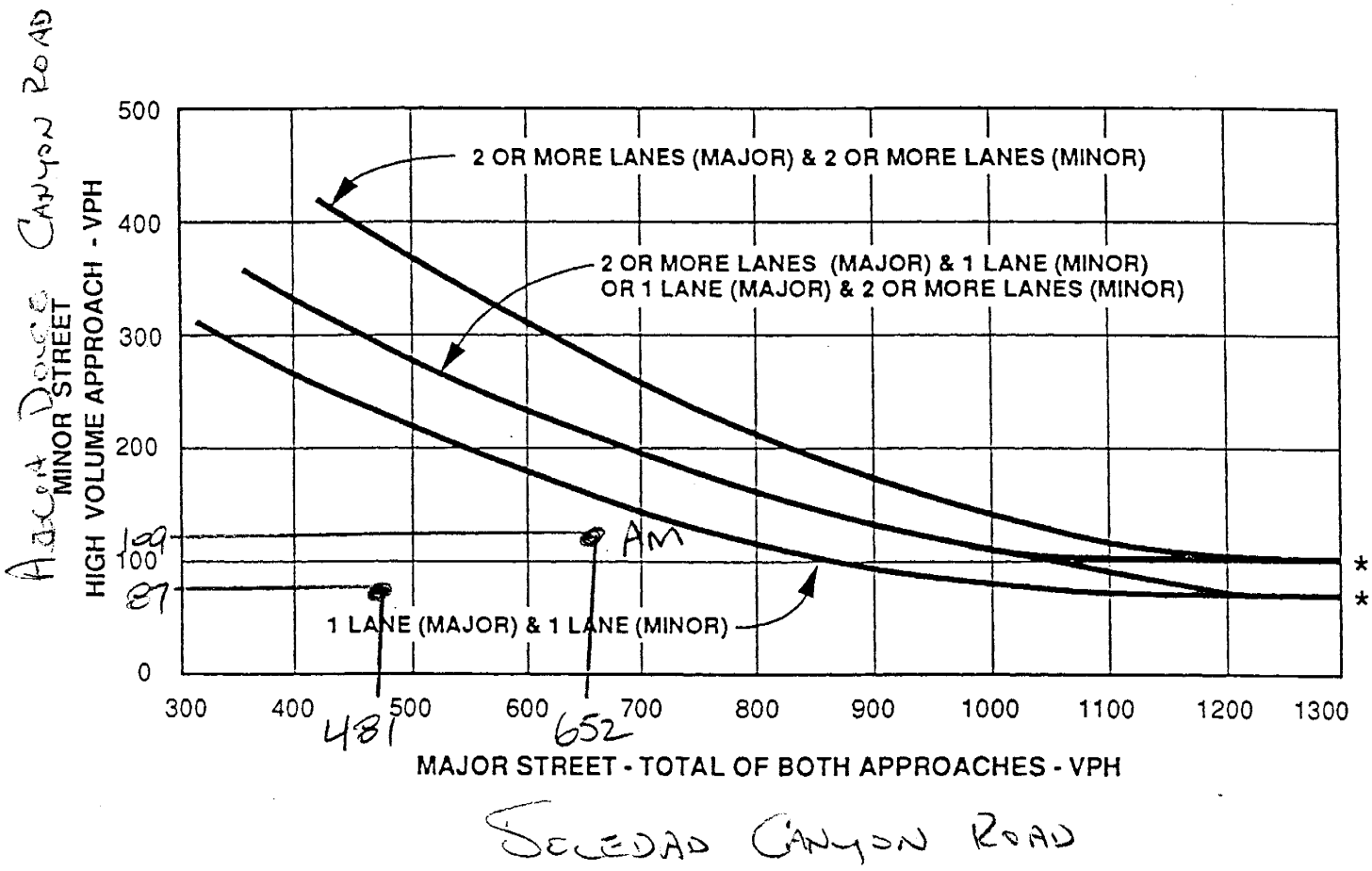
* NOTE:

100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

NO

Figure 9-9
PEAK HOUR VOLUME WARRANT
(Rural Areas)

2009 + TMC II + RELATED PROJECTS



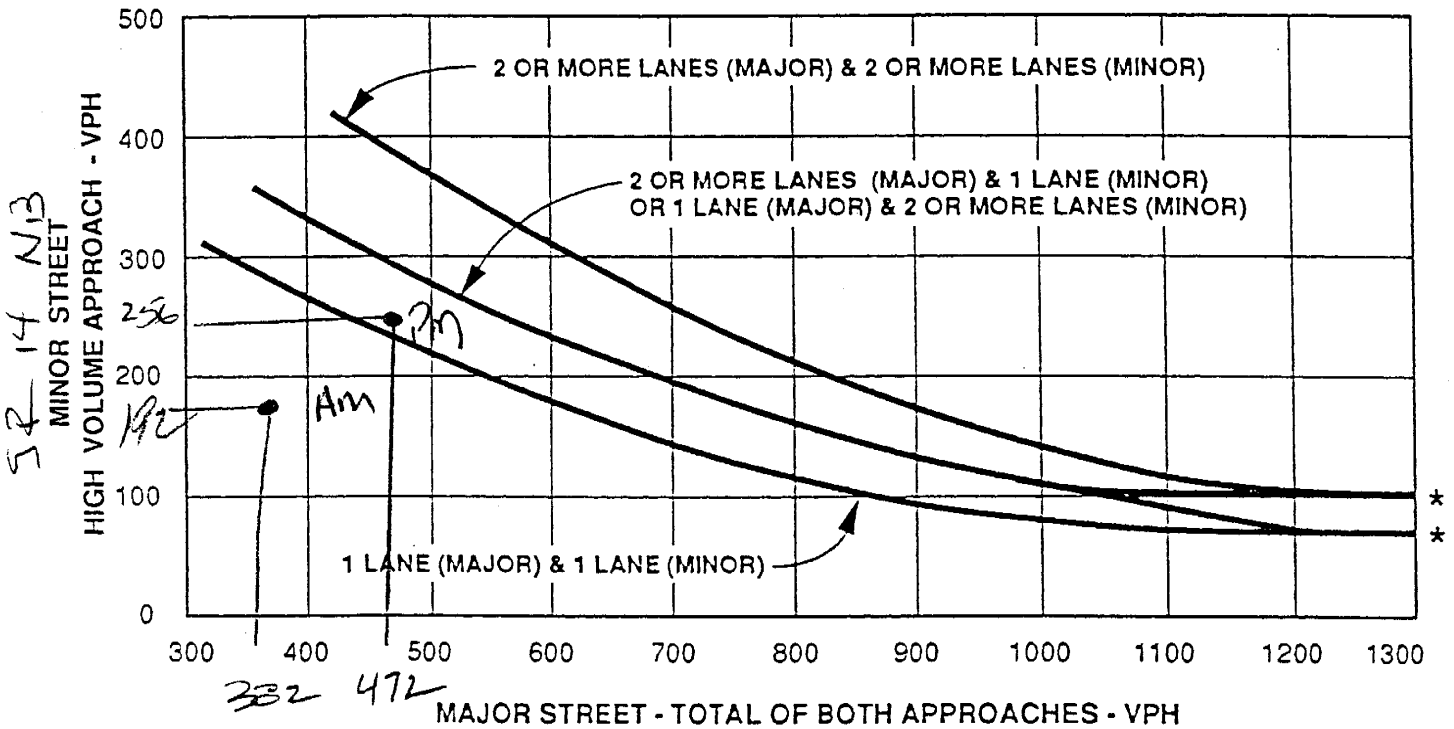
* NOTE:

100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

NO

Figure 9-9
PEAK HOUR VOLUME WARRANT
(Rural Areas)

2009 + TMC II + RELATED PROJECTS



AGUA DULCE CYN RD

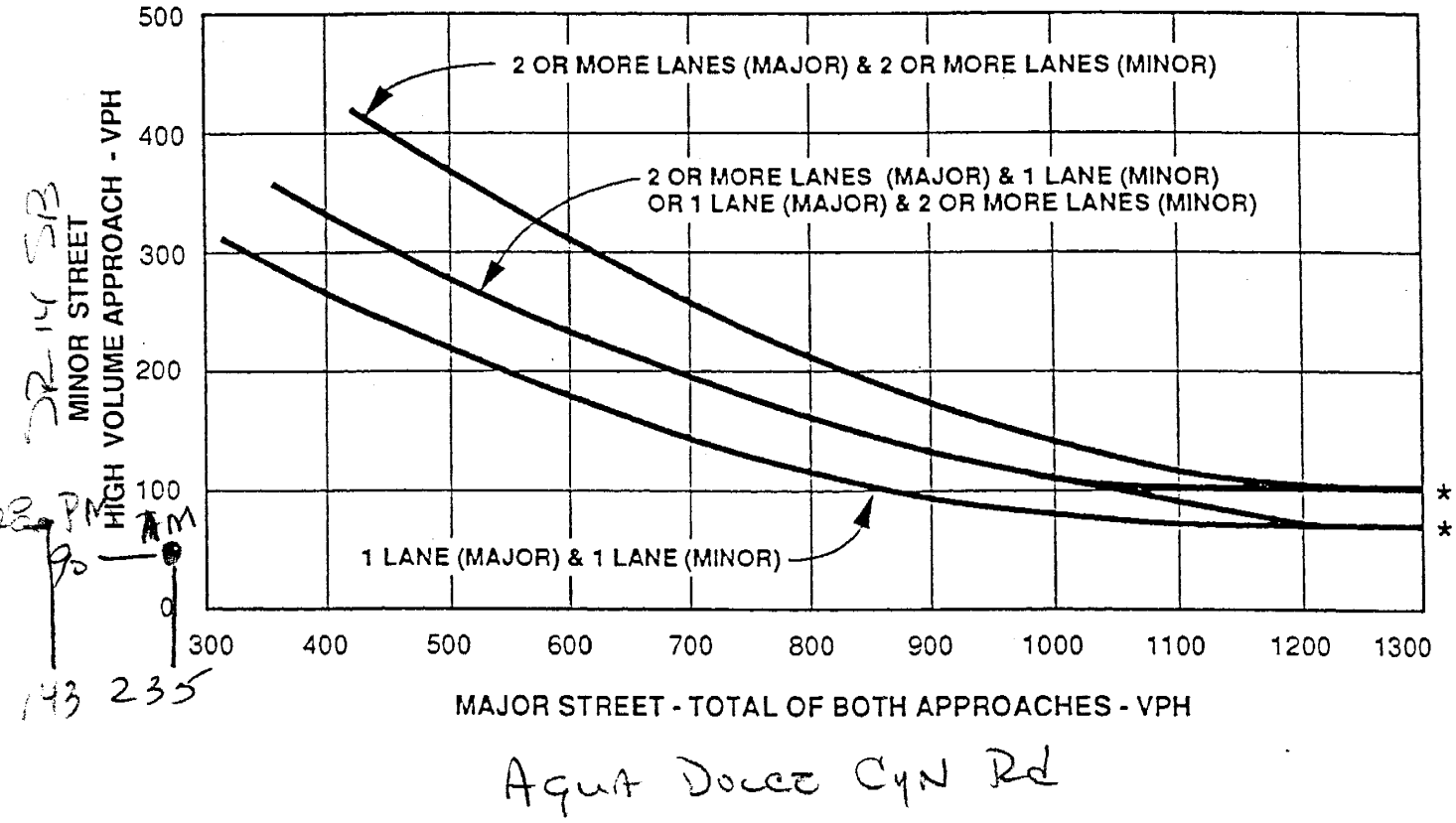
* NOTE:

100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

NO

Figure 9-9
PEAK HOUR VOLUME WARRANT
(Rural Areas)

2009 + TMC II + RELATED PROJECTS



AGUA DOLCE CYN RD

* NOTE:

100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

NO

SOLEDAD CANYON ROAD TRAFFIC INDEX INFORMATION

ASSOCIATED TRANSPORTATION ENGINEERS
100 N. Hope Avenue, Suite 4, Santa Barbara, CA 93110 • FAX (805) 682-8509 • (805) 687-4418

Maynard Keith Franklin, P.E.
Robert L. Faris, P.E.
Richard L. Pool, P.E.
Scott A. Schell, AICP

February 19, 1998 97095L06.LTR

Mr. Thomas Ryan, Senior Project Manager
The Chambers Group
17671 Cowan Avenue, Suite 100
Irvine, CA 92614

TRANSIT MIXED CONCRETE COMPANY - TRAFFIC INDEX ON SOLEDAD CANYON ROAD

Pursuant to your request, Associated Transportation Engineers (ATE) has calculated a Traffic Index (TI) for each of two segments of Soledad Canyon Road, Route 14 to Bee Canyon and Bee Canyon to TMC Project Site. The prior information related to the structural section on Soledad Canyon Road was reviewed and the TI information was utilized in making a determination as to the adequacy of the prior analyses.

Based upon the traffic volumes developed in the Traffic and Circulation Study for the project, the traffic index for Soledad Canyon Road was evaluated for two segments. From Station 0+00 to 75+50 (Route 14 Ramps to Bee Canyon) and Station 75+50 to 158+50 (Bee Canyon to Project. The scenario years evaluated were 2000 and 2008. The traffic index for Soledad Canyon Road was calculated using the methods listed in Caltrans Design Manual.

Table 1
Truck Volume Projections
Route 14 to Bee Canyon

	Truck Volume Projection			
Scenario Year	2 Axle	3 Axle	4 Axle	5 or more Axles
2000	606	54	25	1135
2008	761	68	31	1756

Table 2
Truck Volume Projections
Bee Canyon to TMC Project

Scenario Year	Truck Volume Projection			
	2 Axle	3 Axle	4 Axle	5 or more Axles
2000	419	3	19	731
2008	492	3	22	1248

The Traffic Index (TI) for the roadways is as follows:

Route 14 to Bee Canyon	2000	10.5
	2008	10.5
Bee Canyon to TMC Project	2000	10.0
	2008	11.0

Work sheets illustrating the calculations are attached.

The letter from RMA Group, Geotechnical Consultants dated March 7, 1996 to Andreasen Engineering, Inc. was reviewed by ATE staff. The letter referenced data obtained from the Los Angeles County Department of Public Works, Material Laboratory Test Report (Lab No. 35196). The Los Angeles County data included a deflection study and a core report delineating the structural section along Soledad Canyon Road.

The RMA Group evaluated the projected change in the deflection and related structural capacity of the roadway with the 1 ½ inch Asphalt Rubber Hot Mix (ARHM) overlay that was applied subsequent to the deflection and core study by the County. The conclusion reached in the RMA Group analysis was that except for two sections on Soledad Canyon Road, the roadbed was sufficient for TI 11 loading. ATE concurs with the conclusion reached by RMA Group based upon our review of the data and analysis method used by RMA Group.

The TI forecast is based upon all of the projects producing the maximum number of trucks on a regular basis. The 2000 TI is projected at 10.5 and the existing structural section is sufficient for that loading. If the truck volume is as forecasted, the existing structural section will be sufficient until 2008. The truck volumes are forecasted to increase when Phase 2 production level begins in 2008. The calculations indicate that at that time the overlay would be needed. Since the latest overlay was a ARHM, subsequent overlays should be the same type of material or separation between the layers of asphalt may occur.

In summary, ATE concurs with the analysis performed by RMA Group as stated in their letter of March 7, 1996 to Andreasen Engineering, Inc.. The TI's forecasted for the two phases of the TMC project are TI 10.5 for Phase 1, year 2000 and TI 11.0 for Phase 2, year 2008. The existing structural section is sufficient for Phase 1, through at least year 2008 or the start of Phase 2. For Phase 2, a 2 ½ inch overlay will likely be needed between station 5+00 and 15+00, and 25+00 and 33+00 if the projected truck volumes are attained during the prior period. Since the analysis is based upon projected volumes and vehicle mix, continuing review of the roadway surface and truck volumes would be prudent. The need for and thickness of the overlay can be better determined at or immediately prior to the start of Phase 2.

Associated Transportation Engineers

By: Richard L. Pool, P.E.
President

REGISTERED PROFESSIONAL ENGINEER
RICHARD L. POOL
No. 18,030
Expires 6/30/97
CIVIL
STATE OF CALIFORNIA

RLP/wp

Attachment: RMA Group letter dated March 7, 1996 w/attachments.
Los Angeles County Department of Public Works Material Laboratory Test Report, Lab No. 35196.

RMA Group
GEOTECHNICAL CONSULTANTS
10851 EDISON CT., RANCHO CUCAMONGA, CA 91730 : 909-989-1751 : FAX 909-989-4287

March 7, 1996

Andreasen Engineering, Inc.
580 North Park Avenue
Pomona, CA 91768

Attention: Gary Andreasen

Gentlemen:

As requested we have reviewed the Los Angeles County Department of Public Works, Materials Laboratory Test Report (Lab No. 35196) for Soledad Canyon Road between Lang Station Road and Aqua Dulce Canyon Road, dated 9/2/93. The purpose of this review was to evaluate the Traffic Index (TI) for the subject road based on a 1 ½ inch Asphalt Rubber Hot Mix overlay that was completed subsequent to the referenced report.

It is our understanding the roadway is to be widened and the TI increased to 11. We have calculated allowable deflections for a TI of 11 that are associated with the thickness of the structural section and defelectometer deflections reported in the referenced report. The results of our computations are summarized in Table 1.

In general, our computations indicate that the existing structural sections beyond station 33+00 are adequate for a TI of 11. A 2 ½ inch overlay would be required to provide a structural section capable of supporting a TI of 11 between station 5+00 and 15+00, and 25+00 and 33+00.

Please note that this report is based on data developed by others, and comprises a statement of professional opinion based on that data. The report does not constitute a guarantee or warranty of any type, and none should be inferred.

Respectfully,

RMA Group

E. Duane Lyon, PE
President
GE #547

REGISTERED PROFESSIONAL ENGINEER
E. DUANE LYON
No. 547
Exp. 12/31/97
GEOTECHNICAL
STATE OF CALIFORNIA

RMA GROUP
GEOTECHNICAL CONSULTANTS
10851 EDISON CT., RANCHO CUCAMONGA, CA 91730 : 909-989-1751 . FAX 909-989-4287

Project: Soledad Canyon Road
Client: Andreasen Engineering, Inc.

06-Mar-96
RMA Job: 96-065

Station	Original Pavement Section AC (in)	Original Pavement Section Base (in)	Overlay AC (in)	80th Percentile Defl (mils)	Assumed TI	AC Gf	Increase GE (ft)	Deflection Reduction (%) *	Adjusted Defl (mils)	Allowable Defl for 11 TI (mils) **
0+00										
	6.0	0.0	1.5	17	11	1.71	0.214	27	12	9
20+00										
	4.5	3.5	1.5	23	11	1.71	0.214	27	17	11
30+00										
	3.5	7.5	1.5	12	11	1.71	0.214	27	9	12
60+00										
	7.5	0.0	1.5	9	11	1.71	0.214	27	7	7
80+00										
	7.0	0.0	1.5	8	11	1.71	0.214	27	6	7
100+00										
	6.0	0.0	1.5	8	11	1.71	0.214	27	6	9
120+00										
			1.5	10	11	1.71	0.214	27	7	7

Notes:
* From Cal Trans Test Method 356, Figure 18.
** From Cal Trans Test Method 356, Figure 17.
Based on AC thickness for the orginal section + the AC overlay.

TABLE 1

FAX COVER PAGE

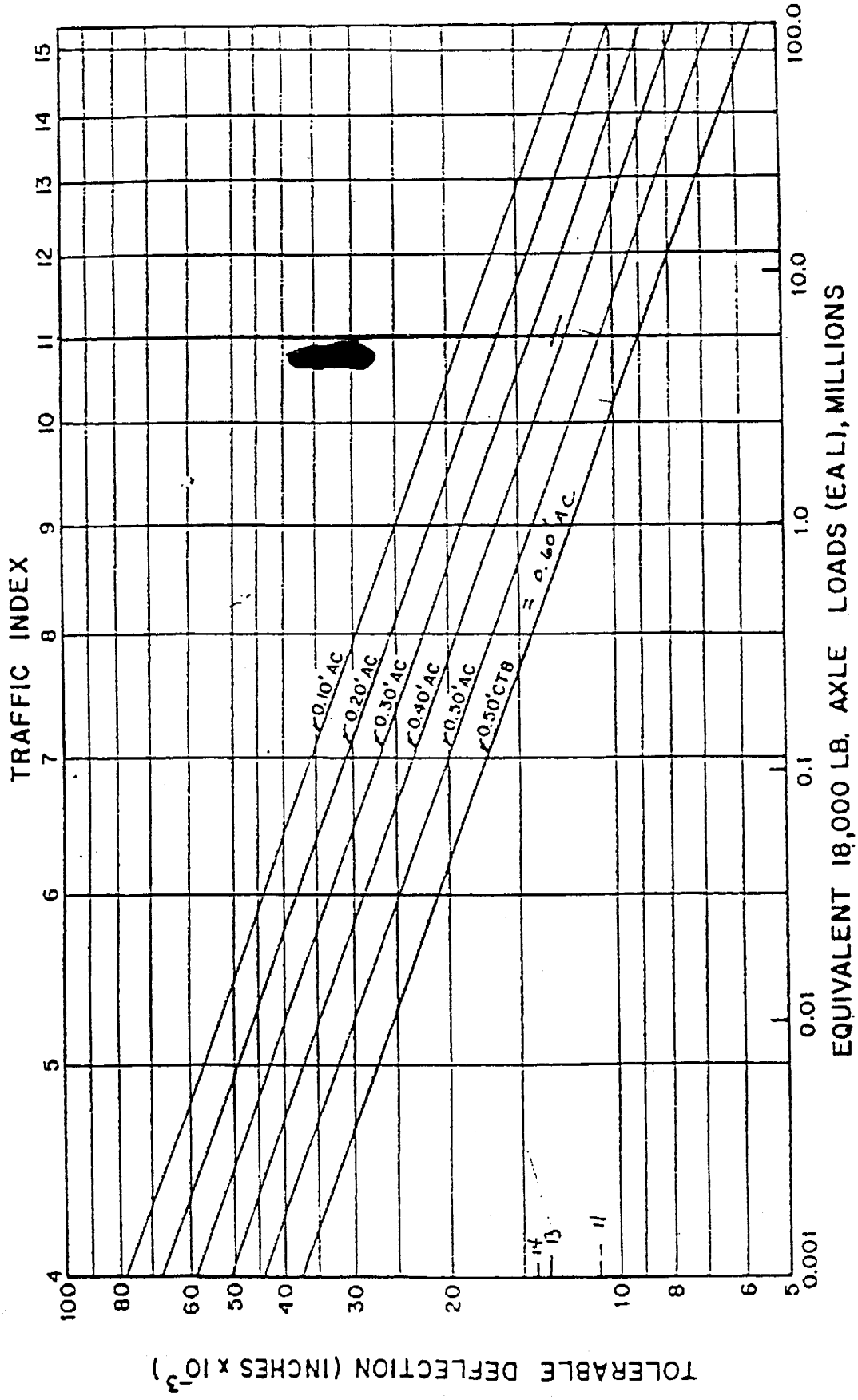
To: Gary Andreasen [redacted]	For Information Call: 909-989-1751
From : -	At: RMA Group
Pages: 4	Fax Number : 909-989-4287

Gary,

Please call me when you receive this fax to discuss my findings.

Duane Lyon

Statistical Analysis — took the 80% = or less on 50 test



TOLERABLE DEFLECTION CHART

FIGURE 17

Note 1 in. = 25.4 mm
1 ft = 0.305 m
1 lb = 0.454 kg

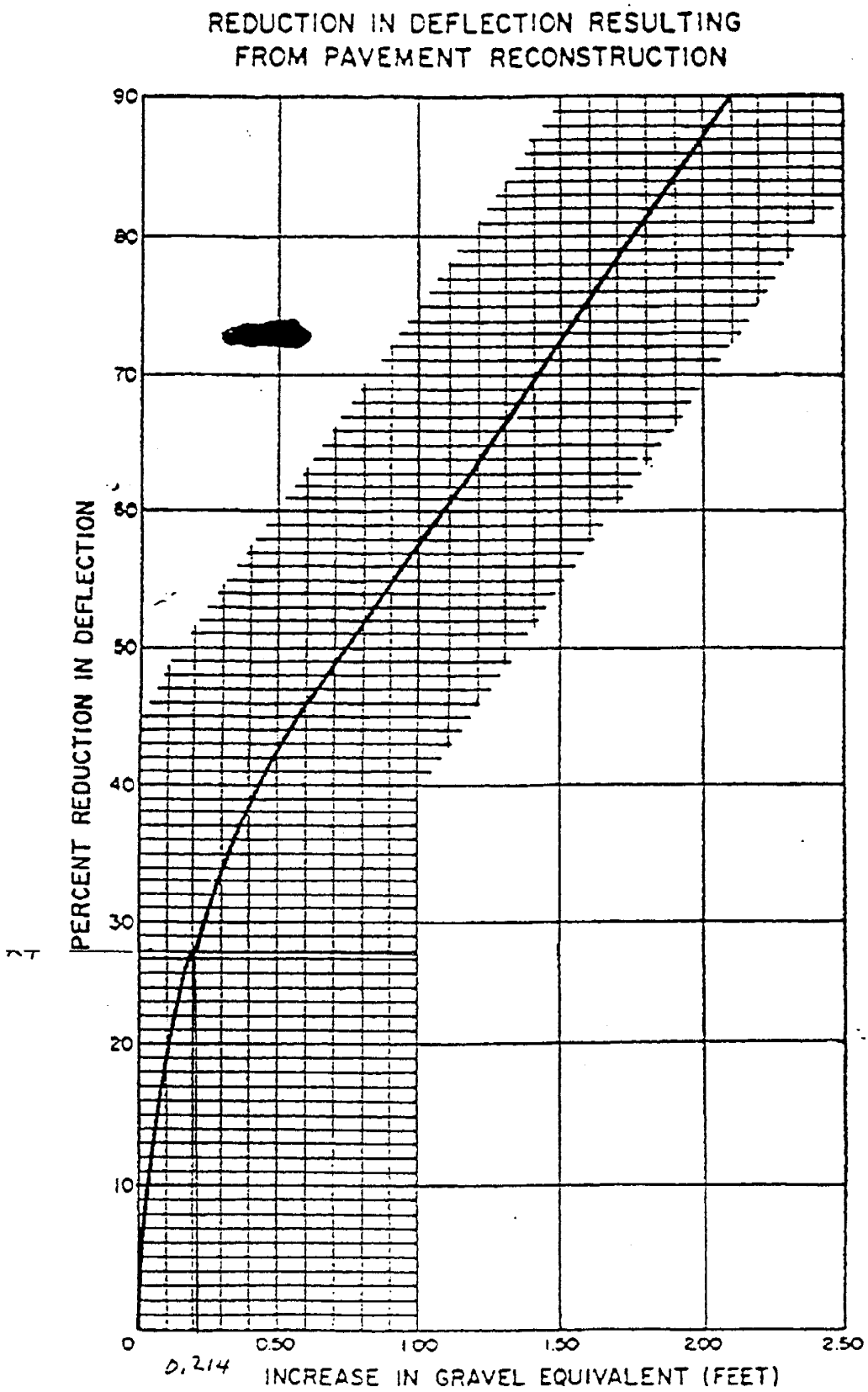

REDUCTION IN DEFLECTION RESULTING
FROM PAVEMENT RECONSTRUCTION
PERCENT REDUCTION IN DEFLECTION
90
80
70
60
50
40
30
20
10
0
0.50
1.00
1.50
2.00
2.50
0.214
INCREASE IN GRAVEL EQUIVALENT (FEET)

FIGURE 18

RMA Group

Project: Soledad Canyon Road
Client: Andreasen Engineering, Inc.

06-Mar-96
RMA Job: 96-065

Station	Pavement Section AC (in)	Pavement Section Base (in)	Overlay AC (in)	80th Percentile Defl (mils)	Assumed TI	AC GI	Increase GE (ft)	Deflection Reduction (%)	Adjusted Defl (mils)	Allowable Defl for 11 TI (mils)
0+00										
	6.0	0.0	1.5	17	11	1.71	0.214	27	12	11
20+00										
	4.5	3.5	1.5	23	11	1.71	0.214	27	17	13
30+00										
	3.5	7.5	1.5	12	11	1.71	0.214	27	9	14
60+00										
	7.5	0.0	1.5	9	11	1.71	0.214	27	7	9
80+00										
	7.0	0.0	1.5	8	11	1.71	0.214	27	6	9
100+00										
	6.0	0.0	1.5	8	11	1.71	0.214	27	6	11
120+00										
			1.5	10	11	1.71	0.214	27	7	9

LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS

MATERIALS LABORATORY

TEST REPORT

Location Soledad Canyon Road (T.I. = 8.5, 9.5) Lab No. 35196

Lang Station Road/Agua Dulce Canyon Road Date Reported 9/2/93

Job/Tr. No. _____ Charge No. X2506941 Road Dist. 553

Requested by Lohanzen Hoe - Design Division

Material Tested Existing Pavement

RECOMMENDED IMPROVEMENTS

The existing pavement may be utilized with the following improvement:

Alternative 1

Overlay the entire existing pavement with a 1-1/2" Asphalt Rubber Hot Mix (ARHM).

Alternative 2

Overlay the entire width of roadway with a 3/4" AC (P6) leveling course, plus pavement fabric, plus a 1-3/4" AC (P4) surface course.

MD:sh
ME-1/8:LB35196

Note: Alternate 1 was done ≈ 1995.

Materials Engineering Division
Materials Laboratory

SUB-GRADE SOIL DATA AND EXISTING STRUCTURAL SECTION

Job/Tr. No. SOLEDAD CYN RD Charge _____ Date 8-26-93 Lab No. 35196
Job Location LANG STATION RD/ BEAT DULCE CYN RD
Barrel Size _____ Barrel No. _____ Hours Used _____ Total Inches _____
Sampled By _____ Type of Sample CORES Date Tested 8-26-93

SAMPLE	LOCATION	R-Val. CBR	EXP.	ELAST.	% MOISTURE FIELD	% MOISTURE OPT.	%-200
1	1000' E/o LANG STATION on SOLEDAD CYN eastbnd. 5' From ℄ south Soil Type Depth Plasticity Moisture Core: AC = 6" on Native	--					
2	2000' E/o LANG STATION on Soledad CYN west bnd 7' from ℄ north Soil Type Depth Plasticity Moisture Core: AC = 6" on native soil						
3	3000' E/o Lang station on Soledad CYN east bnd 4' south from ℄ Soil Type Depth Plasticity Moisture Core: AC = 4½" on 5½ CAB on native soil						
4	4000' E/o Lang station on soledad CYN west bnd 4' north of ℄ Soil Type Depth Plasticity Moisture Core: AC = 3½" on 7½ AC on native						
5	5000' E/o lang station on soledad cyn east bnd 4' south of ℄ Soil Type Depth Plasticity Moisture Core: AC = 3½" on 7½" AC on native soil	-					
6	6000' E/o Lang station on Soledad CYN west bnd 6' north of ℄ Soil Type Depth Plasticity Moisture Core: AC = 3½" on 7½ = AC on native soil						
7	7000' E/o Lang Station on Soledad CYN east bnd 7' south of ℄ Soil Type Depth Plasticity Moisture Core: AC = 7½" on native soil						
8	8000' E/o LANG STATION on Soledad CYN west bnd 7' north of ℄ Soil Type Depth Plasticity Moisture Core: AC = 7½" on native soil						
9	9000' E/o LANG STATION on Soledad CYN east bnd 6' south of ℄ Soil Type Depth Plasticity Moisture Core: AC = 7" on native						
10	10000' E/o Lang Station on Soledad CYN west bnd 8' north of ℄ Soil Type Depth Plasticity Moisture Core: AC = 7" on native						
11	11000' E/o Lang station on Soledad CYN east bnd 5' South of ℄ Soil Type Depth Plasticity Moisture Core: AC = 6" on 1" mac on Native soil						
12	12000' E/o Lang Station on Soledad west bnd 6' north of ℄ Soil Type Depth Plasticity Moisture Core: AC = 5½" on 3½" AC on Native soil						

LEGEND: A.C. - ASPHALT CONCRETE MAC - MACADAM P.C.C. - PORTLAND CEMENT CONCRETE SD. - S/
CR. AGG. - CRUSHED AGGREGATE BASE D.G. - DECOMPOSED GRANITE CR. MISC. - CRUSHED MISC. MATER

Materials Engineering Division
Materials Laboratory

SUB-GRADE SOIL DATA AND EXISTING STRUCTURAL SECTION

Job/Tr. No. SOLEDAD CYN Charge _____ Date _____ Lab No. 35 [illegible]
Job Location LANG STATION RD AGUA DULCE CYN RD
Barrel Size _____ Barrel No. _____ Hours Used _____ Total Inches _____
Sampled By _____ Type of Samples CORES Date Tested 8-24-93

SAMPLE	LOCATION	R-Val. CBR	EXP.	ELAST.	% MOISTURE FIELD	% MOISTURE OPT.	%-200
13	13000' E/o LANG STATION on SOLEDAD CYN east bnd 7' south of ℄						
	Soil Type Depth Plasticity Moisture						
	Core: 1 AC = 6" on mac on native soil						
14	14000' E/o LANG STATION on Soledad west bnd 6' north of ℄						
	Soil Type Depth Plasticity Moisture						
	Core: 1 AC = 6½" on native						
15	15000' E/o LANG STATION on Soledad cyn east 6' south of ℄						
	Soil Type Depth Plasticity Moisture						
	Core: 1 AC = 7" on native						
	Soil Type Depth Plasticity Moisture						
	Core:						
	Soil Type Depth Plasticity Moisture						
	Core:						
	Soil Type Depth Plasticity Moisture						
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	Soil Type Depth Plasticity Moisture						
	Core:						
	Soil Type Depth Plasticity Moisture						
	Core:						

LEGEND: A.C. - ASPHALT CONCRETE MAC. - MACADAM P.C.C. - PORTLAND CEMENT CONCRETE SD. - SAND
CR. AGG. - CRUSHED AGGREGATE BASE D.G. - DECOMPOSED GRANITE CR. MISC. - CRUSHED MISC. MATERIAL

EQUIVALENT DEFLECTOMETER DEFLECTIONS
ROAD RATER DATA
(ADJUSTED TO 600 LBS. @ 25 CPS)

L.A. COUNTY D.P.W.
MATERIALS LABORATORY

TEST DATE: 08/25
OPERATOR: TM/LB
LAB. NO.: 35196
FILE NAME: B:SOL

PROJECT: SOLEDAD CYN RD
LIMITS: LANG ST RD/AGUA D.C.RD

DIRECTION EB				**DIRECTION WB**			
0	0	11	80% DEFL	12	0	0	
0	0	7	MEAN DEFL	8	0	0	
0	0	52	NO. TESTS	50	0	0	
LN3 DEFL MILS	LN2 DEFL MILS	LN1 DEFL MILS	STATION BY LANE	LN1 DEFL MILS	LN2 DEFL MILS	LN3 DEFL MILS	CROSS STREET NAME
			WEST				
			0+00				= C/L LANG STATION R
			1+00				
			2+00	8			
		5	3+00				
			4+00				
			5+00	18			
		10	6+00				
			7+00				
			8+00				
		9	9+00				
			10+00				
			11+00	15			
	8.5	7	12+00		13.2		
			13+00				
			14+00	20			
		15	15+00				
			16+00				
			17+00	5			
		5	18+00				
			19+00				
			20+00	8			
		7	21+00				
			22+00				
			23+00	5			
		8	24+00				
			25+00				
			26+00	19			
		5	27+00				
			28+00				
			29+00	17			
		17	30+00				
			31+00				
			32+00	17			
		8	33+00				
			34+00				
			35+00	8			=C/L SPRING CYN RD
		3	36+00				
			37+00				
			38+00	7			
		4	39+00				
			40+00				
			41+00				

8	42+00		
	43+00		
	44+00	19	
7	45+00		
	46+00		
	47+00	12	
12	48+00		
	49+00		
	50+00	7	
7	51+00		
	52+00		
	53+00	8	
3	54+00		
	55+00		
	56+00	13	
11	57+00		
	58+00		
	59+00	4	
3	60+00		
	61+00		
	62+00	3	
6	63+00		
	64+00		
	65+00	3	
1	66+00		
	67+00		
	68+00	6	
3	69+00		
	70+00		
	71+00	14	
3	72+00		
	73+00		
	74+00	6	
9	75+00		
	76+00		
	77+00	4	
15	78+00		
	79+00		
	80+00	9	
0	81+00		
	82+00		
	83+00	7	
3	84+00		
	85+00		
	86+00	2	
4	87+00		
	88+00		
	89+00		
5	90+00		
	91+00		
	92+00	6	
5	93+00		
	94+00		
	95+00	7	
5	96+00		
	97+00		
	98+00	5	
6	99+00		=C/L CAPRA RD
	100+00		

	101+00	5	
6	102+00		
	103+00		
	104+00	9	
9	105+00		
	106+00		
	107+00	8	
5	108+00		
	109+00		
	110+00	1	=BEG/OF TUNNEL
	111+00		
	112+00		
	113+00		
	114+00		=END/ OF TUNNEL
	115+00		
	116+00	6	
6	117+00		
	118+00		
	119+00	3	
4	120+00		
	121+00		
	122+00	9	
8	123+00		
	124+00		
	125+00	8	
5	126+00		
	127+00		
	128+00	12	
5	129+00		
	130+00		
	131+00	0	
3	132+00		
	133+00		
	134+00	4	
3	135+00		
	136+00		
	137+00	2	
0	138+00		
	139+00		
	140+00	4	
0	141+00		
	142+00		
	143+00	2	
2	144+00		
	145+00		
	146+00	5	
6	147+00		
	148+00		
	149+00	7	
	150+00		
	151+00		
	152+00	7	
10	153+00		
	154+00		
	155+00	17	
12	156+00		
	157+00		
	158+00	4	
13	159+00		

	160+00	
	161+00	10
19	162+00	
18	163+00	

=C/L OF AGUA DULCE C

AFTER A DEFLECTION INDICATES A DIGOUT
DIGOUTS ARE NOT INCLUDED IN 80% DEFLECTION

PROJECT TOTALS

NUMBER OF TESTS	= 102
MEAN DEFLECTION	= 7.43
STANDARD DEVIATION	= 4.87
80% DEFLECTION	= 12

* CLASSIFICATION OF ROAD SURFACES *

** ROAD DIV 553 (MDB*SDS) **

LOCATION	HP/ FED	LNTH RDY R/W	PAVE WID	STRUC SRF	INT	SECT BSE	CON YR	RESRF YR	SEAL YR	TYP	SHOULDR	WLK (%)	SWEEP SCHEDULE D U DY P TIME	JUR + THOMAS OTHER JUR AND MEDIAN DATA	UPDATE KEY ALIGNM	COORI	C	SQ
SILVERSET RD (S-N)	LOC	396	24	A	3		79				L AC	0		553 TH:440508	463870	27770	7	00
CALMGARDEN RD	RUR	24							92	CPE	R AC	0			END=	27770	7	
38ON CALMGARDEN RD		60DF																
SILVER SPUR LN (W-E)	LOC	430	L 2	C	6		87				L	0		553 TH:437604	463760	22778	3	10
CROWN VALLEY RD	RUR	38	34	A	2	B 4	87				R	0			END=	22945	2	
MARTINGALE DR		80DFR	2	C	6		87											
SILVER SPUR LN (W-E)	LOC	422	L 2	C	6		87				L 1C6	0		553 TH:437604	463760	22945	2	10
MARTINGALE DR	RUR	38	34	A	2	B 4	87				R 1C6	0			END=	22945	2	
422E MARTINGALE DR		80DFR	2	C	6													
SMITH AV (W-E)	LOC	850	24	S	3		74		76	CHP	L	0			100	22875	6	00
130W BARTLETT ST	RUR	24							93	CPE	R	0			ID=	22745	7	
2ND ST		60DF																
SMITH AV (W-E)	LOC	690	24	A	1 S 2		35	82	76	CHP	L	0			100	22745	7	00
2ND ST	RUR	24							93	CPE	R	0			ID=	22815	8	
CROWN VALLEY RD		80DF																
SMITH AV (W-E)	LOC	660	L 30	A	1	S 2	35	82			L	0			100	22815	8	00
CROWN VALLEY RD	RUR	37	R 6	A	2	B 4			93	CPE	R CB2G	0			ID=	22875	2	
SOLEDAD CYN RD		62DF																
SOLEDAD CYN RD (W-E)	MAJ	310	30	A	5	B 6	55	79	72	CHP	L	0			100	16880	2	00
SOLEDAD CYN RD N-W	RUR	30							75	SLR	R	0			ID=	16920	6	
BW/TCK C WH/0897	FAS	60DF																
SOLEDAD CYN RD (W-E)	MAJ	51-B	30	A	5		48	79	72	CHP	L	0			100	16920	6	00
BW/TCK C WH/0897	RUR	30							75	SLR	R	0			ID=	16925	5	
BE/TCK C WH/0897	FAS	60DF																
SOLEDAD CYN RD (W-E)	MAJ	2100	24	A	6	B 6	55	79	72	CHP	L 6A2	0			100	16925	5	00
BE/TCK C WH/0897	RUR	24							75	SLR	R 6A2	0			ID=	17130	1	
1920W ANTELOPE VLY FY	FAS	60DF																
SOLEDAD CYN RD (W-E)	MAJ	210	48	C							L	0			100	17130	1	00
ANTELOPE VLY FY	RUR	48									R	0			ID=	17130	1	
ANTELOPE VLY FY	FAS	60DF																
SOLEDAD CYN RD (W-E)	MAJ	475	44	A	6	B 6	55	79	72	CHP	L 8A2	....			100	17130	1	05
ANTELOPE VLY FY	RUR	44							75	SLR	R 8A2	...			ID=	17130	1	
475E ANTELOPE VLY FY	FAS	60DF																
SOLEDAD CYN RD (W-E)	MAJ	450	24	A	5	S 2	55	79	72	CHP	L 3S4	0		553 TH:440207	466800	17130	1	10
476E ANTELOPE VLY FY	RUR	24							75	SLR	R 3S4	0			END=	17160	8	
BW/SPRG C W/0898	FAS	60DF																
SOLEDAD CYN RD (W-E)	MAJ	28-B	30				48		72	CHP	L	0		553 TH:440207	466800	17160	8	00
BW/SPRG C W/0898	RUR	30							75	SLR	R	0			END=	17162	4	
BE/SPRG C W/0898	FAS	60DF																

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Co. | Co. LACDPW
Dept. | Phone # 805 947 7173
Fax # 714 992 2883 | Fax # 805 947 0754

LA COUNTY ROAD DEPT
RIS - CRS
FILE DATE: 10/20/95

REPORT RDR315C1
DATE 10/24/95
PAGE 38

* CLASSIFICATION OF ROAD SURFACES *

== ROAD DIV 553 (MDS-SDS) ==

LOCATION	HP/ FED	LNTH RDY R/W	PAVE WID	STRUC SRF	INT	SECT BSE	CON YR	RESRF YR	YR	SEAL YR	TYP	SHOULDR	WLK (%)	SWEEP SCHEDULE D	U	DY	P	TIME	JUR + THOMAS OTHER JUR AND MEDIAN DATA	UPDATE KEY ALIGN#	COOR1	C	SO
SOLEDAD CYN RD (W-E)	MAJ	850	24	A	5	5	2	55	79	72	CHP	L 354	0						553 TH:4462G7	466800	17162	4	00
BE/SPRG C W/0898	RUR	24								76	SLR	R 354	0							END=	17201	0	
LANG STATION RD	FAS	60DF																					
SOLEDAD CYN RD (W-E)	MAJ	3010	24	A	5	B	0	56	79	72	CHP	L	0						553 TH:4462J7	466800	17201	0	00
LANG STATION RD	RUR	24								76	SLR	R	0							END=	17640	1	
700W SPRING CANYON RD	FAS	60DF																					
SOLEDAD CYN RD (W-E)	MAJ	700	24	A	3	B	3	55		72	CHP	L 3A2.2	0						553 TH:4463A6	466800	17640	1	00
700W SPRING CANYON RD	RUR	24								76	SLR	R 3A2.2	0							END=	17640	1	
SPRING CANYON RD	FAS	60DF																					
SOLEDAD CYN RD (W-E)	MAJ	2220	24	A	7	5	2	55				L 3A2S2	0						553 TH:4463A6	466800	17640	1	05
SPRING CANYON RD	RUR	24										R 3A2S2	0							END=	17748	0	
BW/BEE C WH/0905	FAS	60DF																					
SOLEDAD CYN RD (W-E)	MAJ	20	30					49				L	0						553 TH:4463A6	466800	17748	0	00
BW/BEE C WH/0905	RUR	30										R	0							END=	17752	2	
BE/BEE C WH/0905	FAS	60DF																					
SOLEDAD CYN RD (W-E)	MAJ	1900	24	A	7	B	2	55				L 3A2.2	0						553 TH:4463A6	466800	17752	2	00
BE/BEE C WH/0905	RUR	24										R 3A2.2	0							END=	18002	1	
2540W CAPRA RD	FAS	60DF																					
SOLEDAD CYN RD (W-E)	MAJ	1960	24	A	8	5	2	55	76			L 3A2S2	0						553 TH:4553B1	466800	18002	1	00
2540W CAPRA RD	RUR	24										R 3A2S2	0							END=	18002	1	
580W CAPRA RD	FAS	60DF																					
SOLEDAD CYN RD (W-E)	MAJ	1510	24	A	9	5	2	55	75			L 3A2S2	0						553 TH:4553B1	466800	18002	1	05
580W CAPRA RD	RUR	24										R 3A2S2	0							END=	18002	1	
930E CAPRA RD	FAS	60DF																					
SOLEDAD CYN RD (W-E)	MAJ	288	24	A	8			55	75			L 3A2S2	0						553 TH:4553B1	466800	18002	1	10
930E CAPRA RD	RUR	24										R 3A2S2	0							END=	18120	1	
TUNNEL W END0739	FAS	60DF																					
SOLEDAD CYN RD (W-E)	MAJ	422	20	A				35				L CB	0						553 TH:4463E6	466800	18120	1	00
TUNNEL W END0739	RUR	20										R CB	0							END=	18180	7	
TUNNEL E END0739	FAS	60DF																					
SOLEDAD CYN RD (W-E)	MAJ	550	24	A	8			55	75			L 3A2S2	0						553 TH:4463E6	466800	18180	7	00
TUNNEL E END0739	RUR	24										R 3A2S2	0							END=	18603	6	
4460W AGUA DULCE CN RD	FAS	60DF																					
SOLEDAD CYN RD (W-E)	MAJ	160	24	A	9	5	2	55				L 3A2S2	0						553 TH:4463E6	466800	18603	6	00
4460W AGUA DULCE CN RD	RUR	24										R 3A2S2	0							END=	18603	6	
4300W AGUA DULCE CN RD	FAS	60DF																					
SOLEDAD CYN RD (W-E)	MAJ	4000	24	A	9	5	2	73				L 3A2S2	0						553 TH:4463E6	466800	18603	6	05
4300W AGUA DULCE CN RD	RUR	24										R 3A2S2	0							END=	18603	6	
300W AGUA DULCE CN RD	FAS	60DF																					

COUNT DATA

SITE CODE : SANTA CLARITA

24 HOUR MACHINE COUNTS BY TRAFFIC COUNTS

N-S STREET: SOLEDAD CANYON ROAD

FILE: D9707023

E-W STREET: W/O AGUA DULCE

CLIENT : AGA

DATE: 7/10/97

TIME BEGIN	EB AM		EB PM		WB AM		WB PM		COMBINED AM		COMBINED PM	
12:00	4		6		2		10		6		16	
12:15	6		7		2		8		8		15	
12:30	5		11		1		6		6		17	
12:45	2	17	8	32	2	7	5	29	4	24	13	61
1:00	1		7		0		14		1		21	
1:15	4		8		0		7		4		15	
1:30	0		13		0		7		0		20	
1:45	0	5	13	41	1	1	7	35	1	6	20	76
2:00	1		10		0		7		1		17	
2:15	3		23		0		4		3		27	
2:30	0		15		1		12		1		27	
2:45	1	5	18	66	0	1	5	28	1	6	23	94
3:00	0		16		0		11		0		27	
3:15	1		10		0		9		1		19	
3:30	2		29		0		2		2		31	
3:45	3	6	18	73	0	0	13	35	3	6	31	108
4:00	1		31		0		5		1		36	
4:15	2		42		4		22		6		64	
4:30	1		43		2		16		3		59	
4:45	0	4	37	153	3	9	11	54	3	13	48	207
5:00	1		64		11		13		12		77	
5:15	1		54		22		10		23		64	
5:30	3		65		38		12		41		77	
5:45	2	7	51	234	59	130	4	39	61	137	55	273
6:00	3		49		67		6		70		55	
6:15	6		59		86		4		92		63	
6:30	4		39		113		8		117		47	
6:45	4	17	46	193	109	375	8	26	113	392	54	219
7:00	8		36		81		0		89		36	
7:15	10		30		78		6		88		36	
7:30	9		27		52		4		61		31	
7:45	6	33	23	116	38	249	1	11	44	282	24	127
8:00	7		16		35		4		42		20	
8:15	13		17		38		5		51		22	
8:30	3		15		21		4		24		19	
8:45	5	28	11	59	15	109	11	24	20	137	22	83
9:00	7		10		13		3		20		13	
9:15	4		11		12		3		16		14	
9:30	4		10		16		3		20		13	
9:45	11	26	3	34	11	52	2	11	22	78	5	45
10:00	5		9		11		5		16		14	
10:15	5		9		9		1		14		10	
10:30	5		5		14		1		19		6	
10:45	8	23	6	29	10	44	2	9	18	67	8	38
11:00	9		5		11		0		20		5	
11:15	13		3		11		1		24		4	
11:30	8		1		11		1		19		2	
11:45	9	39	4	13	14	47	1	3	23	86	5	16
TOTALS	210		1043		1024		304		1234		1347	
DAY TOTALS		1253				1328				2581		
SPLIT %	17.0		77.4		83.0		22.6					
PEAK HOUR	11:00		5:00		6:15		4:15		6:15		5:00	
VOLUME	39		234		389		62		411		273	
P.H.F.	0.75		0.90		0.86		0.70		0.88		0.89	

SITE CODE : SANTA CLARITA

24 HOUR MACHINE COUNTS BY TRAFFIC COUNTS

N-S STREET: SOLEDAD CANYON ROAD

FILE: D9707022

E-W STREET: BET SR-14 NB & LANG STATION

CLIENT : AGA

DATE: 7/10/97

TIME	EB				WB				COMBINED			
BEGIN	AM		PM		AM		PM		AM		PM	
12:00	24		15		17		22		41		37	
12:15	18		15		26		14		44		29	
12:30	23		32		15		24		38		56	
12:45	18	83	20	82	12	70	20	80	30	153	40	162
1:00	17		24		15		22		32		46	
1:15	17		20		14		24		31		44	
1:30	10		21		15		24		25		45	
1:45	20	64	18	83	20	64	23	93	40	128	41	176
2:00	17		26		19		16		36		42	
2:15	11		38		17		10		28		48	
2:30	15		23		20		27		35		50	
2:45	16	59	27	114	17	73	14	67	33	132	41	181
3:00	16		30		12		15		28		45	
3:15	20		34		10		26		30		60	
3:30	16		33		17		19		33		52	
3:45	19	71	35	132	15	54	17	77	34	125	52	209
4:00	17		33		15		16		32		49	
4:15	12		57		17		35		29		92	
4:30	17		45		12		23		29		68	
4:45	14	60	62	197	16	60	26	100	30	120	88	297
5:00	16		69		19		29		35		98	
5:15	12		64		18		23		30		87	
5:30	10		66		43		23		53		89	
5:45	23	61	54	253	67	147	19	94	90	208	73	347
6:00	21		58		79		13		100		71	
6:15	20		64		86		18		106		82	
6:30	35		41		136		11		171		52	
6:45	48	124	50	213	122	423	16	58	170	547	66	271
7:00	39		48		94		17		133		65	
7:15	25		38		94		17		119		55	
7:30	14		30		77		13		91		43	
7:45	18	96	23	139	46	311	10	57	64	407	33	196
8:00	14		22		41		16		55		38	
8:15	27		19		50		10		77		29	
8:30	28		21		40		17		68		38	
8:45	19	88	15	77	12	143	12	55	31	231	27	132
9:00	13		18		22		19		35		37	
9:15	14		28		30		14		44		42	
9:30	28		12		20		10		48		22	
9:45	18	73	14	72	20	92	20	63	38	165	34	135
10:00	17		16		27		18		44		34	
10:15	18		21		11		14		29		35	
10:30	13		19		18		18		31		37	
10:45	26	74	11	67	18	74	16	66	44	148	27	133
11:00	11		26		13		15		24		41	
11:15	31		28		28		16		59		44	
11:30	21		27		22		18		43		45	
11:45	15	78	31	112	27	90	10	59	42	168	41	171
TOTALS	931		1541		1601		869		2532		2410	
DAY TOTALS		2472				2470				4942		
SPLIT %	36.8		63.9		63.2		36.1					
PEAK HOUR	6:30		4:45		6:30		4:15		6:30		4:45	
VOLUME	147		261		446		113		593		362	
P.H.F.	0.77		0.95		0.82		0.81		0.87		0.92	

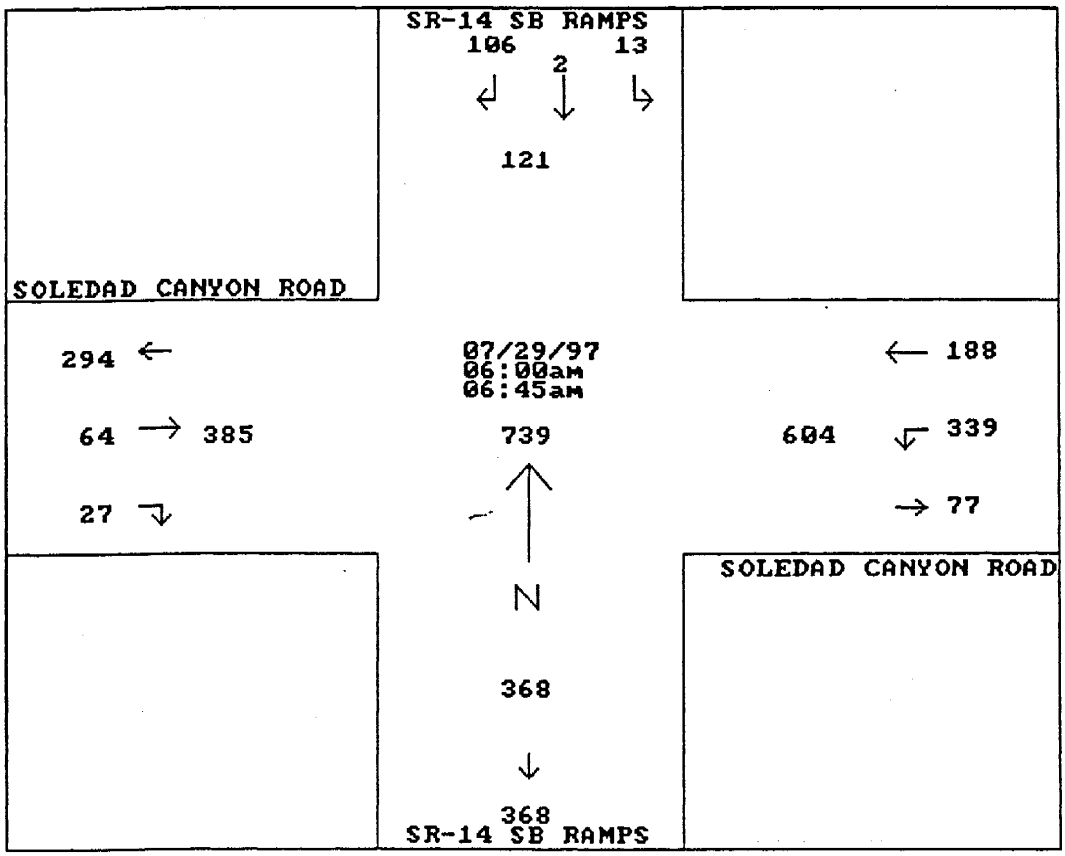
TRAFFIC COUNTS, INC.
170 EAST 17TH STREET, SUITE 110
COSTA MESA, CA. 92627
(714) 646-9663 PHONE (714) 646-7231 FAX

CLIENT: ALBERT GROVER & ASSOCIATES
CITY: SANTA CLARITA
NORTH/SOUTH: SR-14 SB RAMPS
EAST/WEST: SOLEDAD CANYON ROAD

Study Name: H9707153
Site Code : 00000280
Start Date: 07/29/97
Page : 2

VEHICLES

Start Time	SR-14 SB RAMPS Southbound Right	Thru	Left	SOLEDAD CANYON ROAD Westbound Right	Thru	Left	SR-14 SB RAMPS Northbound Right	Thru	Left	SOLEDAD CANYON ROAD Eastbound Right	Thru	Left	Intrvl. Total
Peak Hour Analysis By Entire Intersection for the Period: 05:45 on 07/29/97 to 07:30 on 07/29/97													
Time	06:00			06:00			06:00			06:00			
Vol.	106	2	13	0	188	339	0	0	0	27	64	0	
Pct.	87.6	1.6	10.7	0.0	35.6	64.3	0.0	0.0	0.0	29.6	70.3	0.0	
Total	121			527			0			91			
High	06:15			06:15			06:15			06:30			
Vol.	34	0	4	0	58	98	0	0	0	12	17	0	
Total	38			156			0			29			
PHF	0.796			0.844			0.000			0.784			



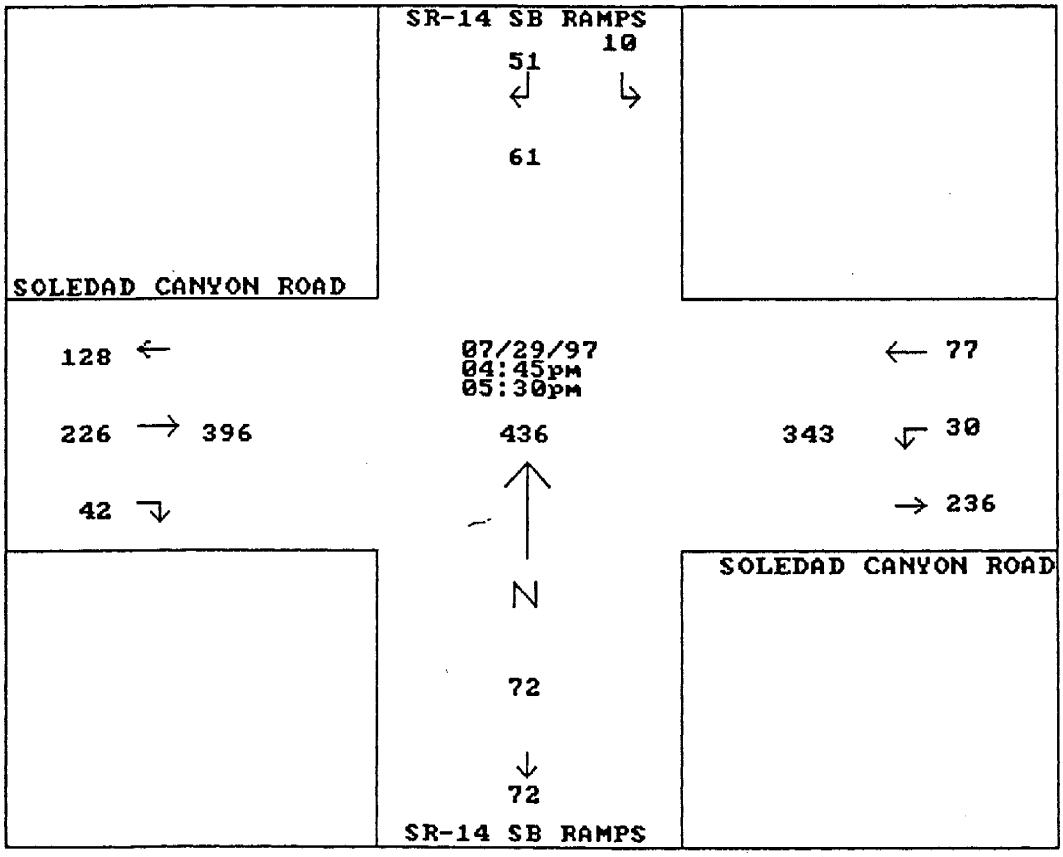
TRAFFIC COUNTS, INC.
170 EAST 17TH STREET, SUITE 110
COSTA MESA, CA. 92627
(714) 646-9663 PHONE (714) 646-7231 FAX

CLIENT: ALBERT GROVER & ASSOCIATES
CITY: SANTA CLARITA
NORTH/SOUTH: SR-14 SB RAMPS
EAST/WEST: SOLEDAD CANYON ROAD

Study Name: H9707153
Site Code : 00000280
Start Date: 07/29/97
Page : 3

VEHICLES

Start Time	SR-14 SB RAMPS Southbound Right	Thru	Left	SOLEDAD CANYON ROAD Westbound Right	Thru	Left	SR-14 SB RAMPS Northbound Right	Thru	Left	SOLEDAD CANYON ROAD Eastbound Right	Thru	Left	Intrvl. Total
Peak Hour Analysis By Entire Intersection for the Period: 16:15 on 07/29/97 to 18:00 on 07/29/97													
Time	16:45			16:45			16:45			16:45			
Vol.	51	0	10	0	77	30	0	0	0	42	226	0	
Pct.	83.6	0.0	16.3	0.0	71.9	28.0	0.0	0.0	0.0	15.6	84.3	0.0	
Total	61			107			0			268			
High	16:45			17:15			17:15			17:00			
Vol.	18	0	4	0	21	10	0	0	0	12	66	0	
Total	22			31			0			78			
PHF	0.693			0.862			0.000			0.858			



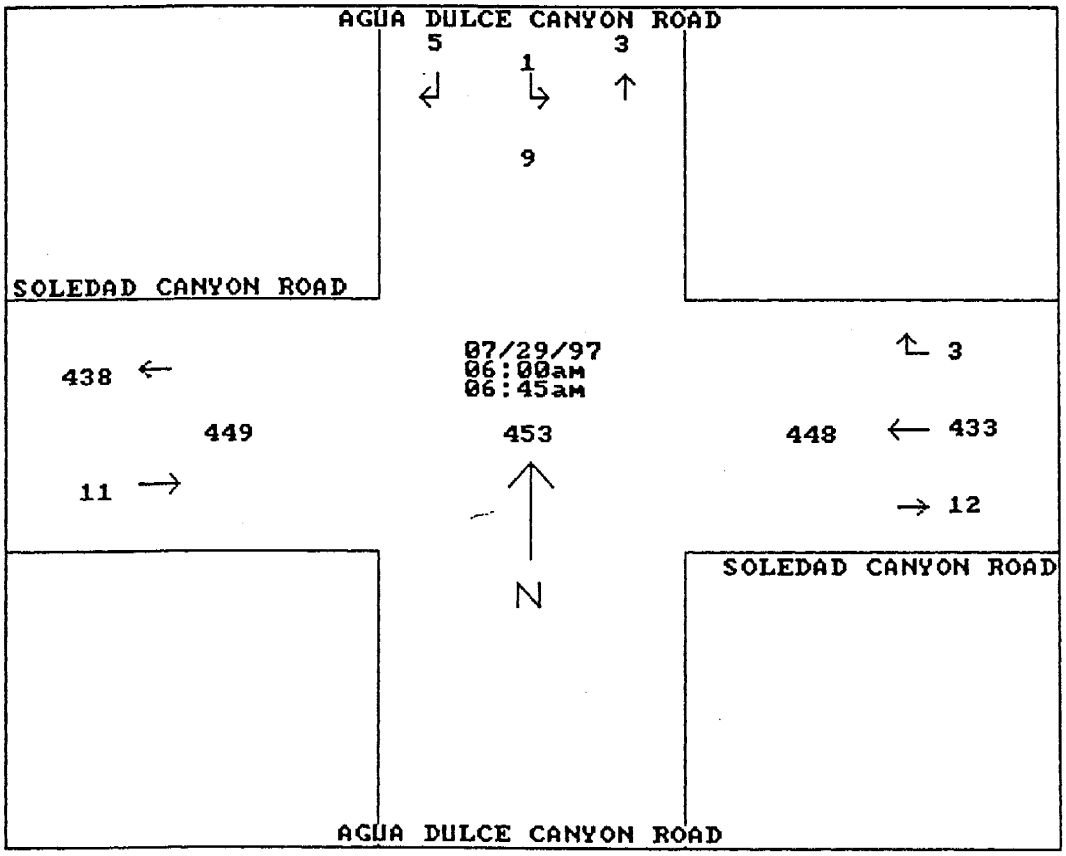
TRAFFIC COUNTS, INC.
170 EAST 17TH STREET, SUITE 110
COSTA MESA, CA. 92627
(714) 646-9663 PHONE (714) 646-7231 FAX

CLIENT: ALBERT GROVER & ASSOCIATES
CITY: SANTA CLARITA
NORTH/SOUTH: AGUA DULCE CANYON ROAD
EAST/WEST: SOLEDAD CANYON ROAD

Study Name: H9707150
Site Code : 00000274
Start Date: 07/29/97
Page : 2

VEHICLES

Start Time	AGUA DULCE CANYON ROAD Southbound Right	Thru	Left	SOLEDAD CANYON ROAD Westbound Right	Thru	Left	AGUA DULCE CANYON ROAD Northbound Right	Thru	Left	SOLEDAD CANYON ROAD Eastbound Right	Thru	Left	Intrvl. Total
Peak Hour Analysis By Entire Intersection for the Period: 05:45 on 07/29/97 to 07:30 on 07/29/97													
Time	06:00			06:00			06:00			06:00			
Vol.	5	0	1	3	433	0	0	0	0	0	11	0	
Pct.	83.3	0.0	16.6	0.6	99.3	0.0	0.0	0.0	0.0	0.0	100.0	0.0	
Total	6			436			0			11			
High	06:15			06:15			06:15			06:45			
Vol.	2	0	0	3	127	0	0	0	0	0	5	0	
Total	2			130			0			5			
PHF	0.750			0.838			0.000			0.550			



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170 EAST 17TH STREET, SUITE 110
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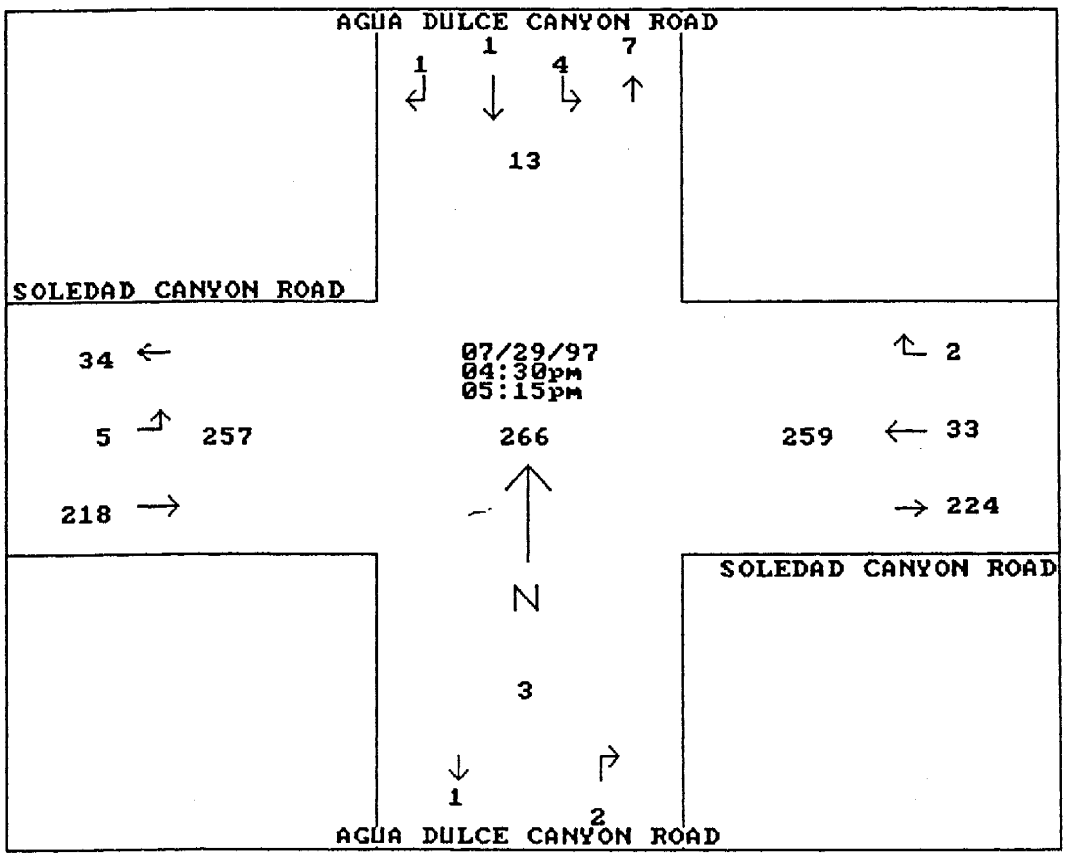
CLIENT: ALBERT GROVER & ASSOCIATES
CITY: SANTA CLARITA
NORTH/SOUTH: AGUA DULCE CANYON ROAD
EAST/WEST: SOLEDAD CANYON ROAD

Study Name: .
Site Code : 000.
Start Date: 07/29/.
Page : 3

VEHICLES

Start Time	AGUA DULCE CANYON ROAD Southbound Right	Thru	Left	SOLEDAD CANYON ROAD Westbound Right	Thru	Left	AGUA DULCE CANYON ROAD Northbound Right	Thru	Left	SOLEDAD CANYON ROAD Eastbound Right	Thru	Left	Intrvl. Total
Peak Hour Analysis By Entire Intersection for the Period: 16:15 on 07/29/97 to 18:00 on 07/29/97													
Time	16:30			16:30			16:30			16:30			
Vol.	1	1	4	2	33	0	2	0	0	0	218	5	
Pct.	16.6	16.6	66.6	5.7	94.2	0.0	100.0	0.0	0.0	0.0	97.7	2.2	
Total	6			35			2			223			
High	16:45			17:00			16:45			17:15			
Vol.	1	0	3	1	10	0	2	0	0	0	59	0	
Total	4			11			2			59			
PHF	0.375			0.795			0.250			0.944			



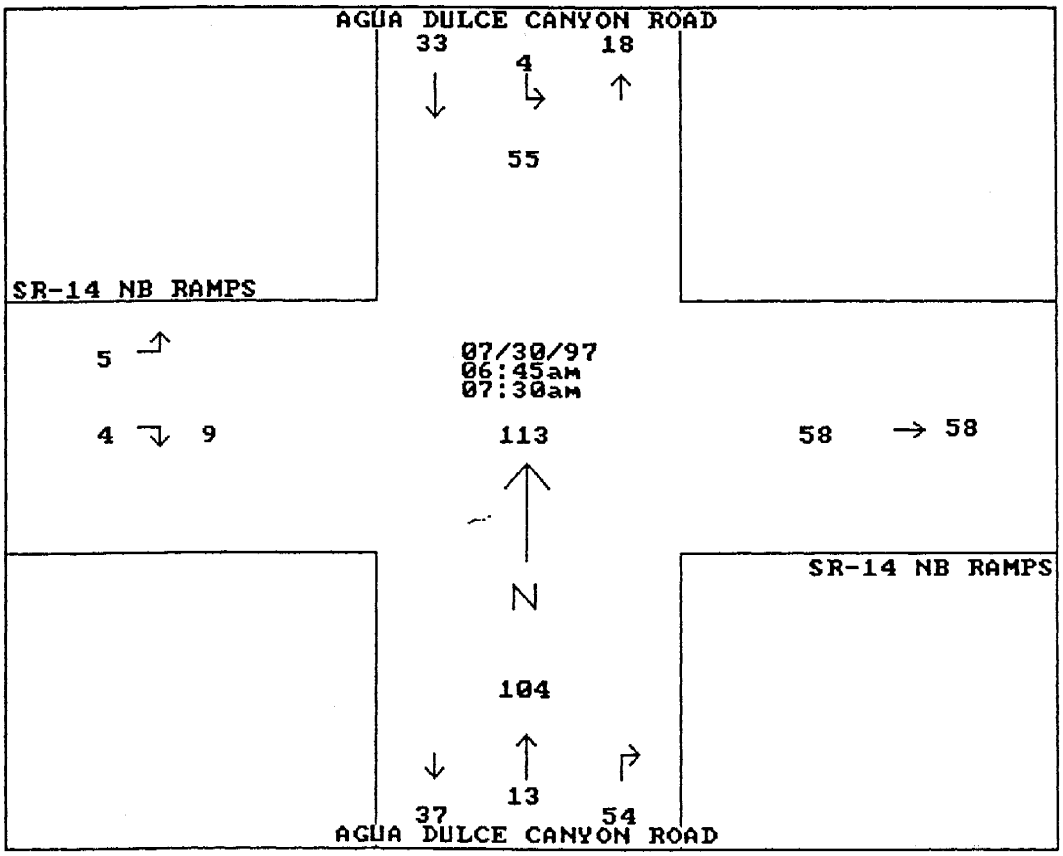
TRAFFIC COUNTS, INC.
170 EAST 17TH STREET, SUITE 110
COSTA MESA, CA. 92627
(714) 646-9663 PHONE (714) 646-7231 FAX

CLIENT: ALBERT GROVER & ASSOCIATES
CITY: SANTA CLARITA
NORTH/SOUTH: AGUA DULCE CANYON ROAD
EAST/WEST: SR-14 NB RAMPS

Study Name: H9707148
Site Code : 00000319
Start Date: 07/30/97
Page : 2

VEHICLES

Start Time	AGUA DULCE CANYON ROAD Southbound Right	Thru	Left	SR-14 NB RAMPS Westbound Right	Thru	Left	AGUA DULCE CANYON ROAD Northbound Right	Thru	Left	SR-14 NB RAMPS Eastbound Right	Thru	Left	Intrvl. Total
Peak Hour Analysis By Entire Intersection for the Period: 05:45 on 07/30/97 to 07:30 on 07/30/97													
Time	06:45			06:45			06:45			06:45			
Vol.	0	33	4	0	0	0	54	13	0	4	0	5	
Pct.	0.0	89.1	10.8	0.0	0.0	0.0	80.5	19.4	0.0	44.4	0.0	55.5	
Total	37			0			67			9			
High	07:15			07:15			07:15			07:15			
Vol.	0	15	3	0	0	0	15	5	0	1	0	2	
Total	18			0			20			3			
PHF	0.513			0.000			0.837			0.750			



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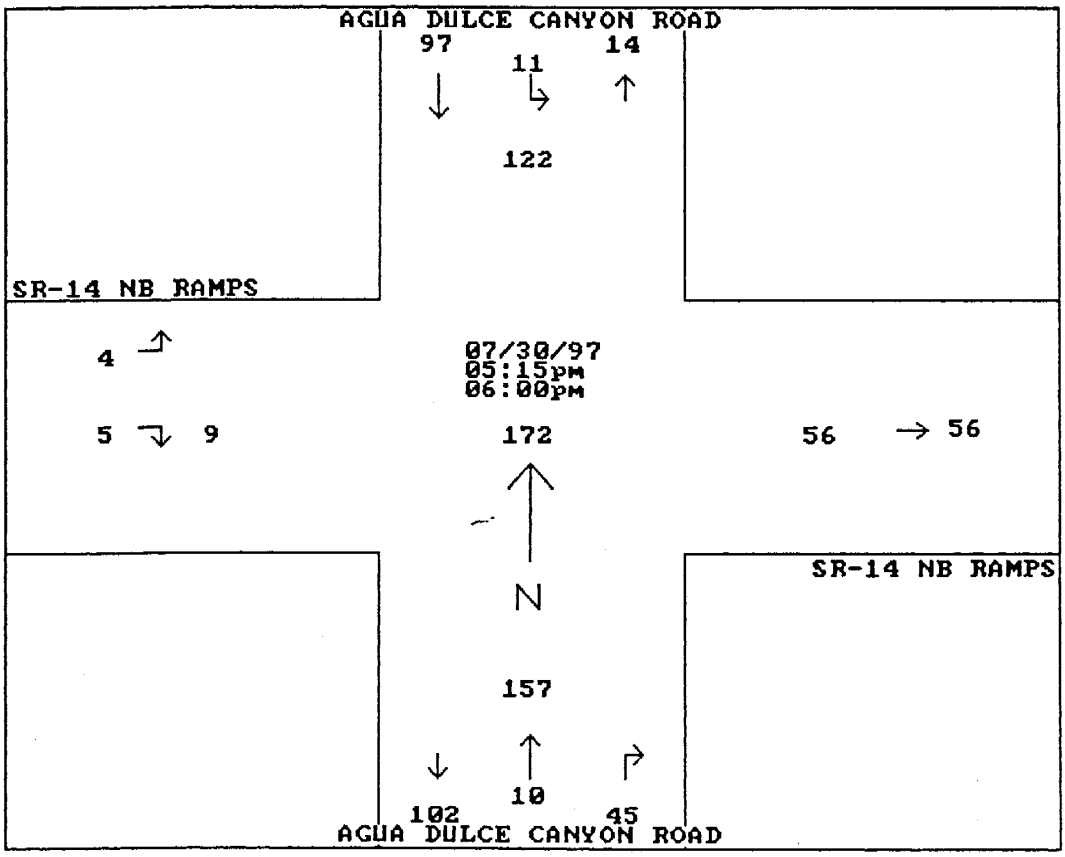
EAST/WEST: SR-14 NB RAMPS

Study Name: H9707148
Site Code : 00000319
Start Date: 07/30/97
Page : 3

VEHICLES

Start Time	AGUA DULCE CANYON ROAD Southbound Right	Thru	Left	SR-14 NB RAMPS Westbound Right	Thru	Left	AGUA DULCE CANYON ROAD Northbound Right	Thru	Left	SR-14 NB RAMPS Eastbound Right	Thru	Left	Intrvl. Total
Peak Hour Analysis By Entire Intersection for the Period: 16:15 on 07/30/97 to 18:00 on 07/30/97													
Time	17:15			17:15			17:15			17:15			
Vol.	0	97	11	0	0	0	45	10	0	5	0	4	
Pct.	0.0	89.8	10.1	0.0	0.0	0.0	81.8	18.1	0.0	55.5	0.0	44.4	
Total	108			0			55			9			
High	17:15			17:15			18:00			17:15			
Vol.	0	26	4	0	0	0	14	4	0	0	0	3	
Total	30			0			18			3			
PHF	0.900			0.000			0.763			0.750			



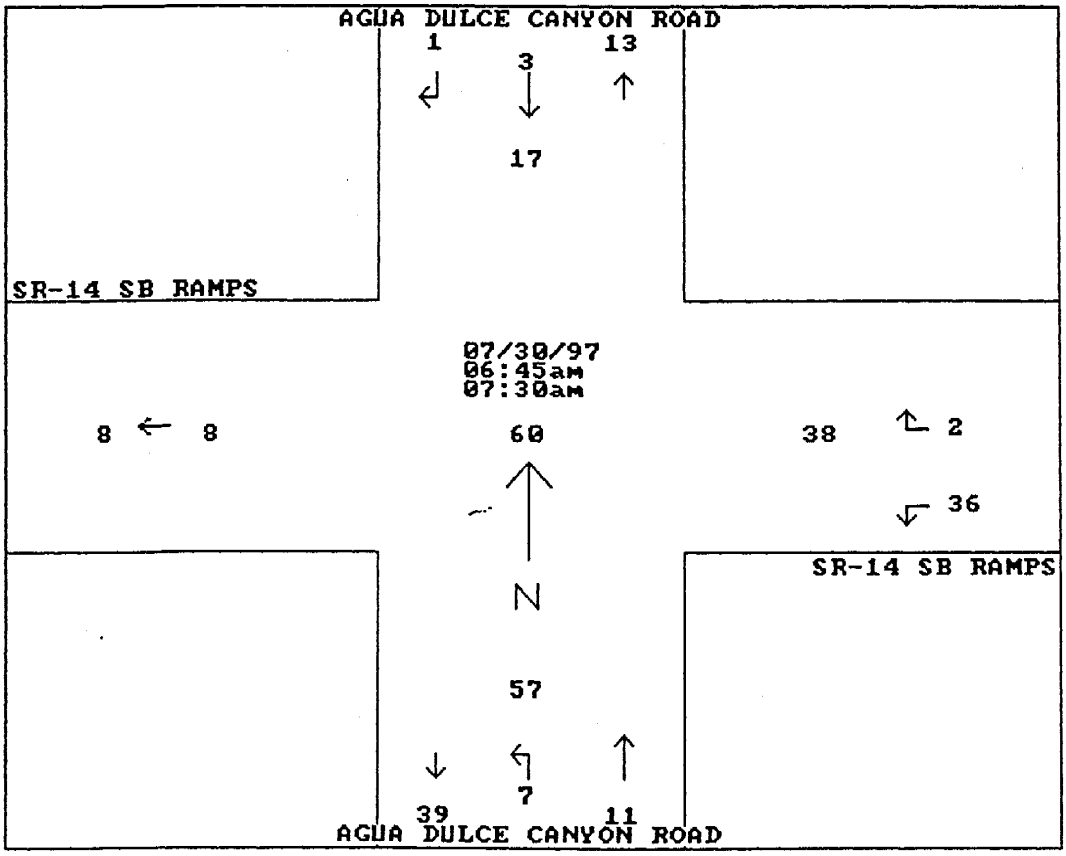
TRAFFIC COUNTS, INC.
170 EAST 17TH STREET, SUITE 110
COSTA MESA, CA. 92627
(714) 646-9663 PHONE (714) 646-7231 FAX

CLIENT: ALBERT GROVER & ASSOCIATES
CITY: SANTA CLARITA
NORTH/SOUTH: AGUA DULCE CANYON ROAD
EAST/WEST: SR-14 SB RAMPS

Study Name: H9707149
Site Code : 00000280
Start Date: 07/30/97
Page : 2

VEHICLES

Start Time	AGUA DULCE CANYON ROAD Southbound Right	Thru	Left	SR-14 SB RAMPS Westbound Right	Thru	Left	AGUA DULCE CANYON ROAD Northbound Right	Thru	Left	SR-14 SB RAMPS Eastbound Right	Thru	Left	Intrvl. Total
Peak Hour Analysis By Entire Intersection for the Period: 05:45 on 07/30/97 to 07:30 on 07/30/97													
Time	06:45			06:45			06:45			06:45			
Vol.	1	3	0	2	0	36	0	11	7	0	0	0	
Pct.	25.0	75.0	0.0	5.2	0.0	94.7	0.0	61.1	38.8	0.0	0.0	0.0	
Total	4			38			18			0			
High	07:00			07:15			07:15			07:15			
Vol.	1	1	0	1	0	16	0	6	1	0	0	0	
Total	2			17			7			0			
PHF	0.500			0.558			0.642			0.000			



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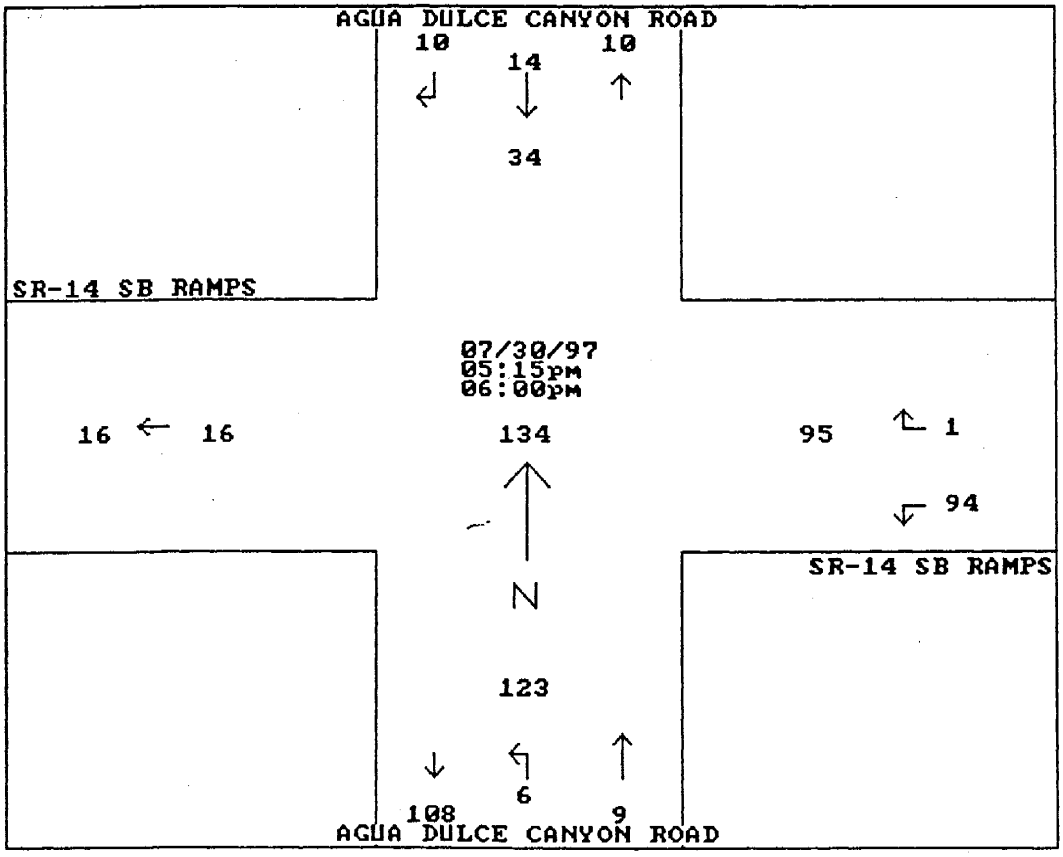
EAST/WEST: SR-14 SB RAMPS

Study Name: H9707149
Site Code : 00000280
Start Date: 07/30/97
Page : 3

VEHICLES

	AGUA DULCE CANYON ROAD Southbound			SR-14 SB RAMPS Westbound			AGUA DULCE CANYON ROAD Northbound			SR-14 SB RAMPS Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Intrvl. Total
Peak Hour Analysis By Entire Intersection for the Period: 16:15 on 07/30/97 to 18:00 on 07/30/97													
Time	17:15			17:15			17:15			17:15			
Vol.	10	14	0	1	0	94	0	9	6	0	0	0	
Pct.	41.6	58.3	0.0	1.0	0.0	98.9	0.0	60.0	40.0	0.0	0.0	0.0	
Total	24			95			15			0			
High	17:15			17:30			17:15			17:15			
Vol.	3	5	0	0	0	27	0	3	1	0	0	0	
Total	8			27			4			0			
PHF	0.750			0.879			0.937			0.000			



APPENDIX E

AIR QUALITY

APPENDIX E1

PARTICULATE SAMPLES
(West Coast Environmental 1992)

West Coast Environmental

May 13, 1992

Mr. Brian Mastin
Technical Manager
Transit Mixed Concrete Company
1201 W. Gladstone
Azusa, CA 91702

Re: Soledad Canyon Project
Particle Measurement Analysis

TRM 1115.4

Dear Mr. Mastin:

Attached are the analytical results for soil samples taken from the Curtis fines pile at the Soledad Site. Per our discussions, analysis for particle distribution was performed by Particle Measurement Technology Company.

We recommend that a 20 % PM10:PM conversion be used in emission calculations be used for any material or fines handling process and that this information be forwarded to The Chambers Group for their review. A summary of the results follows:

Sample	Minimum Size Counted (microns)	% PM10 by particle count	% PM10 by weight (PM10:PM)
Sample # 1	5.0	75.569 %	5.1 %
Sample # 2	5.0	74.376 %	2.7 %
Sample # 3	2.5	92.103 %	19.2 %
Sample # 3 w/ < 2.5 micron estimate	< 2.5	99.060 %	20.1 %
AP-42	N/A	N/A	46.0 %

The results of the analysis provide a particle distribution measurement by counting the number of particle within preset size categories in a given sample. Since we plan to use the information to relate pounds of TSP to pounds of PM10, the conversion from number of particles to percentage of size category by weight was necessary. To convert from numerical distribution to weight distribution, we assumed that each particle was of uniform density, that the equation for a sphere represents the volume of an individual particle and that consequently the volume is proportional to the radius cubed. Calculation sheets are attached.

The calculated results indicate that particles less than 10 microns in size comprise 2.7 % to 19 % by weight of the total sample. This compares to the AP-42 weight factor of 46 % approved by the SCAQMD for use when site specific data is not available. The value of 19.2 % from sample # 3 is the most representative value for PM10 because the particle size range includes the smallest category, 2.5 - 10 microns. Samples 1 and 2 had a lowest category of only 5 microns. I was originally under the impression that the method would count the total number of particles less than the lowest category, however this was incorrect. Martin Grossman from Particle Technologies explained to me that particles below the lowest limit of the counter are not counted. For the equipment used in this test, the lowest setting possible was 2.0 microns. While other instrument configurations measuring particles smaller than 2 microns are available, interference from the atmosphere and the water used in the solution bias the results of measurements of particles below 1 micron in size.

To estimate the contribution of particles below 2.5 microns in size and demonstrate their effect on the weight distribution, we compared the results of the three tests and conservatively assumed that approximately 10 times as many particles would be present below 2.5 microns as were counted in the 2.5 - 5 micron range in sample # 3. The results appear on the attached calculations sheet and indicate the contribution of these additional 4,000,000 particles would be only 1.2 % of the total weight of the sample. With these particle included, the PM10:PM fraction of sample # 3 is 20 %, significantly less than the AP-42 number of 46 %.

If you require additional information or would like to discuss these matters further, please do not hesitate to call.

Regards,

John A. Hecht
WEST COAST ENVIRONMENTAL

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West Coast Environmental

Transit Mixed Concrete Company
Particle Size Analysis Calculations
13-May-92

Calculations of PM10 fraction from material at Soledad Canyon Site using results of particle size analysis by Particle Measurement Technology.

Sample # 1-NO

Particle Size (microns)	Average Diameter (microns)	Population Distribution (% by number)	Weighted ** Distribution	Population *** Distribution (% by weight)
5 - 10	7.5	75.569%	39.85	5.089%
10-30	20.0	21.843%	218.43	27.895%
30-50	40.0	1.934%	154.72	19.759%
50-75	62.5	0.450%	137.33	17.538%
75-100	87.5	0.054%	45.22	5.775%
over 100	100.0	0.150%	187.50	23.945%
SUM		1.00	783.05	1.00

Sample # 2-CN

Particle Size (microns)	Average Diameter (microns)	Population Distribution (% by number)	Weighted ** Distribution	Population *** Distribution (% by weight)
5 - 10	7.5	74.376%	39.22	2.726%
10-30	20.0	21.644%	216.44	15.046%
30-50	40.0	2.407%	192.56	13.386%
50-75	62.5	0.991%	302.43	21.023%
75-100	87.5	0.096%	80.39	5.588%
over 100	100.0	0.486%	607.50	42.230%
SUM		1.00	1438.54	1.00

Sample # 3-SO

Particle Size (microns)	Average Diameter (microns)	Population Distribution (% by number)	Weighted ** Distribution	Population *** Distribution (% by weight)
2.5 - 10	6.25	92.103%	28.11	19.173%
10-30	20.0	7.486%	74.86	51.064%
30-50	40.0	0.374%	29.92	20.409%
50-75	62.5	0.034%	10.38	7.078%
75-100	87.5	0.001%	0.84	0.571%
over 100	100.0	0.002%	2.50	1.705%
SUM		1.00	146.60	1.00

* Assumptions: homogenous particle density, spherical shape.
** Weighted Distribution = (avg Radius ^ 3) * Population Distribution
*** Population Distribution by weight = (weighted distribution/sum of weighted distributions)

Recalculated Particle Distribution using extrapolated data for particles below 2.5 microns.

Particle Range microns	Number of Particles	Population Distribution
0-2.5 **	4,000,000	88.0927%
2.5-10 *	497,975	10.9670%
10-30 *	40,473	0.8913%
30-50 *	2,021	0.0445%
50-75 *	185	0.0041%
75-100 *	7	0.0002%
>100 *	9	0.0002%
SUM	4,540,670	1.00

* Data from Particle Measurement Technology Report
** An extrapolatated value of 4 million particles for the 0-2.5 micron range.

Sample # 3-SO - using extrapolated data below 2.5 microns.

Particle Size (microns)	Average Diameter (microns)	Population Distribution (% by number)	Weighted ** Distribution	Population *** Distribution (% by weight)
< 2.5 ****	1.25	88.0930%	0.22	1.214%
2.5 - 10	6.25	10.9670%	3.35	18.898%
10-30	20.0	0.8910%	8.91	50.310%
30-50	40.0	0.0450%	3.60	20.327%
50-75	62.5	0.0040%	1.22	6.893%
75-100	87.5	0.0002%	0.17	0.946%
over 100	100.0	0.0002%	0.25	1.412%
SUM		1.00	17.71	1.00

* Assumptions: homogenous particle density, spherical shape.
** Weighted Distribution = (avg Radius ^ 3) * Population Distribution
*** Population Distribution by weight = (weighted distribution/sum of weighted distributions)
**** An extrapolated value of 4 million particles for the 0-2.5 micron range was used to illustrate the effect of these partocles on the distribution by weight.

PARTICLE MEASUREMENT TECHNOLOGY CO.

4882 McGRATH • SUITE 260
VENTURA, CALIFORNIA 93003
TELEPHONE (805) 644-8884

April 28, 1992

WEST COAST ENVIRONMENTAL, INC.
4245 Market St., Suite 206
Ventura, CA 93003

P.O.#: Verbal
Contact: John A. Hecht

PARTICLE SIZE ANALYSIS REPORT

SAMPLE: Soil NUMBER OF SAMPLES: 3

INSTRUMENT: HIAC/ROYCO 4100 w/ABS Sampler SENSOR: CMB-120

METHOD EMPLOYED BY INSTRUMENT: Light Obscuration Principle

SIZE RANGE: 0.5 to 25 micrometers TEST VOLUME: 100 milliliters

PARTICLE CONTROL TEST: A test of 100ml of laboratory water used for sample preparation and flushing of equipment between tests was conducted. Residual particle counts from this test were insignificant to the sample totals and have not been subtracted from the data.

TEST PROCEDURE: A sample of 0.5 grams was placed in 500ml of laboratory control water. A pre-cleaned, sterile glass stir rod was placed in the sample and the sample set to stir. Stirring was at moderate speed, using a magnetic stirrer, for a minimum of 2 minutes before testing, and stirring was continuous throughout. Two preparations of each sample were made and a 100ml aliquot from each was analyzed and averaged. The distribution percentage was calculated for both the cumulative and the differential population at each size indicated.

Note: Particles greater than 500 microns were removed prior to analysis.

Questions concerning this report and data should be directed to Mr. Martin Grossman, Particle Measurement Technology Company. Thank you.

PARTICLE MEASUREMENT TECHNOLOGY CO.

4882 McGRATH • SUITE 260
VENTURA, CALIFORNIA 93003
TELEPHONE (805) 644-8884

WEST COAST ENVIRONMENTAL, INC.
APRIL 28, 1992
PAGE 2
DATA SUMMARY

SAMPLE ID: FINES PILE #1-NO

AVERAGE PARTICLE COUNT

PARTICLE SIZE RANGE (MICRONS)	POPULATION DISTRIBUTION *DIFFERENTIAL	
5 - 10um	49,241	75.569%
10 - 30um	14,233	21.843%
30 - 50um	1,260	1.934%
50 - 75um	293	0.450%
75 - 100um	35	0.054%
OVER 100um	98	0.150%
AVERAGE TOTAL	65,160	100.000%

PARTICLE SIZE (MICRONS)	POPULATION DISTRIBUTION **CUMULATIVE	
>= 5um	65,160	100.000%
>= 10um	15,919	24.431%
>= 30um	1,686	2.587%
>= 50um	426	0.654%
>= 75um	133	0.204%
>= 100um	98	0.150%

*DIFFERENTIAL = Between stated sizes.
** CUMULATIVE = Equal to or greater than stated size.

PARTICLE MEASUREMENT TECHNOLOGY CO.

4882 McGRATH • SUITE 260
VENTURA, CALIFORNIA 93003
TELEPHONE (805) 644-8884

WEST COAST ENVIRONMENTAL, INC.
APRIL 28, 1992
PAGE 3
DATA SUMMARY

SAMPLE ID: FINES PILE #2-CN

AVERAGE PARTICLE COUNT

PARTICLE SIZE RANGE (MICRONS)	POPULATION DISTRIBUTION *DIFFERENTIAL	
5 - 10um	36,402	74.376%
10 - 30um	10,593	21.644%
30 - 50um	1,178	2.407%
50 - 75um	485	0.991%
75 - 100um	47	0.096%
OVER 100um	238	0.486%
AVERAGE TOTAL	48,943	100.000%

PARTICLE SIZE (MICRONS)	POPULATION DISTRIBUTION **CUMULATIVE	
>= 5um	48,943	100.000%
>= 10um	12,541	25.624%
>= 30um	1,948	3.980%
>= 50um	770	1.573%
>= 75um	285	0.582%
>= 100um	238	0.486%

*DIFFERENTIAL = Between stated sizes.
** CUMULATIVE = Equal to or greater than stated size.

PARTICLE MEASUREMENT TECHNOLOGY CO.

4882 McGRATH • SUITE 260
VENTURA, CALIFORNIA 93003
TELEPHONE (805) 644-8884

WEST COAST ENVIRONMENTAL, INC.
APRIL 28, 1992
PAGE 4
DATA SUMMARY

SAMPLE ID: FINES PILE #3-SO

AVERAGE PARTICLE COUNT

PARTICLE SIZE RANGE (MICRONS)	POPULATION DISTRIBUTION *DIFFERENTIAL	
2.5 - 10um	497,975	92.103%
10 - 30um	40,473	7.486%
30 - 50um	2,021	0.374%
50 - 75um	185	0.034%
75 - 100um	7	0.001%
OVER 100um	9	0.002%
AVERAGE TOTAL	540,670	100.000%

PARTICLE SIZE (MICRONS)	POPULATION DISTRIBUTION **CUMULATIVE	
>= 2.5um	540,670	100.000%
>= 10um	42,695	7.897%
>= 30um	2,222	0.411%
>= 50um	201	0.037%
>= 75um	16	0.003%
>= 100um	9	0.002%

*DIFFERENTIAL = Between stated sizes.
** CUMULATIVE = Equal to or greater than stated size.

End of report.

APPENDIX E2

EMISSION CALCULATIONS

APPENDIX - E2
EMISSION CALCULATIONS

This appendix includes the following:

- Calculations for heavy equipment emissions;
  Calculations for haul truck, delivery, and employee trip emissions;
- Calculations for fugitive dust emissions; and
- EMFAC7G emission model runs.

Table E2-1

Phase I Heavy Equipment Emissions Summary

Equipment	# of Units	Hp	Operation (hr/day)	EMISSION FACTORS (lb/hp-hr)					Load Factor (%)	EMISSIONS (lb/day)					Control Eff. (%)	Resid.
Emission Type				CO	NOx	ROG	SOx	PM10		CO	NOx	ROG	SOx	PM10	PM10	PM10
13-Cubic Yd. Pit Loader, Cat-992D	1	735	12	0.0020	0.0142	0.0005	0.0015	0.00034	46.5	8.4	58.2	2.2	6.1	1.4	95%	0.1
Dozer, Cat-D-11	1	818	8	0.0034	0.0152	0.0005	0.0020	0.00029	59	13.3	58.7	2.0	7.7	1.1		1.1
Cat. 657B Scraper		550	10	0.0187	0.0152	0.0022	0.0020	0.00088	66							
(2) 100-ton Haul Trucks, Cat-777	2	920	10	0.0031	0.0152	0.0005	0.0015	0.00052	41	23.6	114.7	3.5	10.9	4.0	95%	0.2
Portable Drilling Unit	1	400	4	0.0187	0.0152	0.0022	0.0020	0.00088	75	22.5	18.3	2.6	2.4	1.1		1.1
Sheepsfoot Compactor, Cat 815C	1	235	3	0.0021	0.0152	0.0027	0.0017	0.00010	57.5	0.8	6.2	1.1	0.7	0.0		0.0
(2) Hough 560B End Loaders, Cat-988F2	2	458	12	0.0021	0.0126	0.0001	0.0015	0.00027	54	12.4	74.7	0.3	8.7	1.6		1.6
Cat. 14 Motor Grader, Cat-14G	1	200	2	0.0023	0.0152	0.0020	0.0015	0.00013	57.5	0.5	3.5	0.5	0.3	0.0		0.0
Rough-Terrain Forklift	1	200	1	0.0187	0.0152	0.0022	0.0020	0.00088	30	1.1	0.9	0.1	0.1	0.1		0.1
20-ton Rough Terrain Crane	1	100	1	0.0090	0.0230	0.0030	0.0020	0.00150	43	0.4	1.0	0.1	0.1	0.1		0.1
35-ton End Dump Truck, Cat-769	1	474	8	0.0048	0.0152	0.0003	0.0014	0.00060	38	6.9	21.9	0.4	2.1	0.9		0.9
Broom Truck	1	200	1	0.0187	0.0152	0.0022	0.0020	0.00088	68	2.5	2.1	0.3	0.3	0.1		0.1
Bobcat	1	30	3	0.0200	0.0210	0.0040	0.0020	0.00150	51.5	0.9	1.0	0.2	0.1	0.1		0.1
Portable Diesel Generator	1	25	14	0.0110	0.0180	0.0020	0.0020	0.00100	74	2.8	4.7	0.5	0.5	0.3		0.3
Water Truck	1	250	12	0.0187	0.0152	0.0022	0.0020	0.00088	68	38.2	31.0	4.5	4.1	1.8	95%	0.1
TOTALS										**134**	**397**	**18.4**	**44.1**	**12.5**		**5.7**

- Equipment <175 Hp - Emission Factors are the same as those presented in the DEIS.
- Equipment 175 - 750 Hp - Emission Factors and horsepower ratings for Caterpillar units are based on information obtained from Caterpillar. Emissions for other units are based on EPA/ARB certification standards for those years.
- Equipment > 750 Hp - Emission factors are based on information obtained from Caterpillar and the EPA/ARB year 2000 standard of 6.9 g/hp-hr for NOx.
- Scraper hours were changed to zero for both phases because scraper hauling will be eliminated with implementation of the NFSA Conveyor mitigation.
- D-10 Dozer hours of operation were changed to 8 hours/day because the equipment model changed to the larger D-11 model.

Table E2-2

Phase 2 Heavy Equipment Emissions Summary

Equipment	# of Units	Hp	Operation (hr/day)	EMISSION FACTORS (lb/hp-hr)					Load Factor (%)	EMISSIONS (lb/day)					Control Eff. (%)	Resid.
Emission Type				CO	NOx	ROG	SOx	PM10		CO	NOx	ROG	SOx	PM10	PM10	PM10
(2)13-Cubic Yd. Pit Loader, Cat-992D	2	735	14	0.0020	0.0142	0.0005	0.0015	0.00034	46.5	19.5	135.8	5.2	14.3	3.3	95%	0.2
Dozer, Cat-D-11	1	818	8	0.0034	0.0152	0.0005	0.0020	0.00029	59	13.3	58.7	2.0	7.7	1.1		1.1
Cat. 657B Scraper		550	10	0.0187	0.0152	0.0022	0.0020	0.00088	66							
(4) 100-ton Haul Trucks, Cat-777	4	920	10	0.0031	0.0152	0.0005	0.0015	0.00052	41	47.2	229.3	7.0	21.9	7.9	95%	0.4
Portable Drilling Unit	1	400	8	0.0187	0.0152	0.0022	0.0020	0.00088	75	45.0	36.5	5.3	4.8	2.1		2.1
Sheepsfoot Compactor, Cat-815C	1	235	6	0.0021	0.0152	0.0027	0.0017	0.00010	57.5	1.7	12.3	2.2	1.4	0.1		0.1
(2) Hough 560B End Loaders, Cat-988F2	2	458	16	0.0021	0.0126	0.0001	0.0015	0.00027	54	16.6	99.6	0.5	11.6	2.2	95%	0.1
Cat. 14 Motor Grader, Cat-14H	1	200	4	0.0023	0.0152	0.0020	0.0015	0.00013	57.5	1.0	7.0	0.9	0.7	0.1		0.1
Rough-Terrain Forklift	1	200	2	0.0187	0.0152	0.0022	0.0020	0.00088	30	2.2	1.8	0.3	0.2	0.1		0.1
20-ton Rough Terrain Crane	1	100	2	0.0090	0.0230	0.0030	0.0020	0.00150	43	0.8	2.0	0.3	0.2	0.1		0.1
35-ton End Dump Truck, Cat-769	1	474	12	0.0048	0.0152	0.0003	0.0014	0.00060	38	10.3	32.9	0.7	3.1	1.3	95%	0.1
Broom Truck	1	200	1	0.0187	0.0152	0.0022	0.0020	0.00088	68	2.5	2.1	0.3	0.3	0.1		0.1
Bobcat	1	30	5	0.0200	0.0210	0.0040	0.0020	0.00150	51.5	1.5	1.6	0.3	0.2	0.1		0.1
Portable Diesel Generator	1	25	14	0.0110	0.0180	0.0020	0.0020	0.00100	74	2.8	4.7	0.5	0.5	0.3		0.3
Water Truck	1	250	14	0.0187	0.0152	0.0022	0.0020	0.00088	68	44.6	36.2	5.2	5	2.1	95%	0.1
EQUIPMENT TOTALS										**209**	**660**	**30.5**	**71.5**	**20.9**		**4.9**

- Equipment <175 Hp - Emission Factors are the same as those presented in the DEIS.
- Equipment 175 - 750 Hp - Emission Factors and horsepower ratings for Caterpillar units are based on information obtained from Caterpillar. Emissions for other units are based on EPA/ARB certification standards for those years.
- Equipment > 750 Hp - Emission factors are based on information obtained from Caterpillar and the EPA/ARB year 2000 standard of 6.9 g/hp-hr for NOx.
- Scraper hours were changed to zero for both phases because scraper hauling will be eliminated with implementation of the NFSA Conveyor mitigation.
- D-10 Dozer hours of operation were changed to 8 hours/day because the equipment model changed to the larger D-11 model.

Table E2-3

Construction Phase Construction and Deliveries Emissions Summary

Equipment				EMISSION FACTORS[1]					EMISSIONS (lb/day)				
Emission Type	# of Units	Operation (hr/day)	Miles driven per day	CO	NOx	ROG	SOx	PM	CO	NOx	ROG	SOx	PM
Construction Equipment[2]	6	7		0.99	1.84	0.16	0.21	0.16	41.6	77.1	6.6	8.7	6.6
Water Truck[3]	1		40	24.17	15.99	3.70	--	0.95	2.1	1.4	0.3	--	0.1
Construction Subtotal[4]									**43.7**	**78.5**	**6.9**	**8.7**	**6.7**
Deliveries	4		60	6.40	11.69	1.26	--	0.97	3.4	6.2	0.7	--	0.5

1 Emission factors are in lb/hr for construction equipment and g/VMT for water truck.
Calculations subject to rounding and conversion may not yield exact results.

2 Emission factors are an unweighted average of off road mobile source exhaust emission factors from AP-42 Part II - Off Highway Mobile Sources, Table II-7.1, 1985. This average includes track-type tractor, wheeled tractor, wheeled dozer, scraper, motor grader, wheeled loader, track-type loader, off-highway truck, roller, and miscellaneous.

3 Water truck emissions were calculated from 1997 EMFAC7G emission factors for HHD trucks at 10 mph.

4 Emissions may not exactly match up due to rounding errors.

Construction Phase - Employee Trips Emissions Summary

Emission Type	Vehicle Type	Hours since shutdown	Number of trips	One Way Miles	EMISSION FACTORS[5]					EMISSIONS (lb/day)				
					CO	NOx	ROG	SOx	PM	CO	NOx	ROG	SOx	PM
Driving emissions	Light Duty Auto	N/A	50	11	3.82	0.80	0.20	N/A	0.02	9.7	1.3	0.7		0
	Light Duty Truck				4.25	1.30	0.26	N/A	0.02					
Variable start emissions	Light Duty Auto	12+		N/A	48.57	1.89	4.19	N/A	N/A					
	Light Duty Truck				57.66	2.88	5.05	N/A	N/A					
	Light Duty Auto	3			37.42	2.15	2.92	N/A	N/A					
	Light Duty Truck				44.42	3.29	3.51	N/A	N/A					
	Light Duty Auto	40 min			19.51	1.84	1.71	N/A	N/A					
	Light Duty Truck				23.17	2.81	2.06	N/A	N/A					
Hot soak emissions	Light Duty Auto	N/A		N/A	N/A	N/A	0.66	N/A	N/A					
	Light Duty Truck				N/A	N/A	0.70	N/A	N/A					

5 Driving emission factors in lb/VMT. Variable start and hot soak emission factors are in gm/trip.

Table E2-4

Phase I Haul Truck Emissions Calculations

Equipment	VMT	EMISSION FACTORS (gm/VMT)					EMISSIONS (lb/day)				
		CO	NOx	ROG	SOx	PM10	CO	NOx	ROG	SOx	PM10
Haul Trucks	22,390	6.31	11.18	1.16	--	0.89	311.2	551.5	57.2	--	43.9

Phase 1 Employee Trips Emissions Summary

Emission Type	Vehicle Type	Hours since shutdown	Number of trips	One Way Miles	EMISSION FACTORS[1]					EMISSIONS (lb/day)				
					CO	NOx	ROG	SOx	PM	CO	NOx	ROG	SOx	PM
Driving emissions	Light Duty Auto	N/A	60	11	3.56	0.74	0.18	N/A	0.02	9.7	1.4	0.8		0
	Light Duty Truck				3.90	1.20	0.24	N/A	0.05					
Variable start emissions	Light Duty Auto	12+		N/A	45.01	1.78	3.95	N/A	N/A					
	Light Duty Truck				53.23	2.73	4.74	N/A	N/A					
	Light Duty Auto	3			34.65	2.03	2.75	N/A	N/A					
	Light Duty Truck				40.99	3.12	3.30	N/A	N/A					
	Light Duty Auto	40 min			18.05	1.74	1.61	N/A	N/A					
	Light Duty Truck				21.34	2.67	1.93	N/A	N/A					
Hot soak emissions	Light Duty Auto	N/A		N/A	N/A	N/A	0.64	N/A	N/A					
	Light Duty Truck				N/A	N/A	0.68	N/A	N/A					

1 Driving emission factors in lb/VMT. Variable start and hot soak emission factors are in gm/trip.

Table E2-5

Phase 2 Haul Truck Emissions Calculations

Equipment	VMT	EMISSION FACTORS (gm/VMT)					EMISSIONS (lb/day)				
		CO	NOx	ROG	SOx	PM10	CO	NOx	ROG	SOx	PM10
Haul Trucks	38,840	5.97	7.60	0.69	--	0.38	510.8	650.3	59.0	--	32.5

Phase 2 Employee Trip Emissions Summary

Emission Type	Vehicle Type	Hours since shutdown	Number of trips	One Way Miles	EMISSION FACTORS[1]					EMISSIONS (lb/day)				
					CO	NOx	ROG	SOx	PM	CO	NOx	ROG	SOx	PM
Driving emissions	Light Duty Auto	N/A	120	11	2.00	0.34	0.06	N/A	0.02	9.6	1.4	0.3		0.1
	Light Duty Truck				1.92	0.50	0.05	N/A	0.02					
Variable start emissions	Light Duty Auto	12+		N/A	20.66	0.90	1.60	N/A	N/A					
	Light Duty Truck				19.89	1.35	1.59	N/A	N/A					
	Light Duty Auto	3			15.51	1.11	1.09	N/A	N/A					
	Light Duty Truck				14.78	1.68	1.08	N/A	N/A					
	Light Duty Auto	40 min			7.50	0.95	0.59	N/A	N/A					
	Light Duty Truck				6.90	1.44	0.57	N/A	N/A					
Hot soak emissions	Light Duty Auto	N/A		N/A	N/A	N/A	0.39	N/A	N/A					
	Light Duty Truck				N/A	N/A	0.28	N/A	N/A					

1 Driving emission factors in lb/VMT. Variable start and hot soak emission factors are in gm/trip.

APPENDIX E2
EMISSION CALCULATIONS

The facility will generate air emissions from two (2) basic types of sources. The first type is combustion emissions from mobile sources. Combustion emissions from heavy equipment used at the facility are presented in Table E2-1 (Phase 1), Table E2-2 (Phase 2), and Table E2-3 (Construction). Combustion emissions from haul trucks, delivery trucks, and employee commuting (including both combustion and tire wear PM10 emissions) are presented in Tables E2-3 (Construction), E2-4 (Phase 1), and E2-5 (Phase 2).

The second type of emission sources is fugitive emissions from operations at the plant. These include emissions from aggregate conveying, processing, and loading as well as fugitive dust generated by travel over paved and unpaved surfaces. The emission calculations for this second group of sources is presented in the following sections.

PROPOSED PROJECT

Fugitive Emission Calculations

Dust will be generated by the physical removal of aggregate, rock, and sand. A substantial portion of these emissions consist of heavy particles that settle out in the immediate vicinity of where they are generated. Factors affecting emissions include the type, quantity, and surface moisture content of the stone and dirt removed; the type of equipment and operating practices used; and topographical and climatic factors, with wind and moisture content being of prime importance.

AP-42 (1995) gives emission factors for uncontrolled fugitive losses for open pit mining as well as loading and unloading of raw and aggregate materials. These emissions are based on a material moisture content of 1 to 2 percent. AP-42 does not present dust emissions data for aggregate mining. However, dust emissions associated with the removal of soil and rock can be best approximated from emission factors generated from open pit coal mines as presented in AP-42. Coal, being more friable, is expected to produce a greater level of PM-10 particulate matter than aggregate and thus presents a worst-case scenario.

Heavy Equipment Pit Operations

The operation will use low-yield blasting with excavation by a rubber-tired loader, followed by haul truck transport to a mobile crusher. The crushed material will then be transported to the plant by an electric-powered conveying system. Emission factors for the power shovel are presented at AP-42, Table 11.9-4, and are estimated at 0.037 pound of PM-30 per ton processed. After the material is excavated, it will placed directly in an apron feeder for direct conveyance to the processing facility. (Materials will not be trucked from the area of excavation.) Thus, the removal of 11,376 tons per day will produce 421 pounds of PM-30 dust. The PM-10 portion (20.1 percent) is calculated at 84.6 pounds per day. Phase 2 production (20,690 tons/day) will raise these values to 766 and 153.9 pounds per day for PM-30 and PM-10, respectively.

Product Conveyor Systems

Excavated material will be loaded to a conveyor system for travel to the plant. Dust emissions will also result from conveyor losses. Conveyor losses have been poorly documented, and little data exists from which to draw emission factors. AP-42 contains no data for open conveyor emissions. AP-42 (Table 11.19.2-2) estimates controlled transfer point emissions as 4.8×10^{-5} pounds of PM-10 per ton processed. Based on a daily throughput of 11,376 tons, each transfer point will emit about 0.5 pound of PM-10.

By Project design, operations in the main plant area will be further controlled by water or surfactant spray. This wetting of the material will further reduce conveyor emissions, and the resulting emission factor is projected to be roughly equivalent to that for a covered conveyor system. PM-10 loading losses from covered conveyor systems for crushed stone are presented as 0.0002 pounds per ton of material loaded. Based on a throughput of 11,376 tons per day, conveyor losses (including transfer points) are estimated at no more than 2 pounds per day. In Phase 2 the daily amount excavated and conveyed will increase to 20,690 tons, and conveyor losses are expected to rise to no more than 3 pounds per day.

Rock Processing

Permitted dust-producing equipment involved in rock crushing and conveyance will be vented to air pollution control equipment (filters) or be controlled by water spray. Furthermore, the inherent and induced moisture of the aggregate will help to further reduce PM-10 emissions.

In Phase 1, the maximum hourly rock plant throughput is 900 tons/hour. The average daily production is 7,963 tons/day. Phase 1 rock plant processing emissions were calculated based on the proposed equipment configuration, emission factors from AP-42 (Table 11.19.2-2), a maximum plant throughput 900 tons per hour, and 7,963 tons of product per day. The PM-10 emissions rock plant emissions for Phase 1 were calculated to be 21.9 lbs PM-10/day.

In Phase 2, the rock plant production increases to 1.8 times the production in Phase 1, or 14,480 tons/day. However, the plant will operate for 16 hours per day (as opposed to the 14 hours/day in Phase 1), so the maximum rock plant throughput will increase to 1,418 tons/hour. Again using AP-42 emission factors, the resulting rock plant emissions were calculated to be 40.4 pounds per day.

While it is anticipated that future technology will be used to accomplish additional emission reductions, the emissions presented in this analysis are calculated based on the present control technology. This then represents a worst-case scenario, and actual emissions will be well below the values presented here.

The calculation conservatively assumes that fines material will travel through the entire processing system. All emission points will be controlled by spray bars or filters/collectors.

Truck Loading

Emissions from truck loading of aggregate were calculated by the SCAQMD to be 12.4 pounds per day based on a production of 9,000 tons per day. Phase 1 will load out 7,963 tons per day. Thus, the anticipated fugitive PM-10 emissions from loading operations are calculated at 11.0 pounds per day.

Phase 2 will load out 14, 480 tons per day. Thus, the anticipated fugitive PM-10 emissions from loading operations are calculated at 20.0 pounds per day.

Concrete Plant Operations

The proposed operation will use transit mixed (truck mixed) concrete where the correct proportions of sand, aggregate, cement, and water are placed into the trucks for subsequent mixing.

Particulate emissions consist primarily of cement dust, however, some sand and rock gravel dust emissions do occur during batching operations. The potential exists for dust emissions during the unloading and conveying of concrete and rock during the loading of dry-batched concrete mix.

Emission factors for the batch plant were generated by R&W Consultants in accordance with AP-42 and approved by the SCAQMD in TMC's Permit to Construct Update and Application (West Coast Environmental 1991). Three areas of potential fugitive emissions were identified: cement unloading to the silos, weigh hopper loading, and transit mix loading. Based on the permitted processing limit of 4,500 cubic yards per day, and the controls to be installed (i.e. water spray bars, fabric filters with a control efficiency of 95 percent, and venting of the discharge zone back to the central dust collector) these three areas will generate 16.2, 15.3, and 5.5 pounds of PM-10 per day, respectively. Thus, the sum total for this facility is calculated to be 37.0 pounds per day. The proposed operation during both Phase 1 and 2 will have a throughput of only 1,500 tons per day (750 cubic yards). Thus, the presented values must be reduced by 83 percent for a total daily loading of 6.2 pounds per day.

Onsite Truck Movement Over Paved Surfaces

Dust will be generated along the various paved and unpaved onsite routes by heavy trucks that access and move materials around the site. These emissions are a major component of particulate matter in the vicinity of industrial operations. Furthermore, the quantity of dust raised is directly proportional to the volume of traffic and the surface dust loading.

Based on the SCAQMD Handbook, dust "kicked up" by the tires of trucks on haul roads can be calculated using the equation:

$$E = 0.77 \times (G \times 0.35)^{0.3}$$

Where

E = Emission factor (lb/vehicle mile traveled-VMT))
G = Road surface silt loading (grams per square meter-g/m^2)

AP-42 lists the mean silt loading for sand and gravel processing facilities as 70 g/m^2.

Based on this calculation, haul trucks traveling along the site access road from the site entrance to the facility area produce 2.0 pounds/VMT or 3.8×10^{-4} pounds per foot traveled. Trucks bound for the aggregate facility will travel over approximately 3,300 feet of paved road, round trip, and concrete and cement trucks will travel over approximately 2,400 feet of paved road, round trip. Based on 265 trucks accessing the aggregate facility (includes fines trucks) and an additional 82 trucks (including cement and fly ash deliveries) accessing the concrete facility on a daily basis, Phase 1 emissions are calculated at 407.9 pounds of PM-10 material per day.

Phase 2 will raise the number of trucks accessing the aggregate facility to 500 per day while those associated with the concrete and fly ash deliveries will remain at 82 per day. Phase 2 PM-10 emissions are then calculated at approximately 703.1 pounds per day.

Onsite Truck Movement Over Unpaved Surfaces

In addition to dust created by travel on the access road, fugitive dust will be generated onsite because of travel on unpaved roads situated between the paved access road and the aggregate and concrete facilities.

AP-42 presents emission factors for fugitive dust from travel on unpaved roads. The equation used is presented below:

$$E = k(5.9)\,(s/12)\,(S/30)\,(W/3)^{0.7}\,(w/4)^{0.5}\,[(365-p)/365]$$

where:

E	=	emission factor (lb PM-10/VMT)
k	=	particle size multiplier (dimensionless)
s	=	surface material silt content (%)
S	=	mean vehicle speed (mph)
W	=	average vehicle weight (tons)
w	=	mean number of wheels
p	=	number of days of precipitation per year

For haul trucks traveling along the unpaved portion of the access roads, the calculated emission factor uses the following values:

k	=	0.201 (for PM-10 particulates)
s	=	4.8 percent (mean value for sand and gravel processing from AP-42)
S	=	5 mph
W	=	26.5 tons (weighted average of empty trucks coming in [13 tons] and trucks hauling dirt out [40 tons])
w	=	18 wheels per truck
p	=	40 days (from AP-42 rain areal distribution map)

Based on this calculation, approximately 0.7 lb/VMT of PM-10 dust is generated by the trucks traveling along the unpaved portion of the access road. The calculated daily PM-10 emissions for Phase 1 for the 265 aggregate trucks per day average 500 feet round trip (25 miles total) are 17.5 pounds per day. Phase 2 raises the number of aggregate trucks to 500 per day and the distance over unpaved roads to 47 miles per day. The resulting PM-10 emissions are calculated as 33.1 pounds per day.

Scraper Emissions

It is estimated that during Phase 1, 65 scraper loads per day will move fines from the processing area to the reclamation area. The one-way distance could be as much as 1.25 miles. Thus, 162.5 miles could be traveled on a daily basis for the movement of fines. This material would be hauled across the site and would not travel on public roads. Dust emissions for this scraper travel were calculated in accordance with AP-42 (Table 11.9-1) using a PM-10 emission factor of 0.60 of the calculated PM-15 value and based on the following equation:

$$E = 6.2 \times 10^{-6} (s)^{1.4} (W)^{2.5}$$

where

E	=	PM-15 emission factor (lb/VMT)
s	=	surface material silt content (%)
W	=	average vehicle weight (tons)

For the scraper that hauls fines from the aggregate plant to the NFSA:

s	=	4.8 percent (mean value for sand and gravel processing, from AP-42)
W	=	96 tons (average weight of a full scraper and an empty scraper)

Based on these calculations, approximately 5.0 pounds per mile of PM-15 are generated by the scraper. AP-42 estimates PM-10 loading at 60 percent of the PM-15 value or about 3.0 pounds per mile. Thus, 162.5 miles for Phase 1 would produce 487.5 pounds of PM-10 on a daily basis.

Phase 2 will increase the use of the scraper and it is estimated that 118 scraper loads per day will move fines from the processing area to the reclamation area. Again, using a one-way distance of 1.25 miles, 295 miles could be traveled on a daily basis for the movement of fines. Based on a value of 3.0 pounds per mile for PM-10, daily loading is calculated at 885.0 pounds.

The loading and drop off of this material will also generate fugitive dust. Loading operations as presented in Table 11.9-4 of AP-42 are anticipated to generate 0.058 pound of PM-30 per ton loaded and unloading will generate an additional 0.002 pound per ton. Based on the movement of 3,411 tons per day for Phase 1, an additional 204.7 pounds of PM-30 dust will be generated. This value is reduced to 41.1 pounds of PM-10 based on the 20.1 percent PM-10 content of the material at the facility.

Phase 2 production is expected to increase the volume of fines moved to 6,205 tons per day. Again using values of 0.058 and 0.002 pounds of PM-30 per ton moved for loading and unloading, respectively, PM-30 emissions are estimated at 372.3 pounds per day. Reducing this value to reflect the 20.1 percent PM-10 content at the facility results in a value of 74.8 pounds per day.

North Fines Area Activity

Material transferred to the NFSA will be compacted through the use of heavy equipment. AP-42, Table 11.9-4, lists emissions from overburden replacement as 0.012 pounds of PM-30 per ton of material placed. Based on the movement of 3,911 tons per day for Phase 1, PM-30 emissions are calculated as 46.9 pounds per day. The PM-10 fraction (20.1 percent) would then be 9.4 pounds per day. Phase 2 operations will augment materials movement to 6,205 tons per day and PM-30 emissions are calculated at 74.5 pounds per day. The PM-10 fraction would then be 15.0 pounds per day.

Wind Erosion of Excavation

Dust will be generated as a result of wind erosion of the open excavation. As much as 106 acres will be open because of excavation at any one time. Wind erosion is presented as 0.38 ton of PM-30 per acre per year (AP-42, Table 11.9-4) for emissions of approximately 40.3 tons per year or about 220 pounds per day. The PM-10 fraction of this material is approximately 20.1 percent. Thus, in the absence of mitigation, as much as 44.2 pounds of PM-10 dust could be generated on a daily basis. The actively-mined area will receive water spray. If it is assumed that as much as 5 acres are actively mined and a 50 percent control efficiently for water spray, the Project-related wind erosion PM-10 emissions will be approximately 43.2 pounds per day. Because the total area of the excavation is not expected to change in Phase 2, emissions will be similar to those calculated for Phase 1.

Wind Erosion of NFSA

Wind erosion of the NFSA will also generate dust. This storage area is proposed at 61 acres with as much as 30.5 acres open at any one time. Again applying the 0.38 ton of PM-30 per acre per year factor (AP-42, Table 11.9-4, 1998), 11.6 tons per year or 63.5 pounds per day of PM-30 dust could be generated on a daily basis. The PM-10 portion (20.1 percent) would be 12.8 pounds per day. Because the total area of the NFSA is not expected to change in Phase 2, emissions will be similar to those calculated for Phase 1.

Wind Erosion of Stockpiles

The Applicant proposes as much as 6.5 acres dedicated to stockpiles. AP-42, Table 8.19.1-1 (1985) lists PM-10 emissions for active stockpiles at sand and gravel processing plant at 1.7 pounds per acre per day for inactive stockpiles and 6.3 pounds per acre per day for active stockpiles. If it is assumed that half of this stockpile is active and half is inactive, 26 pounds of PM-10 would be generated on daily basis. Adjusting the value to reflect the PM-10 content of the material at the facility, 11.6 pounds of PM-10 dust would be released on a daily basis. Because the amount of stockpiled material is not expected to change in Phase 2, emissions will be similar to those calculated for Phase 1.

Blasting

Low-yield blasting will be required to loosen subsurface material to the point where it can be mined using the above-mentioned equipment. Dust emissions for blasting related to crushed stone processing are documented in Table 11.9-1 of AP-42 (1998). The following equation is provided to determine the amount of dust generated:

$$E = 0.000014(A)^{1.5} \times 0.52$$

where:

E = PM-10 emissions (pounds per blast)
A = Area blasted (square feet)

The Applicant has indicated that each blast event will require forty-four 200-pound charges. Each charge will have 308 square feet of surface area, regardless of whether it is performed during Phase 1 or Phase 2. Therefore, 44 charges of 308 square feet each would generate approximately 1.73 pounds of PM-10.

NFSA CONVEYOR SYSTEM

Fugitive Emission Calculations

To reduce PM-10 emissions, TMC will use a semi-stationary "fines" conveyor system to move fines from the mobile crusher, located in the active mining area, directly to the NFSA. The fines conveyor system will extend along the haul road to the NFSA. A mobile conveyor will be located in the NFSA and will tie in to this stationary fines conveyor, allowing fines to be distributed throughout the NFSA without need for subsequent trucking of this materials.

The mobile crusher has the ability to remove almost all of the fines during the crushing process. The crusher will be equipped with two separate mobile conveyor systems. One of the mobile conveyors systems will transport fines removed in the initial crushing process to the main (stationary) fines conveyor and subsequently to the NFSA. The other mobile conveyor will transport excavation products to the main production conveyor which takes it to the rock plant for further processing.

Scraper Emissions

Because the scraper will be replaced by a the fines conveyor system, the scraper emissions will be reduced to 0 lbs/day for both Phase 1 and Phase 2.

Fines Conveyors

Emissions from the conveyor system to the NFSA are calculated using AP-42 emission factors. The conveyors to the NFSA will be open conveyors with transfer points controlled by water spray. AP-42

(Table 11.19.2-2, 1995) estimates controlled transfer point emissions as 4.8×10^{-5} pounds of PM-10 per ton processed. Based on a fines throughput of 3,640 tons/day for Phase 1 and 6,620 tons/day for Phase 2, each transfer point will emit about 0.17 pound of PM-10 per day for Phase 1 and 0.32 pound of PM-10 per day for Phase 2. With 16 transfer points, the fines conveyor system emissions are calculated to be 2.8 lbs./day for Phase 1 and 5.1 lbs./day for Phase 2.

Onsite Truck Movement Over Unpaved Surfaces

Because not all of the fines are removed at the mobile crusher, the rock plant also produces a small amount of fines during processing. These fines will be hauled by dump truck from the rock plant back to the fines conveyor where it meets the haul route. From this point, the fines will then travel on the stationary fines conveyor to the NFSA. Fugitive dust will be generated because of travel by the dump truck on unpaved roads (these trucks will not travel on paved roads).

AP-42 Section 13.2.2 (1998) presents the following emission factors for fugitive dust from travel on unpaved roads. The equation used is presented below:

$$E = k(s/12)^a \times (W/3)^b (M/0.2)^c$$

where:

E	=	emission factor (lb/VMT)
k	=	particle size multiplier (dimensionless)
s	=	surface material silt content (%)
W	=	average vehicle weight (tons)
M	=	moisture content (%)

for PM-10:

k	=	2.6 lb/VMT (AP-42 Table 13.2.2-2)
a	=	0.8 (AP-42 Table 13.2.2-2)
b	=	0.4 (AP-42 Table 13.2.2-2)
c	=	0.3 (AP-42 Table 13.2.2-2)

For haul trucks traveling along the unpaved portion of the access roads, the calculated emission factor uses the following values:

s	=	4.8 percent (mean value for sand and gravel processing from AP-42)
W	=	32.5 tons
M	=	2 %

Based on these calculations, approximately 1.62 lb/mile of PM-10 dust is generated by the fines haul trucks. The calculated daily emissions for Phase 1 for the 10 truck trips will travel 10.0 miles per day are 16.2 pounds per day. Phase 2 raises the number of fines haul truck trips to 18 per day and the

distance over unpaved roads to 18.2 miles per day. The resulting emissions are calculated at 29.5 pounds per day.

When these emissions are added to the onsite truck movement over unpaved surfaces for the other sources discussed above, the following PM-10 emissions result:

Phase	Aggregate Trucks	Fines Trucks	Total
Phase 1	17.5	16.2	33.7
Phase 2	33.1	29.5	62.6

COMPARISON OF EMISSIONS FROM PROPOSED PROJECT AND ALTERNATIVES

The table at the end of this section presents the on-site, off-site, and total emissions from the proposed project and the alternatives analyzed in detail. The emission categories are presented as direct (on-site) and indirect (off-site) emissions according to the following table:

Emission Category	On-site or Off-site
Heavy Equipment Operation	On-site
Haul Trucks	Off-site
Worker Vehicles	Off-site
Fugitive PM-10 Dust	On-site
Fuel Storage and Transfer	On-site
Offsite Electrical Generation	Off-site

Below is a brief discussion of the changes from the proposed project and the alternatives.

Proposed Action Alternative

Emissions calculation procedures for the proposed action are outlined in the previous sections of Appendix E2.

No Action Alternative

In this alternative, it is assumed that the project is constructed 30 miles east of the proposed project site and material is transported to the Los Angeles area. The no action alternative assumes the following:

- A mining project of identical size and scope is operated elsewhere.
- The alternative mining project is 30 miles east of the proposed TMC project.
- Off-site emissions will increase due to the alternative project and increased haul truck miles traveled.

Reduced NFSA Alternative

This alternative uses a reduced North Fines Storage Area (NFSA) in the Phase 2 of the project. The following Phase 2 emissions would be affected in the reduced NFSA alternative:

- Combustion emissions from heavy equipment will be reduced by either 28% or 8.3%, depending on whether the heavy equipment processes fines or total material, respectively.
- PM-10 emissions related to NFSA activity will be reduced by 28%, based on 5 million fewer tons of fines produced.
- NFSA wind erosion PM-10 emissions will be reduced by 54%, based on a decrease of the NFSA area by 18 acres to 21.5 acres.
- Emission changes are on-site.

Alternative Batch Plant Location Alternative

This alternative assumes that the batch plant is placed at Lang Station (not at the project site). In this alternative, there will be less emissions from ready mix trucks traveling to the project site, but increased emissions from trucks hauling aggregate to the batch plant. The net result is a decrease in off-site emissions.

The following are assumptions associated with the calculation of emission changes:

- EMFAC7G Heavy Duty Diesel emission factors at 45 MPH were used (1998 for Phase 1, 2008 for Phase 2).
- There is a 66-mile per day reduction in miles traveled.
- Emission changes are off-site.

Reclaimed Water Alternative

Due to the unknown nature of the water conveyance for this alternative (trucks or piping), it is assumed that emissions for this scenario will be similar to the proposed action alternative for both Phase 1 and Phase 2.

Product Transportation Alternative

This alternative considers the use of rail transport to the Los Angeles region, and subsequent delivery by trucks from that point. This will result in decreased truck emissions, but the generation of rail emissions. All emissions changes for this alternative are off-site. The following assumptions were used in the calculation of emission changes:

Phase 1

- 252 truckloads of product will be transported 2 times daily by 150 rail cars (75 each-way) with 4 engines.
- The average distance traveled by rail is 30 miles each way (assumed to take 45 minutes).
- Engines run at ¾ throttle ("run 6"; 75 gallons per hour) during the 3.0 hour total trip time.
- AP-42, Section II-2 emission factors were used.
- 252 haul truck distances are decreased by 10 miles in each direction per day.

Phase 2

- 475 truckloads of product will be transported 4 times daily by 130 rail cars (65 each-way) with 4 engines.
- The average distance traveled by rail is 30 miles each way (assumed to take 45 minutes).
- Engines run at ¾ throttle ("run 6"; 75 gallons per hour) during the 6.0 hour total trip time.
- AP-42, Section II-2 emission factors were used.
- 475 haul truck distances are decreased by 10 miles in each direction per day.

Alternative NFSA Location Alternative

This alternative evaluates using an alternate site for fines storage. The following are assumptions associated with the calculation of emission changes:

- Engine emissions and entrained road dust increase proportionately with the increased distance to the alternative NFSA.
- Emissions changes are attributed to the alternative NFSA location separately.

Reduced Quantity Mining Concept Alternative

In this alternative, project production in Phase 2 is decreased to Phase 1 levels. The emission changes for Phase 2 are assumed to be uniform between on- and off-site emissions.

Summary of emissions (Proposed Action and Alternatives Considered in Detail)

Phase 1

Scenario (lbs/day)	CO			NOx			ROG			SOx			PM10 *(italics w/ blasting)*		
	OFF	ON	Total	OFF	ON	Total	OFF	ON	Total	OFF	ON	Total	OFF	ON	Total
Proposed Action Alternative	203	134	337	397	364	761	18.6	49.7	68.3	3.7	44.1	47.8	27.5	203.3 *205.0*	230.8 *232.5*
No Action Alternative	586	0	586	1201	0	1201	114.3	0.0	114.3	47.8	0.0	47.8	265.8 *267.5*	0.0	265.8 *267.5*
Reduced NFSA Alternative	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
Alternative Batch Plant Location Alternative	202	134	336	395	364	760	18.4	49.7	68.1	3.7	44.1	47.8	27.4	203.3 *205.0*	230.7 *232.4*
Reclaimed Water Alternative	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
Product Transportation Alternative	277	134	411	570	364	934	30.9	49.7	80.6	55.0	44.1	99.1	40.2	203.3 *205.0*	243.5 *245.2*
Alternative NFSA Location Alternative[1]	203	134/9	345	397	364/30	792	18.6	49.7/2.3	70.6	3.7	44.1/2.2	50.0	27.5	203.3/61.8 *205.0*	292.6
Reduced Quantity Mining Concept Alternative	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C

1 The first number in the ON column shows emissions on the Proposed Project site. The second number denotes emissions associated with the Alternative NFSA Location (not the Proposed Project site).

OFF = Off-Site emissions (Indirect)
ON = On-Site emissions (Direct)
N/C = No change from Proposed Action

Phase 2

Scenario (lbs/day)	CO			NOx			ROG			SOx			PM10 *(italics w/ blasting)*		
	OFF	ON	Total	OFF	ON	Total	OFF	ON	Total	OFF	ON	Total	OFF	ON	Total
Proposed Action Alternative	323	209	532	432	660	1,092	51.2	30.5	81.7	4.2	71.5	75.7	21.0	340.7 *342.4*	361.7 *363.4*
No Action Alternative	926	0	926	1,594	0	1,594	127.7	0.0	127.7	75.7	0.0	75.7	386.7 *388.4*	0.0	386.7 *388.4*
Reduced NFSA Alternative	323	182	505	432	517	949	51.2	26.2	77.4	4.2	56.9	61.1	21.0	322.7 *324.4*	343.7 *345.4*
Alternative Batch Plant Location Alternative	322	209	531	430	660	1,090	51.0	30.5	81.5	4.2	71.5	75.7	20.9	340.7 *342.4*	361.6 *363.3*
Reclaimed Water Alternative	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
Product Transportation Alternative	486	209	695	867	660	1,527	87.2	30.5	117.7	106.8	71.5	178.3	58.1	340.7 *342.4*	398.8 *400.5*
Alternative NFSA Location Alternative[1]	323	209/14	546	432	660/51	1,143	51.2	30.5/3.5	85.2	4.2	71.5/3.6	79.3	21.0	340.7/166.5 *342.4*	528.2 *529.9*
Reduced Quantity Mining Concept Alternative	203	134	337	397	364	761	18.6	49.7	68.3	3.7	44.1	47.8	27.5	203.3 *205.0*	230.8 *232.5*

[1] The first number in the ON column shows emissions on the Proposed Project site. The second number denotes emissions associated with the Alternative NFSA Location (not the Proposed Project site).

OFF = Off-Site emissions (Indirect)
ON = On-Site emissions (Direct)
N/C = No change from Proposed Action

APPENDIX E3

MODELING STUDY
(West Coast Environmental 2000)

WEST COAST

ENVIRONMENTAL AND ENGINEERING

Air Quality Modeling Results

Estimated NO_2 And PM_{10} Emissions from Transit Mixed Concrete Company Soledad Canyon Project

May 8, 2000

Prepared for: Transit Mixed Concrete Company
P.O. Box 575
Azusa, CA 91702

Prepared by: West Coast Environmental and Engineering
4253 Transport Street, Suite A
Ventura, CA 93003

WCE Project # TR110-28

4253 Transport Street
Suite A
Ventura, CA 93003
Phone 805/644-7976
Fax 805/644-5929

444 South Flower Street
31st Floor
Los Angeles, CA 90071
Phone 213/229-0075
Fax 213/229-0088

www.wcenviro.com

WEST COAST
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AIR QUALITY MODELING RESULTS
TRANSIT MIXED CONCRETE COMPANY SOLEDAD CANYON PROJECT

May 8, 2000

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WEST COAST
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AIR QUALITY MODELING RESULTS
TRANSIT MIXED CONCRETE COMPANY SOLEDAD CANYON PROJECT

May 8, 2000

1.0 INTRODUCTION

This report summarizes the results of computer modeling performed to determine the potential air quality impacts of the Transit Mixed Concrete Company (TMC) Soledad Canyon Project (Project) located at 12101 Soledad Canyon Road in Canyon Country, CA.

The potential worst case change in ambient air quality for the Proposed Project and the Reduced North Fines Storage Area (RNFSA) alternative were estimated using the atmospheric dispersion model, Breeze Industrial Source Complex, Version 3.2.2 (ISCST3) written by Trinity Consultants based on EPA source code Version 99155. The results generated by emissions modeling are conservative. The input data used in the modeling reflects worst case conditions. The model scenarios are designed to estimate the highest possible emissions from the facility under a variety of averaging conditions so that they may be compared with current South Coast Air Quality Management District (SCAQMD) and National Ambient Air Quality Standards (NAAQS). The results presented in this report represent the worst case pollutant concentrations that would result from the Proposed Project or the RNFSA Alternative.

Modeling runs were carried out for two different pollutants over three different averaging periods. The pollutants modeled were Nitrogen Dioxide (NO_2) and Particulate Matter less than 10 microns in diameter (PM_{10}). The averaging periods modeled were Maximum Hourly average for NO_2, 24-Hour (Daily) Average for PM_{10}, and Annual Average for NO_2 and PM_{10}. A brief description of each of these periods follows.

Maximum Hourly Average

The model determines the concentration for every hour of the year (8,760 hours). The hour with the highest concentration for the entire year is then selected. The most stringent NO_2 maximum hourly average concentration is 470 $\mu g/m^3$ for this averaging period, a California Standard. No maximum hourly average threshold exists for PM_{10}.

24-Hour (Daily) Average

The 24 hourly concentrations within each calendar day (midnight to midnight) are averaged to determine the daily average. The day with the highest average concentration is the maximum daily average concentration. The most stringent PM_{10} 24-hour average concentration is 50 $\mu g/m^3$. No 24-hour average threshold criteria has been established for NO_2.

Annual Average

The model averages the 8,760 hourly concentrations that occur within the calendar year (from January 1 to December 31). The most stringent annual average concentrations for NO_2 and PM_{10} are 100 $\mu g/m^3$ and 50 $\mu g/m^3$ (annual arithmetic mean, AAM), respectively. California has established an annual average geometric (AGM) mean threshold of 30 $\mu g/m^3$ for $PM_{10,}$ however EPA air modeling software used in this study does not analyze data for AGM.

Meteorological data from the Lancaster and Newhall Stations (currently named Santa Clarita) were evaluated. Data from the Newhall Station was used in the modeling because the station is physically closer to the Project and is located in the same airshed. Site specific data from the Project was input into ISCST3 to estimate the potential increase in ambient pollutant concentrations attributable to the Project.

The modeling was performed without calms processing (i.e. NOCALMs) as required by SCAQMD. Treatment of calm or light and variable wind poses a special problem in model applications since Gaussian models assume that concentration is inversely proportional to wind speed. Furthermore, concentrations become unrealistically large when wind speeds less than 1 m/s are input to the model. The clams processing procedure has been developed for use with meteorological data to prevent the occurrence of overly conservative concentration estimates during periods of calms. The procedure acknowledges that a Gaussian plume model does not apply during calm conditions and that our knowledge of plume behavior and wind patterns during these conditions does not, at present, permit the development of a better technique. Therefore, the calms processing procedure disregards hours which are identified as calm. Results using NOCALMs processing are generally more conservative than when using calms processing.

2.0 GENERAL INFORMATION

The Transit Mixed Concrete Company (TMC), Soledad Canyon Project (Project) will mine and process natural rock formations into aggregate rock, sand and concrete products to be used in the construction industry. The natural rock formations will be mined under a Federal contract with the Bureau of Land Management (BLM) and mining by TMC will continue in two ten-year phases for a total of approximately 20 years from the start of operations. The mining operation will not only provide aggregate and sand for use off-site, but will use the sand and aggregate on site in a concrete batch plant to produce ready mix concrete for immediate use at local construction sites.

Emissions of constituents for which the project exceeds the SCAQMD significance threshold for total daily emissions include Particulate Matter less than 10 microns (PM_{10}) from various mining operations and Nitrogen Dioxide (NO_2) from the operation of on-site internal combustion (I.C.) engines.

This modeling has been performed to be included in Project environmental impact documents prepared by The Chambers Group, Inc.

3.0 MODELING PARAMETERS

3.1 Model

The potential air quality impact from the Project was estimated using the Breeze Industrial Source Complex Suite (ISCST3). ISCST3 is a computer model source code designed by the Environmental Protection Agency (EPA) to estimate ambient pollutant concentrations based on site specific input data. The following version of ISCST3 was used:

Model:	Breeze ISC Suite
Version:	3.2.2
Version Date:	1999
Produced By:	Trinity Consultants, Inc.
EPA Source Code:	99155

ISCST3 was selected for this project for two reasons. First, it is the EPA's and SCAQMD's "workhorse" air dispersion model and is compatible with existing meteorological data. Second, the project has a variety of source types that were modeled as both area sources and volume sources, and ISCST3 handles both source types well.

3.2 Sources

3.2.1 Source Types

The source sizes and types were characterized in the modeling to best simulate the proposed sources at the facility. The same source parameters (except for emission rate) were used for both Phase 1 and Phase 2 of this project. The emission rates in pounds per day were converted to grams per second (g/sec) for volume sources and grams per second per square meter (g/sec/m^2) for area sources. The calculations for hourly NO_2 emissions assumed a worst case scenario in which maximum emissions from all equipment is assumed to occur, based on the expected operating schedule, during one 16-hour workday. The annual NO_2 and the 24-hour and annual PM_{10} concentrations were calculated using average daily (24 hr/day) emission rates.

3.2.2 Plume Rise

Plume rise calculations were performed for combustion sources using the EPA approved TSCREEN modeling program. The model predicts a plume rise of 7 meters above the ground surface, at a distance of 50 meters from the source. The largest sources at the proposed facility were estimated as being 100 meters on a side. Assuming that the emissions originate at the center of the source, the maximum plume at 50 meters would be the plume rise from that source. Thus, 7.0 meters was used as the height of all volumes sources. A copy of the plume rise calculations can be found in Appendix E.

3.2.3 Phase 1 Emissions - Proposed Project and RNFSA Alternative

The modeled emission rates for Phase 1 were calculated from the emissions presented in Tables 3.1.7-12 and 3.1.7-14 of the Final Environmental Impact Statement (FEIS). Emissions in Phase 1 of the Proposed Project and the RNFSA Alternative are equivalent. The sources and estimated emission rates for the proposed facility during Phase 1 of the project are listed in Table 3.2.3-1 (NO_2 sources) and Table 3.2.3-2 (PM_{10} sources).

Table 3.2.3-1 Phase 1 - NO_2 Sources

Source	Type	Size	Emission Rate		Emission Rate
			Hourly	Annual	Units
Fines Storage and Handling	Volume	25m x 25m x 7m	0.0485	0.0323	(g/sec)
Rock Plant	Volume	25m x 25m x 7m	0.276	0.184	(g/sec)
Pit Operations	Volume	25m x 25m x 7m	2.21	1.47	(g/sec)
Stock Piles	Volume	25m x 25m x 7m	0.617	0.412	(g/sec)

Table 3.2.3-2 Phase 1 - PM_{10} Sources

Source	Number of Sources	Type	Size	Emission Rate Per Source	Emission Rate Units
Pit Operations	1	Area	100m x 100m	5.31 E-05	$g/sec/m^2$
Fines Storage and Handling	4	Area	100m x 100m	1.04 E-06	$g/sec/m^2$
Rock Plant	1	Volume	50m x 50m x 7m	3.40 E-01	g/sec
Batch Plant	1	Volume	50m x 50m x 7m	3.25 E-02	g/sec
Road		Area line	2363m x 10m	6.22 E-07	$g/sec/m^2$
Stock Piles	1	Area	100m x 100m	1.10 E-05	$g/sec/m^2$

3.2.4 Phase 2 Emissions - Proposed Project

The modeled emission rates for Phase 2 were calculated from the emissions presented in Tables 3.1.7-13 and 3.1.7-15 of the FEIS. The sources and estimated emission rates for the proposed facility are listed in Table 3.2.4-1 (NO_2 sources) and Table 3.2.4-2 (PM_{10} sources) below.

Table 3.2.4-1 Phase 2 - NO_2 Sources for Proposed Project

Source	Type	Size	Emission Rate		Emission Rate
			Hourly	Annual	Units
Fines Storage and Handling	Volume	25m x 25m x 7m	0.097	0.0647	(g/sec)
Rock Plant	Volume	25m x 25m x 7m	0.409	0.273	(g/sec)
Pit Operations	Volume	25m x 25m x 7m	3.91	2.61	(g/sec)
Stockpiles	Volume	25m x 25m x 7m	0.818	0.545	(g/sec)

Table 3.2.4-2 Phase 2 - PM_{10} Sources for Proposed Project

Source	Number of Sources	Type	Size	Emission Rate	Emission Rate Units
Pit Operations	1	Area	100m x 100m	8.90 E-05	g/sec/m^2
Fines Storage and Handling	4	Area	100m x 100m	1.40 E-06	g/sec/m^2
Rock Plant	1	Volume	50m x 50m x 7m	5.97 E-01	g/sec
Batch Plant	1	Volume	50m x 50m x 7m	3.25 E-02	g/sec
Road	13	Area line	2363m x 10m	1.13 E-06	g/sec/m^2
Stock Piles	1	Area	100m x 100m	1.87 E-05	g/sec/m^2

3.2.5 Phase 2 Emissions - RNFSA Alternative

The modeled emission rates for Phase 2 were calculated from the emissions presented in Tables 3.1.7-12, 3.1.7-13, 3.1.7-14, 3.1.7-15 and Section 3.2.7.2 of the FEIS. The sources and estimated emission rates for the proposed facility are listed in Table 3.2.5-1 (NO_2 sources) and Table 3.2.5-2 (PM_{10} sources) below.

Table 3.2.5-1 Phase 2 - NO_2 Sources for RNFSA Alternative

Source	Type	Size	Emission Rate		Emission Rate
			Hourly	Annual	Units
Fines Storage and Handling	Volume	25m x 25m x 7m	0.070	0.047	(g/sec)
Rock Plant	Volume	25m x 25m x 7m	0.409	0.273	(g/sec)
Pit Operations	Volume	25m x 25m x 7m	3.53	2.35	(g/sec)
Stockpiles	Volume	25m x 25m x 7m	0.818	0.545	(g/sec)

Table 3.2.5-2 Phase 2 - PM_{10} Sources RNFSA Alternative

Source	Number of Sources	Type	Size	Emission Rate	Emission Rate Units
Pit Operations	1	Area	100m x 100m	8.26 E-05	$g/sec/m^2$
Fines Storage and Handling	4	Area	100m x 100m	7.55 E-07	$g/sec/m^2$
Rock Plant	1	Volume	50m x 50m x 7m	5.97 E-01	g/sec
Batch Plant	1	Volume	50m x 50m x 7m	3.25 E-02	g/sec
Road	13	Area line	2363m x 10m	1.13 E-06	$g/sec/m^2$
Stock Piles	1	Area	100m x 100m	1.87 E-05	$g/sec/m^2$

3.3 Receptors

Discrete receptors were placed at 100 meter increments along the proposed facility property line. The nearest dwelling, located across Soledad Canyon Road from the south end of the facility, is the closest receptor. The second closest receptor is River's End Trailer Park (Trailer Park) located west of the southwest corner of the facility. Discrete receptors were input into the model to estimate the pollutant concentration at these two locations.

All runs used 20 grid receptors, each located every 250 meters. Discrete cartesian receptors included the facility boundary receptors, and the two sensitive receptors (the nearest dwelling and trailer park).

3.4 Meteorological Data

The following meteorological (Met) data was obtained from the SCAQMD web site for projects in this location and input into ISCST3:

Location:	Newhall Station: 51-115-99999 (a.k.a. Santa Clarita Station)
Year:	1981

The Newhall meteorological data collection site is physically closest to the subject site and is the same airshed as the site. This data is the most representative available because it is the only data approved and recommended by the SCAQMD for use in this area. EIRs prepared for projects in this area use this data if an air quality analysis is performed. When the location of the Newhall Station is compared to the project site, use of the Newhall data is conservative because, due to the project location in a canyon, wind speeds at the site will likely be higher than at the monitoring station. In general, lower average wind speeds result in higher pollutant concentrations. A wind rose from the Newhall station is found in Appendix A.

3.5 Background Concentrations

The background concentrations for NO_2 were extracted from the *Air Resources Board, California Air Quality Data - Summary of 1995 Air Quality Data - Vol. XIII*. The data for NO_2 was reported in ppm and is converted to $\mu g/m^3$ in Table 3.4-1. More current NO_2 data was not available because the NO_2 monitoring equipment was removed from the Santa Clarita Station after the 1995 reporting year.

Table 3.5-1 NO_2 Background Concentration Conversion

Pollutant	Averaging Period	Background Concentration[A] (ppm)	Background Concentration ($\mu g/m^3$)
NO_2	Maximum Hourly	0.16	301.0
	Annual Average	0.03	56.4

[A]Source: Air Resources Board, Vol. XXIII, Summary of 1995 Air Quality, Santa Clarita Station

The PM_{10} background concentration used was the average of SCAQMD Santa Clarita station monitoring data for 5 years from 1994 though 1998. Table 3.5-2 presents the PM_{10} background data.

Table 3.5-2 PM_{10} Background Data

Year	24-hour Average Maximum	Annual Arithmetic Mean	Annual Geometric Mean
	($\mu g/m^3$)		
1994	66	35.8	31.7
1995	87	37	31.2
1996*	91	33.1	29.6
1997	67	32.9	30.5
1998	60	30	27.3
5-Year Average	**74**	**33.8**	**30.1**

* Less than 12 full months of data reported.

The background data used in this modeling is representative and conservative because the Newhall station is located upwind and closer to metropolitan Los Angeles area which is the primary source of pollution for the region. Also, the data is conservative because the station is located in a developed semi-industrial area with open space across the road and is surrounded by urban development.

3.6 Coordinate System

The Universal Transverse Mercator (UTM) coordinate system was used for source and receptor input and output for this project. The Northing UTM coordinate is specified as the distance between the receptor and the equator of the earth in kilometers. The Easting UTM coordinate is the distance from the location to the baseline for UTM Zone 11.

The UTM coordinate system is the standard for modeling and thus used exclusively for this project.

4.0 RESULTS AND DISCUSSION - PROPOSED PROJECT

4.1 Phase 1 - Results

The results of the Phase 1 modeling are found in Table 4.1-1. This table shows the concentrations at the boundary receptors with the highest estimated NO_2 and PM_{10} concentrations for the specified averaging period. These values are then added to the background concentrations discussed in Section 4.1. The most stringent air quality standard and significant change in air quality concentration as described by SCAQMD Reg. XIII are also listed for purposes of comparison.

Table 4.1-1 Phase 1 Results - Proposed Project

Pollutant	Averaging Period	Highest Concentration at Project Boundary ($\mu g/m^3$)	Background Concentration[A] ($\mu g/m^3$)	Total ($\mu g/m^3$)	Significant Change[B] ($\mu g/m^3$)	Most Stringent Air Quality Standard[B] ($\mu g/m^3$)
NO_2	Maximum Hourly	285	301.0	586	20	500 (470[C])
	Annual Average	12.9	56.4	69.3	1	100
PM_{10}	24-Hour Average	25.0	74	99.0	2.5	50
	Annual Average - Arithmetic Mean	5.90	33.8	39.7	n/a	50 (Federal Std)
	Annual Average - Geometric Mean	n/a	30.1	n/a	1	30

[A] Source: Air Resources Board, Vol. XXIII, Summary of 1995 Air Quality, Santa Clarita Station (NO_2) and SCAQMD 1994, 1995, 1996, 1997, and 1998 Santa Clarita Station (PM_{10}) monitoring data.

[B] Source: SCAQMD Reg. XIII, Table A-2

[C] SCAQMD Reg. XIII, Table A-2 lists the most stringent air quality standard as 500 $\mu g/m^3$, however, the state standard is 470 $\mu g/m^3$.

4.1.1 Phase 1 - NO_2 Results

The highest hourly NO_2 concentration resulting from project activities at the facility boundary is 285 $\mu g/m^3$. This exceeds the SCAQMD Significant Change threshold. When this concentration is added to the background concentration of 301.0 $\mu g/m^3$, the result is 586 $\mu g/m^3$. This exceeds the most stringent air quality standard of 500 $\mu g/m^3$ listed in SCAQMD Reg. XIII and the State of California standard of 470 $\mu g/m^3$.

The highest annual NO_2 concentration at the facility boundary is 12.9 $\mu g/m^3$. This exceeds the SCAQMD Significant Change threshold. When added to the background concentration of 56.4 $\mu g/m^3$, the result is 69.3 $\mu g/m^3$. This does not exceed the most stringent air quality standard of 100 $\mu g/m^3$.

The highest hourly NO_2 concentration and highest annual NO_2 concentration occur at boundary receptors B5 and B37 which are located on the eastern and western boundaries, respectively. The receptor in the hourly-averaged model is located at UTM coordinate (376700, 3811250: B5). The receptor in the annual average model is located at UTM coordinate E: (375466, 3811828: B37). These boundary receptors are indicated in Appendix C on Figures C-1 and C-2.

4.1.2 Phase 1 - PM_{10} Results

The highest 24-hour average PM_{10} concentration resulting from project activities at a boundary receptor is 25.0 $\mu g/m^3$. This exceeds the threshold for Significant Change in air quality concentration. However, it does not exceed the most stringent air quality standard of 50 $\mu g/m^3$ or the SCAQMD fugitive dust Rule 403 fence line concentration threshold of 50 $\mu g/m^3$ for a 24-hour averaging period. The background PM_{10} concentration for this area is 74 $\mu g/m^3$. This exceeds the most stringent air quality standard for PM_{10} of 50 $\mu g/m^3$. Thus, the air quality standard for PM_{10} is currently exceeded without the Project.

The highest annual average PM_{10} concentration at a boundary receptor is 5.90 $\mu g/m^3$. This is an arithmetic mean calculated by the model. When added to the background arithmetic mean of 33.8 $\mu g/m^3$ the result is 39.7 $\mu g/m^3$. The annual average provided by the SCAQMD is a geometric mean of 30.1 $\mu g/m^3$. These two numbers are not directly comparable as geometric mean and arithmetic mean are calculated by different methods.
The most stringent air quality standard for annual average of PM_{10} (geometric mean) is 30 $\mu g/m^3$. The background concentration for annual average of PM_{10} (geometric mean) is 30.1 $\mu g/m^3$. Thus, the air quality standard for PM_{10} is currently exceeded without the Project.

The highest boundary receptor PM_{10} concentration for the 24-hour average and annual average occur at different boundary receptors. The receptor with the highest 24-hour average is located by the UTM coordinates (376353, 3810785: B64). This boundary receptor is located on the southern border of the facility. The receptor with the highest annual average is located by the UTM coordinates (375464, 3811924: B36). This is located on the northern facility boundary, east of the North Fines Storage Area.

4.1.3 Phase 1 - Contour Plots

Four (4) isopleth plots of the results of Phase 1 modeling are found in Appendix C. The plots, labeled Figure C-1 through Figure C-4 in Appendix C, show concentration isopleths illustrating the dispersion of PM_{10} and NO_2 from the site. The plots reflect the concentrations modeled in the November 17, 1999 version of this report. The plots are a conservative representation of the models presented in this report because the emission levels modeled have decreased due to mitigations that have been added to the Project. The concentration that is plotted on each of these isopleths is the most stringent air quality standard from SCAQMD Regulation XIII, Table A-2. Also plotted is the proposed facility boundary, the two receptors closest to the site, and the boundary receptors with the highest NO_2 and PM_{10} levels.

4.2 Phase 2 - Results

The results of the Phase 2 modeling are found in Table 4.2-1. This table shows the concentrations at the boundary receptors with the highest NO_2 and PM_{10} concentrations for the specified averaging period. These values are then added to the NO_x and PM_{10} background concentrations. NO_x background concentrations were found in the *Air Resources Board, California Air Quality Data - Summary of 1995 Air Quality Data - Vol. XIII*. More current NO_x data was not available because the NO_x monitoring equipment was removed from the Santa Clarita Station after the 1995 reporting year. PM_{10} background concentrations were averaged over 5 years from SCAQMD Santa Clarita Station 1994, 1995, 1996, 1997, and 1998 monitoring data as shown in Table 3.5-2. The most stringent air quality standard and significant change in air quality concentration as described by SCAQMD Reg. XIII are also listed for purposes of comparison.

Table 4.2-1 Phase 2 Results - Proposed Project

Pollutant	Averaging Period	Highest Concentration at Project Boundary ($\mu g/m^3$)	Background Concentration[A] ($\mu g/m^3$)	Total ($\mu g/m^3$)	Significant Change[B] ($\mu g/m^3$)	Most Stringent Air Quality Standard[B] ($\mu g/m^3$)
NO_2	Maximum Hourly	454	301.0	755	20	500 (470[C])
	Annual Average	22.4	56.4	78.8	1	100
PM_{10}	24-Hour Average	41.1	74	115.1	2.5	50
	Annual Average - Arithmetic Mean	9.50	33.8	43.3	n/a	50 (Federal Std.)
	Annual Average - Geometric Mean	n/a	30.1	n/a	1	30

[A] Source: Air Resources Board, Vol. XXIII, Summary of 1995 Air Quality, Santa Clarita Station (NO_2) and SCAQMD 1994, 1995, 1996, 1997, and 1998 Santa Clarita Station (PM_{10}) monitoring data.

[B] Source: SCAQMD Reg. XIII, Table A-2

[C] SCAQMD Reg. XIII, Table A-2 lists the most stringent air quality standard as 500 $\mu g/m^3$, however, the state standard is 470 $\mu g/m^3$.

4.2.1 Phase 2 - NO_2 Results

The highest hourly NO_2 concentration is 454 $\mu g/m^3$. This exceeds the SCAQMD Significant Change threshold. When this concentration is added to the background concentration of 301 $\mu g/m^3$, the result is 755 $\mu g/m^3$. This exceeds the most stringent air quality standard of 500 $\mu g/m^3$ listed in SCAQMD Reg. XIII and the State of California standard of 470 $\mu g/m^3$.

The highest annual NO_2 concentration is 22.4 $\mu g/m^3$. This too exceeds the SCAQMD Significant Change threshold. When added to the background concentration of 56.4 $\mu g/m^3$, the result is 78.8 $\mu g/m^3$. This does not exceed the most stringent air quality standard of 100 $\mu g/m^3$.

The highest hourly NO_2 boundary concentration occurs at UTM coordinate (376700, 3811250: B58). This receptor is on the southern boundary of the proposed facility, near the boundary midpoint. The highest annual average concentration occurred at UTM coordinate (375466, 3811828: B37). This is also the same receptor that had the highest annual average concentration of NO_2 in Phase 1.

4.2.2 Phase 2 - PM_{10} Results

The highest 24-hour average PM_{10} concentration is 41.1 $\mu g/m^3$. This exceeds the threshold for Significant Change in air quality concentration, but does not exceed the most stringent air quality standard of 50 $\mu g/m^3$ and the SCAQMD fugitive dust Rule 403 fence line concentration threshold of 50 $\mu g/m^3$. The background PM_{10} concentration for this area is 74 $\mu g/m^3$. This exceeds the most stringent air quality standard for PM_{10} of 50 $\mu g/m^3$. Thus, the air quality standard for PM_{10} is exceeded without the Project.

The highest annual average PM_{10} concentration at a boundary receptor is 9.50 $\mu g/m^3$. This is an arithmetic mean calculated by the model. When added to the background arithmetic mean of 33.8 $\mu g/m^3$ the result is 43.3 $\mu g/m^3$. The annual average provided by the SCAQMD is a geometric mean of 30.1 $\mu g/m^3$. These two numbers are not directly comparable as geometric mean and arithmetic mean are calculated by different methods.

The most stringent air quality standard for annual average of PM_{10} (geometric mean) is 30 $\mu g/m^3$. The background concentration for annual average of PM_{10} (geometric mean) is 30.1 $\mu g/m^3$. Thus, the air quality standard for PM_{10} is currently exceeded without the Project.

The highest boundary receptor PM_{10} concentration for 24-hour average occurs at the UTM coordinates (376353, 3810785: B64). This boundary receptor is located on the southern edge of the proposed facility and is the same receptor that exhibited the maximum daily concentration in the Phase 1 modeling. The highest annual average occurs at UTM coordinates (375464, 3811924: B36). This boundary receptor is located on the northern edge of the proposed facility in the same location as the Phase 1 highest boundary annual average concentration.

4.2.3 Phase 2 - Contour Plots

Four (4) isopleth plots of the results of Phase 2 modeling are found in Appendix C. The plots, labeled Figure C-5 through C-8, show concentration contours illustrating the dispersion of Phase 2 PM_{10} and NO_2 emissions from the site. The plots reflect the concentrations modeled in the November 17, 1999 version of this report. The plots are a conservative representation of the models presented in this report because the emission levels modeled have decreased due to mitigations that have been added to the Project. The concentration that is plotted on each of these isopleths is the most stringent air quality standard from SCAQMD Regulation XIII, Table A-2. Also plotted is the boundary of the proposed facility, and the two receptors closest to the site.

4.2.4 Phase 2 - San Gabriel Wilderness Modeling Results

The impact of Phase 2 Project NO_2 and PM_{10} emissions on the San Gabriel Wilderness area located approximately 33.5 km to the east was modeled. The model runs are summarized in Table 4.2.4-1 and are located in Appendix D.

Table 4.2.4-1 Phase 2 - San Gabriel Wilderness Modeling Results

Emittant	Phase 2 Maximum Concentration ($\mu g/m^3$)	PSD Standard, 40 CFR 51.165(b)(2) ($\mu g/m^3$)	Exceed Standard at Class I area ?
PM_{10} - 24 Hour Average	0.0958	5.0	No
PM_{10} - Annual Average	0.0094	1.0	No
NO_2 - Annual Average	0.0176	1.0	No

4.3 Summary

Table 4.3-1 summarizes the results of Phase 1 and Phase 2 modeling for the Proposed Project.

Table 4.3-1 Results Significance Summary - Proposed Project

Pollutant	Period	Project Phase	Do Project emissions exceed SCAQMD Significance Level?[A]	Do Project emissions exceed SCAQMD Most Stringent Air Quality Standard?[A]	Do Project emissions exceed California Standard?[B]	Will addition of Project emissions to current background concentrations exceed the California Standard?
NO_2	Maximum Hourly	1	Yes	No	No	Yes
		2	Yes	No	No	Yes
	Annual Average	1	Yes	No	No	No
		2	Yes	No	No	No
PM_{10}	24-Hour Average	1	Yes	No	No	Yes
		2	Yes	No	No	Yes
	Annual Average - Arithmetic Mean	1	Yes	No	--[C]	--[C]
		2	Yes	No	--[C]	--[C]
	Annual Average - Geometric Mean	1	--[D]	--[D]	--[D]	No
		2	--[D]	--[D]	--[D]	No

[A] Source: SCAQMD Reg. XIII, Table A-2
[B] Source: Air Resources Board, Vol. XXIII, Summary of 1995 Air Quality, Santa Clarita Station (NO_2) and SCAQMD 1994, 1995, 1996, 1997, and 1998 Santa Clarita Station (PM_{10}) monitoring data.
[C] No Standard
[D] Not determinable

Table 4.3-2 shows the estimated pollutant concentrations directly related to the Proposed Project for the two sensitive receptors closest to the Transit Mixed Facility.

Table 4.3-2 Sensitive Receptor Concentrations - Proposed Project

			Sensitive Receptor Concentration from Project Emissions ($\mu g/m^3$)			
Pollutant	Averaging Period	Project Phase	Nearest Dwelling	River's End Trailer Park	Significant Change[A] ($\mu g/m^3$)	Most Stringent Air Quality Standard[A] ($\mu g/m^3$)
NO_2	Maximum Hourly	1	138	89.6	20	500
		2	245	155		(470[B])
	Annual Average	1	2.71	0.91	1	100
		2	4.57	1.52		
PM_{10}	24-Hour Average	1	4.57	2.78	2.5	50
		2	7.72	4.69		
	Annual Average - Arithmetic Mean	1	1.26	0.50	n/a	50 (Federal Std.)
		2	2.09	0.83		
	Annual Average Geometric Mean	1	n/a	n/a	1	30
		2	n/a	n/a		

[A] Source: SCAQMD Reg. XIII, Table A-2

[B] SCAQMD Reg. XIII, Table A-2 lists the most stringent air quality standard as 500 $\mu g/m^3$, however, the state standard is 470 $\mu g/m^3$.

5.0 RESULTS AND DISCUSSION - RNFSA ALTERNATIVE

5.1 Phase 1 - Results

Phase 1 emissions from the RNFSA Alternative are equivalent to emissions from the Proposed Project and the results of the Phase 1 modeling for both alternatives are found in Table 4.1-1 and are discussed in Section 4.0.

5.2 Phase 2 - Results

The results of the Phase 2 modeling are presented in Table 5.2-1. This table shows the concentrations at the boundary receptors with the highest NO_2 and PM_{10} concentrations for the specified averaging period. For a more detailed discussion of Table 5.2-1 please refer to Section 4.2 of this report.

Table 5.2-1 Phase 2 Results - RNFSA Alternative

Pollutant	Averaging Period	Highest Concentration at Project Boundary ($\mu g/m^3$)	Background Concentration[A] ($\mu g/m^3$)	Total ($\mu g/m^3$)	Significant Change[B] ($\mu g/m^3$)	Most Stringent Air Quality Standard[B] ($\mu g/m^3$)
NO_2	Maximum Hourly	425	301.0	726	20	500 (470[C])
	Annual Average	20.2	56.4	76.6	1	100
PM_{10}	24-Hour Average	40.8	74	114.8	2.5	50
	Annual Average - Arithmetic Mean	8.90	33.8	42.7	n/a	50 (Federal Std.)
	Annual Average - Geometric Mean	n/a	30.1	n/a	1	30

[A] Source: Air Resources Board, Vol. XXIII, Summary of 1995 Air Quality, Santa Clarita Station (NO_2) and SCAQMD 1994, 1995, 1996, 1997, and 1998 Santa Clarita Station (PM_{10}) monitoring data.

[B] Source: SCAQMD Reg. XIII, Table A-2

[C] SCAQMD Reg. XIII, Table A-2 lists the most stringent air quality standard as 500 $\mu g/m^3$, however, the state standard is 470 $\mu g/m^3$.

5.2.1 Phase 2 - NO_2 Results

The highest hourly NO_2 concentration is 425 $\mu g/m^3$. This exceeds the SCAQMD Significant Change threshold. When this concentration is added to the background concentration of 301 $\mu g/m^3$, the result is 726 $\mu g/m^3$. This exceeds the most stringent air quality standard of 500 $\mu g/m^3$ listed in SCAQMD Reg. XIII and the State of California standard of 470 $\mu g/m^3$.

The highest annual NO_2 concentration is 20.2 $\mu g/m^3$. This too exceeds the SCAQMD Significant Change threshold. When added to the background concentration of 56.4 $\mu g/m^3$, the result is 76.6 $\mu g/m^3$. This does not exceed the most stringent air quality standard of 100 $\mu g/m^3$.

The highest hourly NO_2 boundary concentration occurs at UTM coordinate (376700, 3811250: B5). This receptor is on the southern boundary of the proposed facility, near the boundary midpoint. The highest annual average concentration occurred at UTM coordinate (375466, 3811828: B37). This is also the same receptor that had the highest annual average concentration of NO_2 in Phase 1.

5.2.2 Phase 2 - PM_{10} Results

The highest 24-hour average PM_{10} concentration is 40.8 $\mu g/m^3$. This exceeds the threshold for Significant Change in air quality concentration, but does not exceed the most stringent air quality standard of 50 $\mu g/m^3$ and the SCAQMD fugitive dust Rule 403 fence line concentration threshold of 50 $\mu g/m^3$. The background PM_{10} concentration for this area is 74 $\mu g/m^3$. This exceeds the most stringent air quality standard for PM_{10} of 50 $\mu g/m^3$. Thus, the air quality standard for PM_{10} is exceeded without the Project.

The highest annual average PM_{10} concentration at a boundary receptor is 8.90 $\mu g/m^3$. This is an arithmetic mean calculated by the model. When added to the background arithmetic mean of 33.8 $\mu g/m^3$ the result is 42.7 $\mu g/m^3$. The annual average provided by the SCAQMD is a geometric mean of 30.1 $\mu g/m^3$. These two numbers are not directly comparable as geometric mean and arithmetic mean are calculated by different methods.

The most stringent air quality standard for annual average of PM_{10} (geometric mean) is 30 $\mu g/m^3$. The background concentration for annual average of PM_{10} (geometric mean) is 30.1 $\mu g/m^3$. Thus, the air quality standard for PM_{10} is currently exceeded without the Project.

The highest boundary receptor PM_{10} concentration for 24-hour average occurs at the UTM coordinates (376353, 3810785: B64). This boundary receptor is located on the southern edge of the proposed facility and is the same receptor that exhibited the maximum daily concentration in the Phase 1 modeling. The highest annual average occurs at UTM coordinates (375464, 3811924: B36). This boundary receptor is located on the northern edge of the proposed facility in the same location as the Phase 1 highest boundary annual average concentration.

5.2.3 Phase 2 - Contour Plots

No plots were prepared for the RNFSA Alternative model results because emissions from the alternative are less than those of the Proposed Project and the contour plots of the Proposed Project Alternative are conservative.

5.3 Summary

Table 5.3-1 summarizes the results of Phase 1 and Phase 2 modeling for the RNFSA Alternative.

Table 5.3-1 Results Significance Summary - RNFSA Alternative

Pollutant	Period	Project Phase	Do Project emissions exceed SCAQMD Significance Level?[A]	Do Project emissions exceed SCAQMD Most Stringent Air Quality Standard?[A]	Do Project emissions exceed California Standard?[B]	Will addition of Project emissions to current background concentrations exceed the California Standard?
NO_2	Maximum Hourly	1	Yes	No	No	Yes
		2	Yes	No	No	Yes
	Annual Average	1	Yes	No	No	No
		2	Yes	No	No	No
PM_{10}	24-Hour Average	1	Yes	No	No	Yes
		2	Yes	No	No	Yes
	Annual Average - Arithmetic Mean	1	Yes	No	--[C]	--[C]
		2	Yes	No	--[C]	--[C]
	Annual Average - Geometric Mean	1	--[D]	--[D]	--[D]	No
		2	--[D]	--[D]	--[D]	No

[A] Source: SCAQMD Reg. XIII, Table A-2
[B] Source: Air Resources Board, Vol. XXIII, Summary of 1995 Air Quality, Santa Clarita Station (NO_2) and SCAQMD 1994, 1995, 1996, 1997, and 1998 Santa Clarita Station (PM_{10}) monitoring data.
[C] No Standard
[D] Not determinable

Table 5.3-2 shows the estimated pollutant concentrations directly related to the RNFSA Alternaitve for the two sensitive receptors closest to the Transit Mixed Facility.

Table 5.3-2 Sensitive Receptor Concentrations - RNFSA Alternative

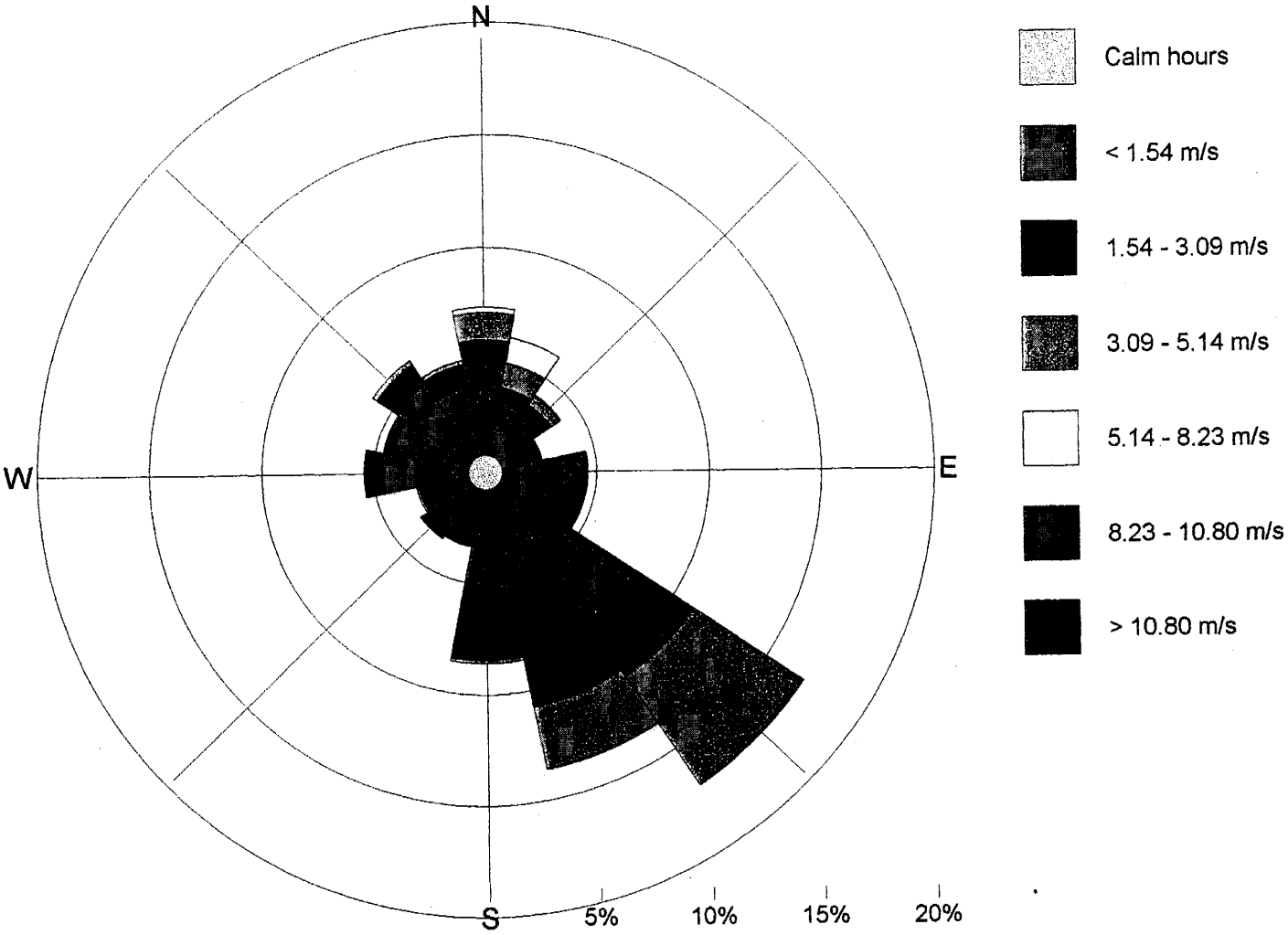
			Sensitive Receptor Concentration from Project Emissions ($\mu g/m^3$)			
Pollutant	Averaging Period	Project Phase	Nearest Dwelling	River's End Trailer Park	Significant Change[A] ($\mu g/m^3$)	Most Stringent Air Quality Standard[A] ($\mu g/m^3$)
NO_2	Maximum Hourly	1	138	89.6	20	500
		2	221	141		(470[B])
	Annual Average	1	2.71	0.91	1	100
		2	4.18	1.40		
PM_{10}	24-Hour Average	1	4.57	2.78	2.5	50
		2	7.42	4.51		
	Annual Average - Arithmetic Mean	1	1.26	0.50	n/a	50 (Federal Std.)
		2	2.0	0.80		
	Annual Average Geometric Mean	1	n/a	n/a	1	30
		2	n/a	n/a		

[A] Source: SCAQMD Reg. XIII, Table A-2

[B] SCAQMD Reg. XIII, Table A-2 lists the most stringent air quality standard as 500 $\mu g/m^3$, however, the state standard is 470 $\mu g/m^3$.

APPENDIX A

Newhall Station Wind Rose



WEST COAST ENVIRONMENTAL	**Newhall Station Windrose** **Transit Mixed Concrete Soledad Project**	
PROJECT: TR110-28		**FIGURE A1**
DRAWING: tr110-modelrpt-figs.fh8		DATE: 11/17/99

APPENDIX B

Model Objects

	UTM Coordinates (meters) X	Y
GRID RECEPTORS		
GRD1 (20x20 at 250 meter intervals)	373634	3809163
DISCRETE RECEPTORS		
Nearest Dwelling	375707	3810561
Trailer Park	374756	3810927

BOUNDARY RECEPTORS

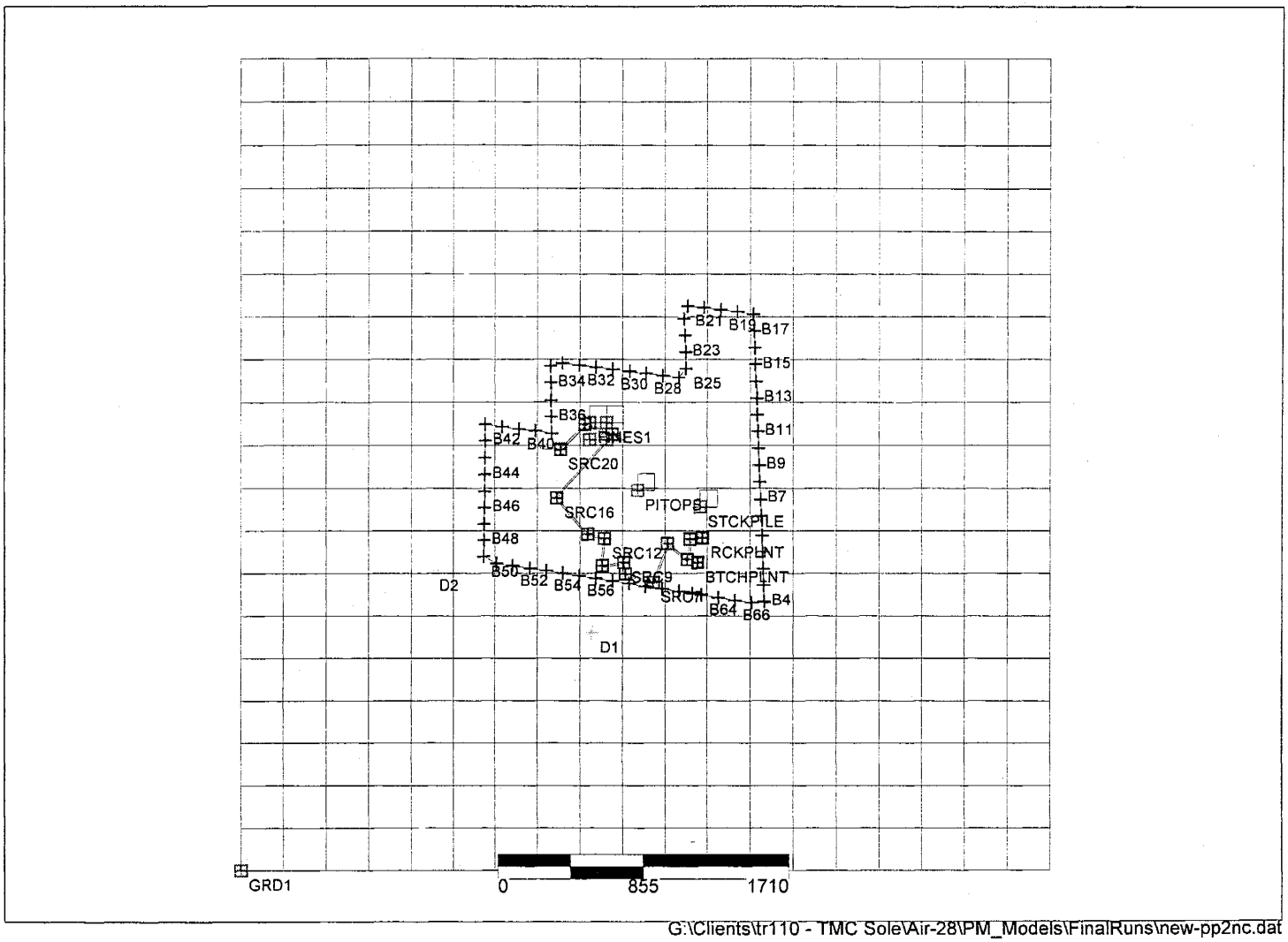
ID	X	Y	ID	X	Y
B1	376707	3811134	B35	375464	3812028
B2	376710	3811038	B36	375464	3811924
B3	376712	3810939	B37	375466	3811828
B4	376717	3810843	B38	375469	3811732
B5	376700	3811250	B39	375374	3811746
B6	376697	3811346	B40	375277	3811756
B7	376693	3811450	B41	375180	3811770
B8	376690	3811546	B42	375077	3811785
B9	376685	3811645	B43	375077	3811688
B10	376683	3811744	B44	375075	3811589
B11	376678	3811840	B45	375075	3811493
B12	376676	3811936	B46	375075	3811394
B13	376671	3812035	B47	375073	3811298
B14	376666	3812134	B48	375070	3811202
B15	376663	3812230	B49	375070	3811105
B16	376659	3812329	B50	375068	3811009
B17	376654	3812426	B51	375145	3810970
B18	376561	3812442	B52	375240	3810956
B19	376464	3812452	B53	375340	3810941
B20	376367	3812464	B54	375437	3810927
B21	376270	3812474	B55	375534	3810912
B22	376248	3812399	B56	375631	3810898
B23	376253	3812303	B57	375728	3810881
B24	376258	3812206	B58	375826	3810867
B25	376260	3812110	B59	375923	3810852
B26	376217	3812057	B60	376020	3810835
B27	376122	3812069	B61	376119	3810821
B28	376025	3812081	B62	376217	3810806
B29	375928	3812093	B63	376299	3810794
B30	375828	3812105	B64	376353	3810785
B31	375728	3812117	B65	376450	3810768
B32	375631	3812129	B66	376547	3810753
B33	375532	3812141	B67	376644	3810739
B34	375461	3812124	B68	376719	3810744

WEST COAST ENVIRONMENTAL

Modeling Receptors (all runs)

Transit Mixed Concrete Soledad Project

PROJECT:	TR110-28	FIGURE	B1
DRAWING:	tr110-modelrpt-figs.fh8	DATE:	11/17/99



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Scale bar above in meters

N

WEST COAST ENVIRONMENTAL	**PM10 Receptors and Sources** **Transit Mixed Concrete Soledad Project**	
PROJECT: TR110-28		**FIGURE B2**
DRAWING: tr110-modelrpt-figs.fh8		DATE: 11/17/99

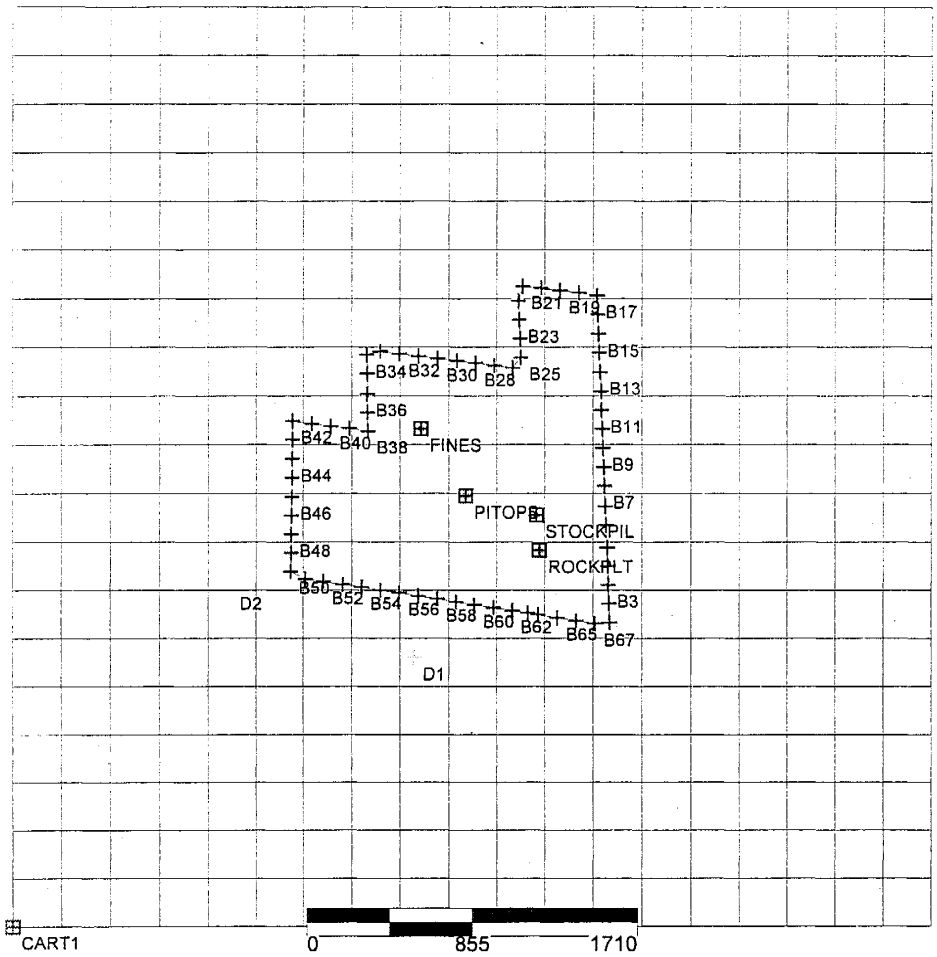
Name	Description	UTM Coordinates (meters) X	Y
RCKPLNT	Rock Plant	376359.2	3811119.0
BTCHPLNT	Batch Plant	376329.4	3810975.0
FINES1	Fines Storage & Handling	375691.0	3811794.0
FINES2	Fines Storage & Handling	375791.0	3811794.0
FINES3	Fines Storage & Handling	375691.0	3811694.0
FINES4	Fines Storage & Handling	375791.0	3811694.0
STCKPILE	Stockpiles	376343.8	3811301.3
PITOPS	Pit Operations	375974.0	3811400.0
SRC3	Road	376284.2	3811113.0
SRC5	Road	376267.7	3810992.4
SRC6	Road	376150.3	3811086.2
SRC7	Road	376066.7	3810858.5
SRC8	Road	375902.5	3810908.6
SRC9	Road	375892.5	3810975.7
SRC11	Road	375765.1	3810955.6
SRC12	Road	375778.5	3811116.3
SRC14	Road	375681.5	3811143.0
SRC16	Road	375497.2	3811354.0
SRC18	Road	375825.5	3811725.8
SRC19	Road	375664.7	3811786.0
SRC20	Road	375520.8	3811638.7

WEST COAST ENVIRONMENTAL

PM10 Sources

Transit Mixed Concrete Soledad Project

PROJECT:	TR110-28	FIGURE	B3
DRAWING:	tr110-modelrpt-figs.fh8	DATE:	11/17/99



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Scale bar above in meters

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WEST COAST ENVIRONMENTAL

NO2 Receptors and Sources

Transit Mixed Concrete
Soledad Project

PROJECT:	TR110-28	FIGURE	B4
DRAWING:	tr110-modelrpt-figs.fh8	DATE:	11/17/99

Name	Description	UTM Coordinates (meters) X	Y
PITOPS	Pit Operations	375974.0	3811400.0
FINES	Fines Storage & Handling	375741.0	3811744.0
ROCKPLT	Rock Plant	376359.2	3811119.0
STOCKPIL	Stockpiles	376343.8	3811301.3

WEST COAST ENVIRONMENTAL

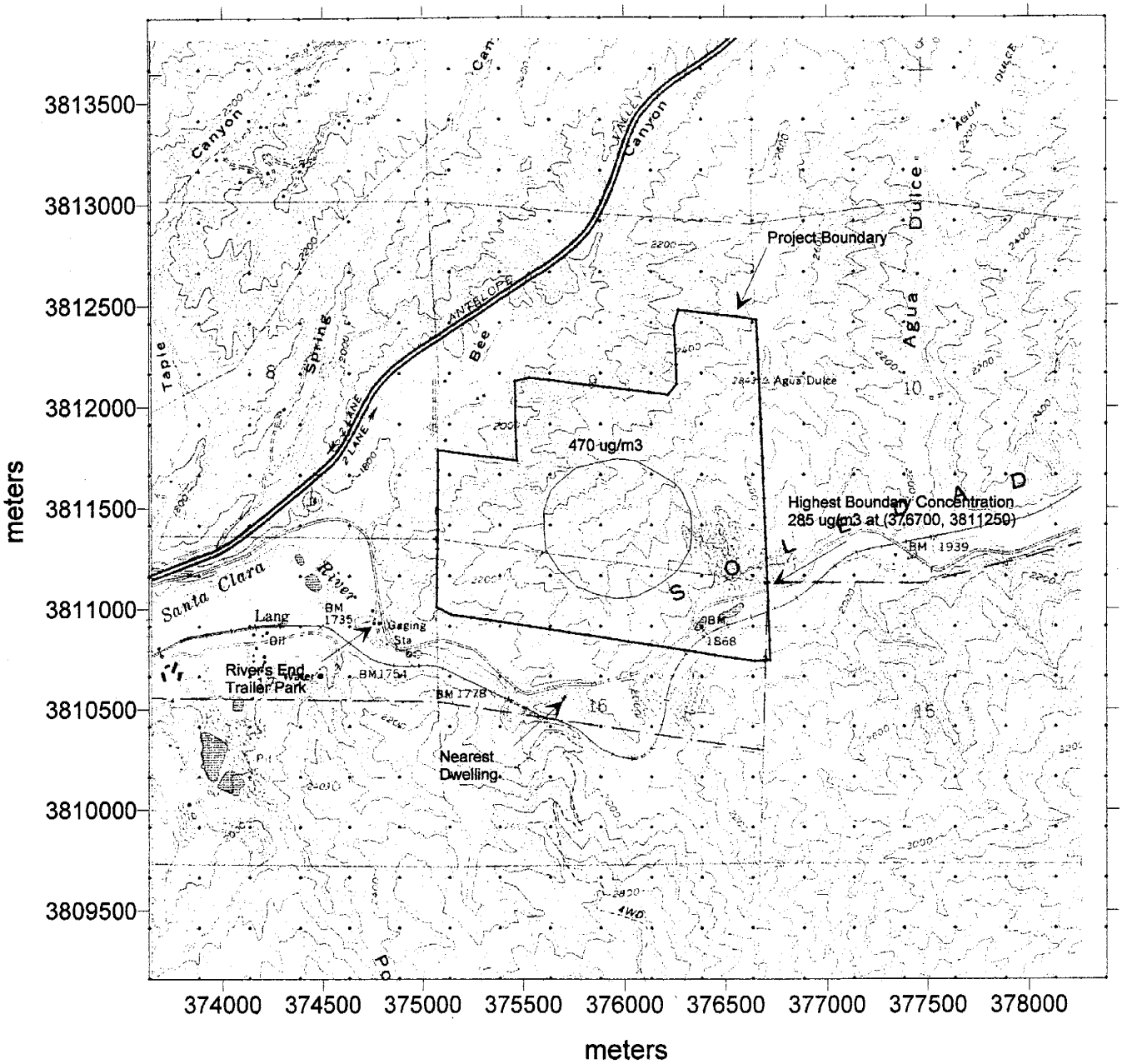
NO2 Sources

Transit Mixed Concrete Soledad Project

PROJECT:	TR110-28	FIGURE	B5
DRAWING:	tr110-modelrpt-figs.fh8	DATE:	11/17/99

APPENDIX C

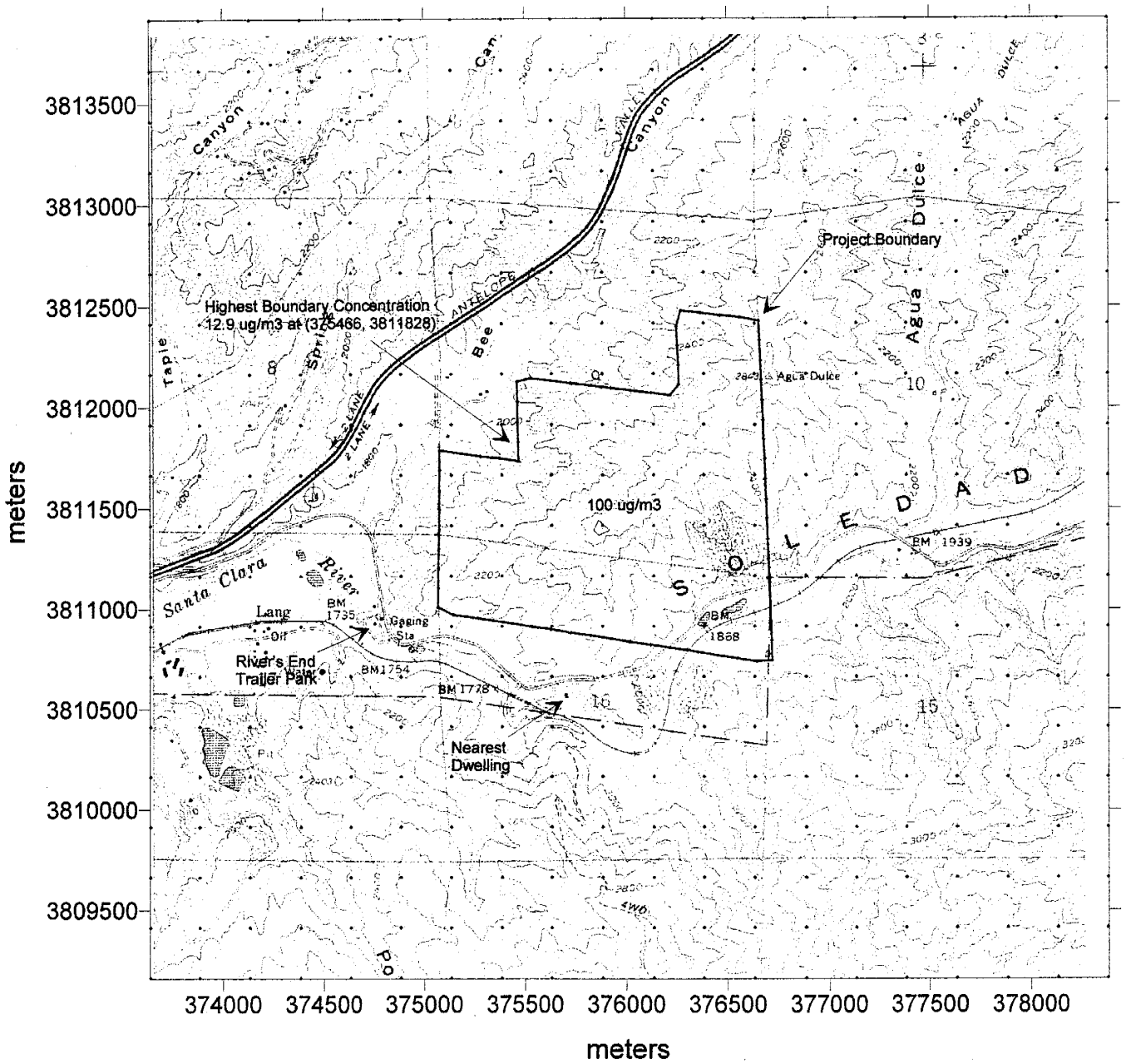
Contour Plots



0m 250m 500m 750m 1000m

N

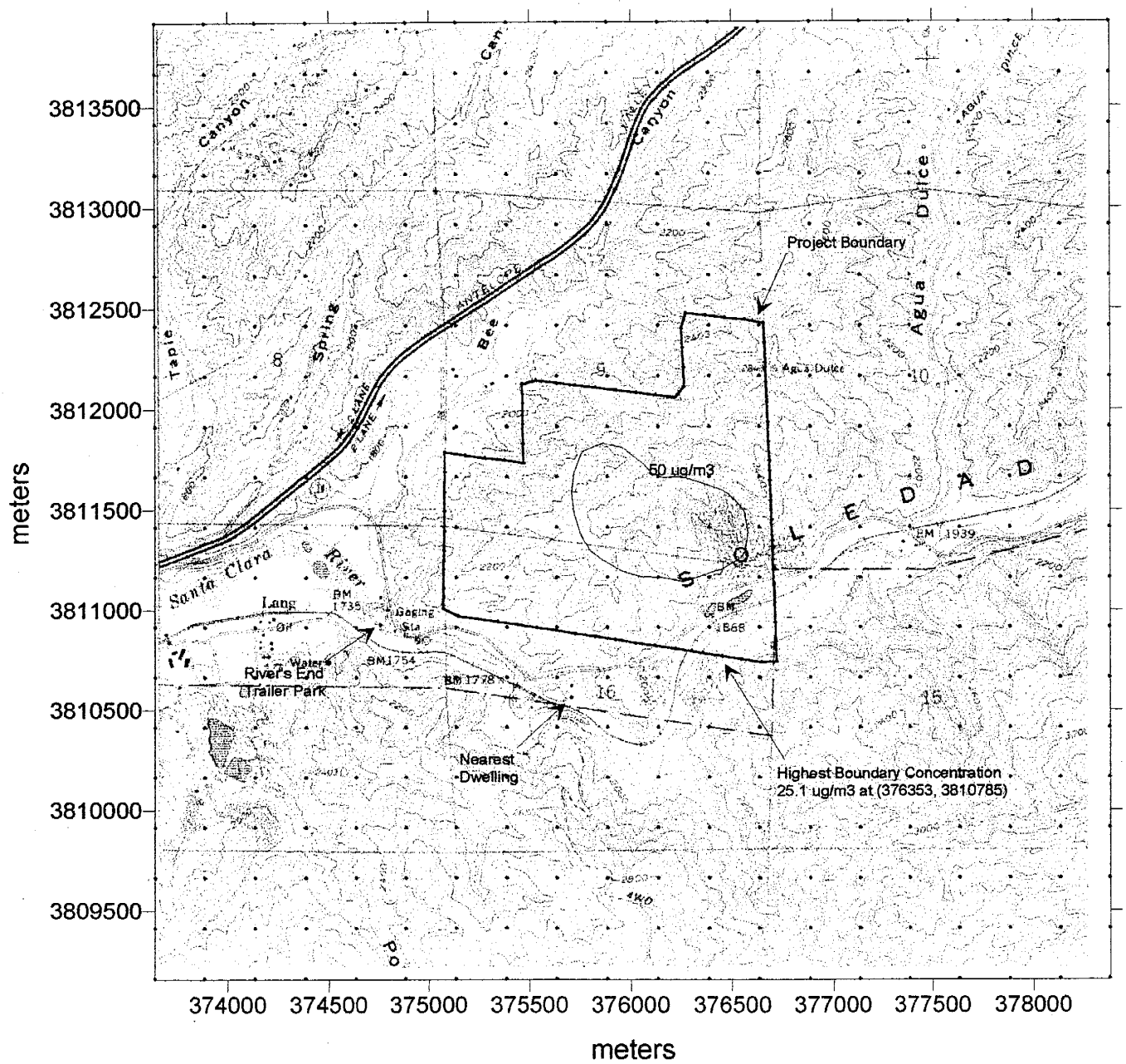
WEST COAST ENVIRONMENTAL	Maximum Hourly Phase 1 NO2 Emissions Transit Mixed Concrete Soledad Canyon Project
PROJECT: TR110-28	FIGURE: C1
DRAWING: nx1hc.srf	DATE: 11/17/99

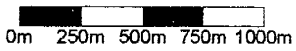


0m 250m 500m 750m 1000m

N

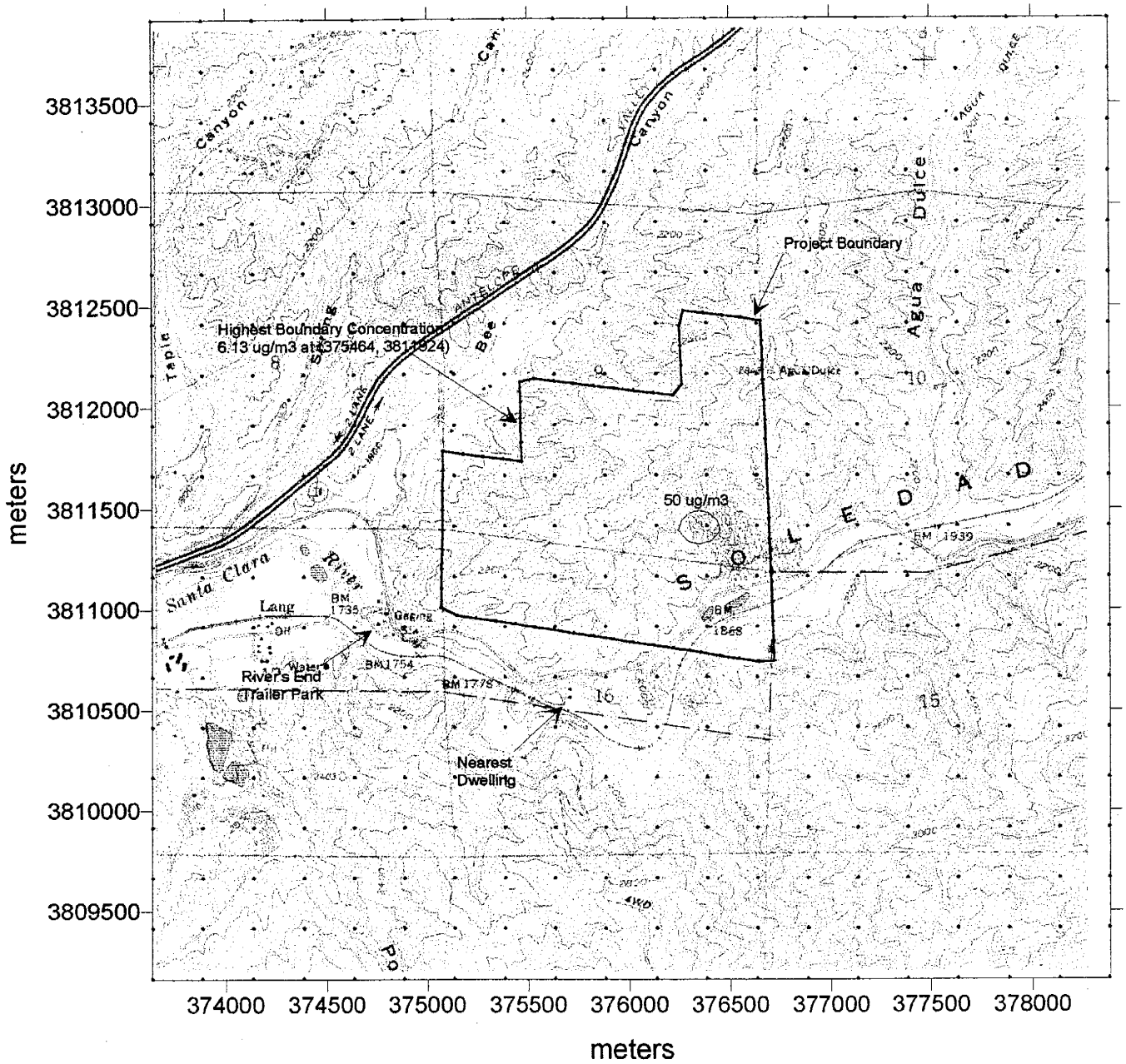
WEST COAST ENVIRONMENTAL	Annual Average Phase 1 NO2 Emissions Transit Mixed Concrete Soledad Canyon Project
PROJECT: TR110-28	FIGURE: C2
DRAWING: nx1ac.srf	DATE: 11/17/99





N

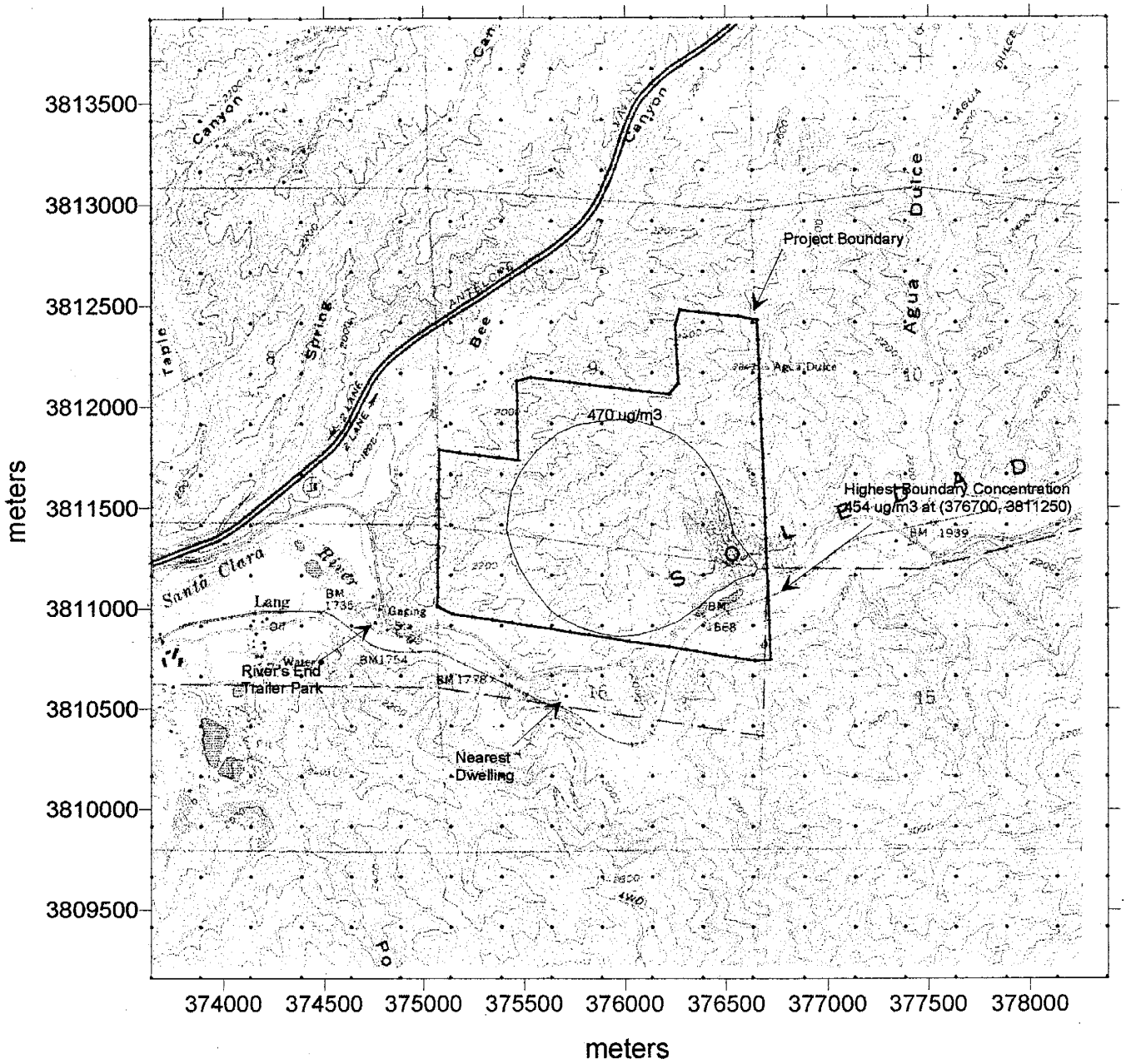
WEST COAST ENVIRONMENTAL	24 Hour Average Maximum Phase 1 PM10 Transit Mixed Concrete Soledad Canyon Project
PROJECT: TR110-28	FIGURE: C3
DRAWING: new-pp1nc24.srf	DATE: 11/17/99

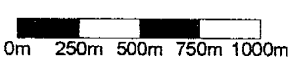


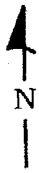
N

0m 250m 500m 750m 1000m

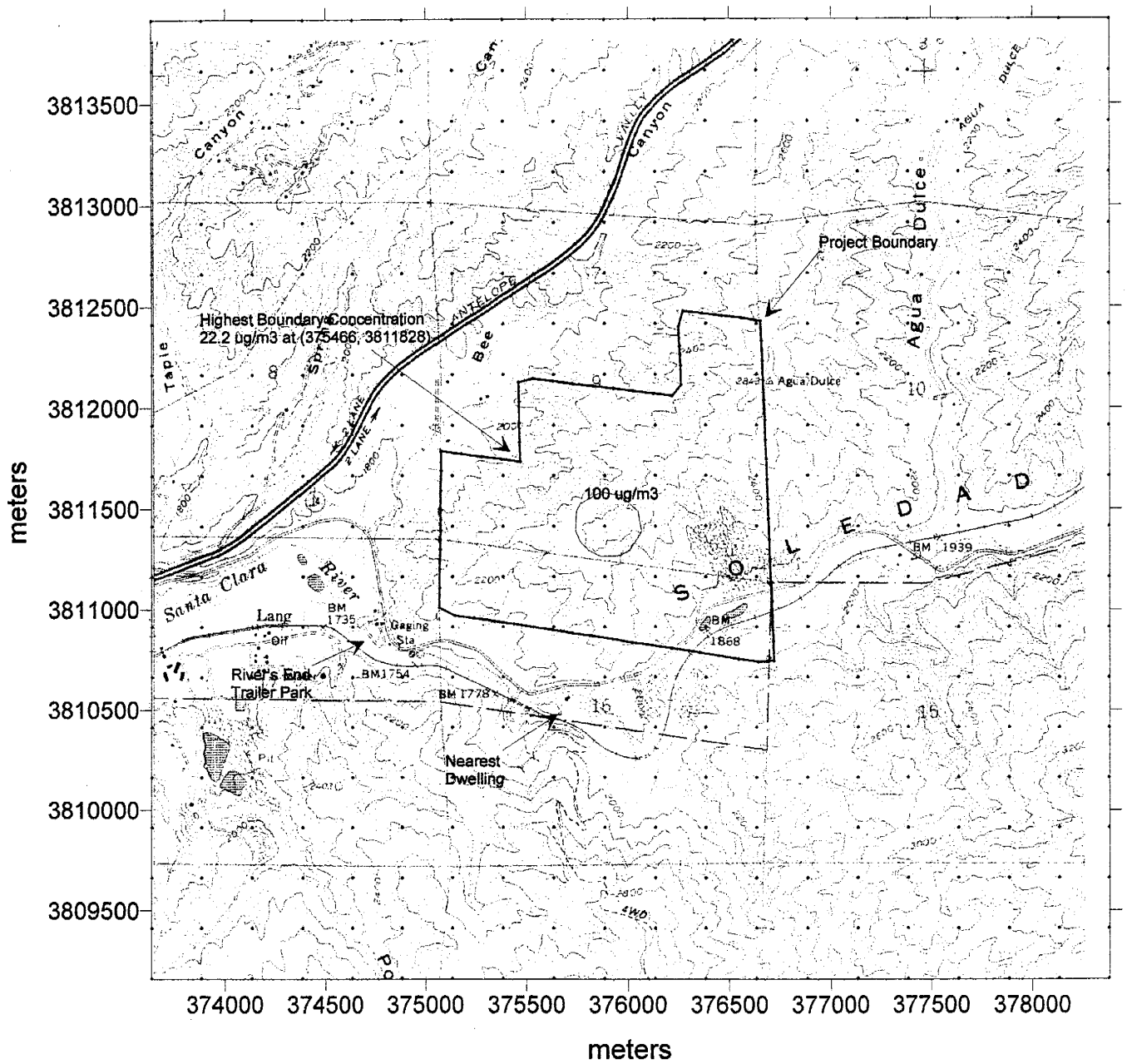
WEST COAST ENVIRONMENTAL	Annual Average Phase 1 PM10 Emissions Transit Mixed Concrete Soledad Canyon Project
PROJECT: TR110-28	FIGURE: C4
DRAWING: new-pp1ncaa.srf	DATE: 11/17/99







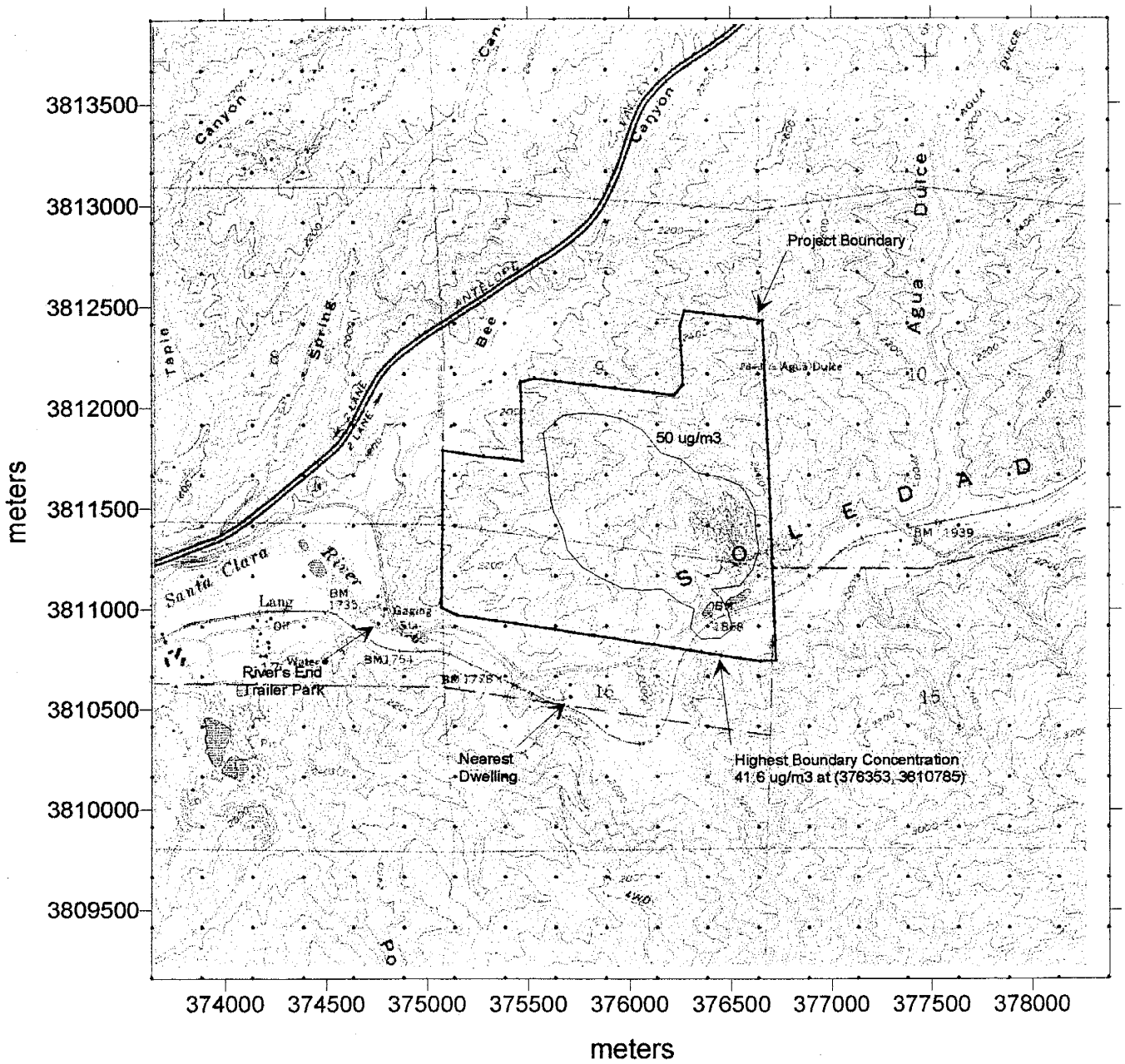
WEST COAST ENVIRONMENTAL	Maximum Hourly Phase 2 NO2 Emissions Transit Mixed Concrete Soledad Canyon Project
PROJECT: TR110-28	FIGURE: C5
DRAWING: nx2hc.srf	DATE: 11/17/99



0m 250m 500m 750m 1000m

N

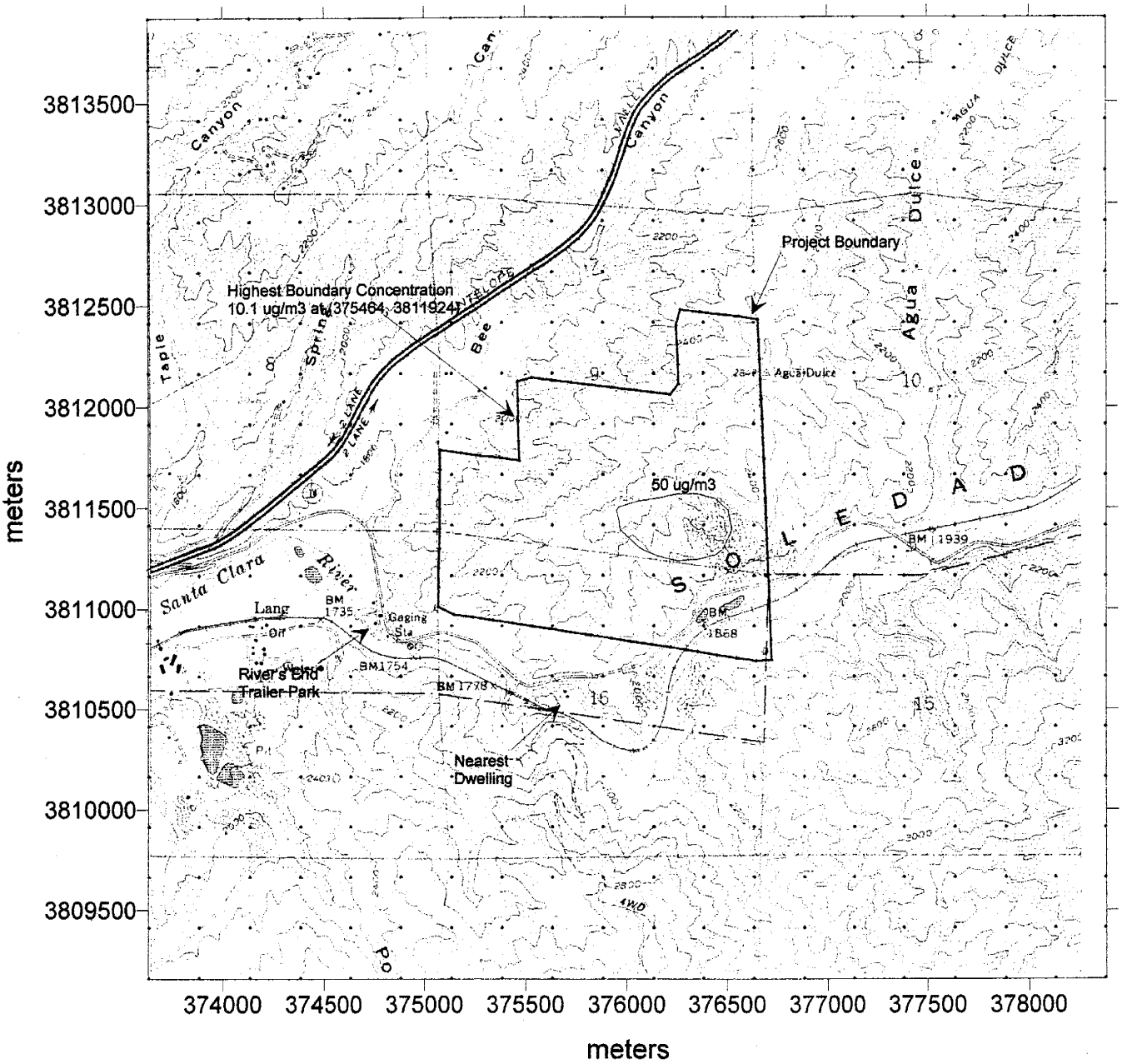
WEST COAST ENVIRONMENTAL	Annual Average Phase 2 NO2 Emissions Transit Mixed Concrete Soledad Canyon Project
PROJECT: TR110-28	FIGURE: C6
DRAWING: nx2ac.srf	DATE: 11/17/99

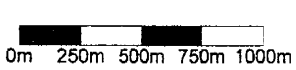


0m 250m 500m 750m 1000m

N

WEST COAST ENVIRONMENTAL	24 Hour Average Maximum Phase 2 PM10 Transit Mixed Concrete Soledad Canyon Project
PROJECT: TR110-28	FIGURE: C7
DRAWING: new-pp2nc24.srf	DATE: 11/17/99





N

WEST COAST ENVIRONMENTAL	Annual Average Phase 2 PM10 Emissions Transit Mixed Concrete Soledad Canyon Project
PROJECT: TR110-28	FIGURE: C8
DRAWING: new-pp2ncaa.srf	DATE: 11/17/99

APPENDIX D

Model Output

D.1 Maximum Hourly Phase 1 NO_2
D.2 Annual Average Phase 1 NO_2
D.3 24-Hour Maximum and Annual Average Phase 1 PM_{10}
D.4 Maximum Hourly Phase 2 NO_2
D.5 Annual Average Phase 2 NO_2
D.6 24-Hour Maximum and Annual Average Phase 2 PM_{10}
D.7 San Gabriel Wildlife Area Phase 2 NO_2 and PM_{10}
D.8 Maximum Hourly RNFSA Phase 2 NO_2
D.9 Annual Average RNFSA Phase 2 NO_2
D.10 24-Hour Maximum and Annual Average RNFSA Phase 2 PM_{10}

```
              ISCST3X  PC (32 BIT) VERSION  3.3.0
             (C) COPYRIGHT 1991-1999, TRINITY CONSULTANTS

Run Began on 11/13/1999 at 16:24:20

** BREEZE ISC SUITE v3.2.2 - G:\Clients\tr110 - TMC Sole\Air-28\Modeling\NOx_Models\11-4-99\nx1hc.dat
** Trinity Consultants, Dallas, TX

CO STARTING
CO TITLEONE  NOx, Phase 1, Hourly Average Concentration
CO TITLETWO  TMC Soledad
CO MODELOPT  CONC  URBAN  NOCALM
CO AVERTIME  1
CO POLLUTID  NOX
CO TERRHGTS  FLAT
CO RUNORNOT  RUN
CO FINISHED

SO STARTING
SO ELEVUNIT  METERS
SO LOCATION  PITOPS  VOLUME  375974.0  3811400.0  0
** SRCDESCR  Pit Ops
SO LOCATION  FINES  VOLUME  375741.0  3811744.0  0
** SRCDESCR  Fines
SO LOCATION  ROCKPLT  VOLUME  376359.2  3811119.0  0
** SRCDESCR  Rock Plant
SO LOCATION  STOCKPIL  VOLUME  376343.8  3811301.3  0
** SRCDESCR  Stockpile
SO SRCPARAM  PITOPS  2.210000E+00  3.5  25  7
SO SRCPARAM  FINES  4.850000E-02  3.5  25  7
SO SRCPARAM  ROCKPLT  2.760000E-01  3.5  25  7
SO SRCPARAM  STOCKPIL  6.170000E-01  3.5  25  7
SO SRCGROUP  ALL
SO FINISHED

RE STARTING
RE GRIDCART CART1 STA
RE GRIDCART CART1 XYINC  373634  20  250  3809163  20  250
RE GRIDCART CART1 END
RE DISCCART  375707.0  3810561.0
** RCPDESCR  Nearest Dwelling
RE DISCCART  374756.0  3810927.0
** RCPDESCR  Trailer Park
** BOUNDARY
RE DISCCART  376707.0  3811134.0
RE DISCCART  376710.0  3811038.0
RE DISCCART  376712.0  3810939.0
RE DISCCART  376717.0  3810843.0
RE DISCCART  376700.0  3811250.0
RE DISCCART  376697.0  3811346.0
RE DISCCART  376693.0  3811450.0
RE DISCCART  376690.0  3811546.0
RE DISCCART  376685.0  3811645.0
RE DISCCART  376683.0  3811744.0
RE DISCCART  376678.0  3811840.0
RE DISCCART  376676.0  3811936.0
RE DISCCART  376671.0  3812035.0
RE DISCCART  376666.0  3812134.0
RE DISCCART  376663.0  3812230.0
RE DISCCART  376659.0  3812329.0
RE DISCCART  376654.0  3812426.0
RE DISCCART  376561.0  3812442.0
RE DISCCART  376464.0  3812452.0
RE DISCCART  376367.0  3812464.0
RE DISCCART  376270.0  3812474.0
RE DISCCART  376248.0  3812399.0
RE DISCCART  376253.0  3812303.0
RE DISCCART  376258.0  3812206.0
RE DISCCART  376260.0  3812110.0
RE DISCCART  376217.0  3812057.0
RE DISCCART  376122.0  3812069.0
RE DISCCART  376025.0  3812081.0
RE DISCCART  375928.0  3812093.0
RE DISCCART  375828.0  3812105.0
RE DISCCART  375728.0  3812117.0
RE DISCCART  375631.0  3812129.0
RE DISCCART  375532.0  3812141.0
RE DISCCART  375461.0  3812124.0
RE DISCCART  375464.0  3812028.0
RE DISCCART  375464.0  3811924.0
RE DISCCART  375466.0  3811828.0
RE DISCCART  375469.0  3811732.0
RE DISCCART  375374.0  3811746.0
RE DISCCART  375277.0  3811756.0
RE DISCCART  375180.0  3811770.0
RE DISCCART  375077.0  3811785.0
RE DISCCART  375077.0  3811688.0
RE DISCCART  375075.0  3811589.0
RE DISCCART  375075.0  3811493.0
RE DISCCART  375075.0  3811394.0
RE DISCCART  375073.0  3811298.0
RE DISCCART  375070.0  3811202.0
RE DISCCART  375070.0  3811105.0
RE DISCCART  375068.0  3811009.0
RE DISCCART  375145.0  3810970.0
RE DISCCART  375240.0  3810956.0
RE DISCCART  375340.0  3810941.0
RE DISCCART  375437.0  3810927.0
RE DISCCART  375534.0  3810912.0
RE DISCCART  375631.0  3810898.0
```

```
 RE DISCCART  375826.0  3810867.0
 RE DISCCART  375923.0  3810852.0
 RE DISCCART  376020.0  3810835.0
 RE DISCCART  376119.0  3810821.0
 RE DISCCART  376217.0  3810806.0
 RE DISCCART  376299.0  3810794.0
 RE DISCCART  376353.0  3810785.0
 RE DISCCART  376450.0  3810768.0
 RE DISCCART  376547.0  3810753.0
 RE DISCCART  376644.0  3810739.0
 RE DISCCART  376719.0  3810744.0
 RE FINISHED

 ME STARTING
 ME INPUTFIL  C:\TRINITY\ISC32\NEWHALL.ASC
 ME ANEMHGHT  10  METERS
 ME SURFDATA  51115  1981
 ME UAIRDATA  99999  1981
 ME STARTEND  1981  01  01  1  1981  12  31  24
 ME FINISHED

 OU STARTING
 OU RECTABLE  1  FIRST
 OU FINISHED

 ** PROJECTN  0 104 7 -177 0 0.9996 500000 0
 ** OUTFILE  G:\Clients\TR110--1\Air-28\Modeling\NOX_MO-1\11-4-99\NX1HC.LST
 ** RAWFILE  G:\Clients\TR110--1\Air-28\Modeling\NOX_MO-1\11-4-99\NX1HC.RAW
 ** RAWFMT  2

 ** POLLUTNT IDN  01  NOX  X
 ** POLLUTNT NAM  01
 ** POLLUTNT EMS  PITOPS 2.210000E+00
 ** POLLUTNT EMS  FINES 4.850000E-02
 ** POLLUTNT EMS  ROCKPLT 2.760000E-01
 ** POLLUTNT EMS  STOCKPIL 6.170000E-01


 **********************************
 *** SETUP Finishes Successfully ***
 **********************************

1 *** ISCST3 - VERSION 99155 ***   *** NOx, Phase 1, Hourly Average Concentration         ***      11/13/99
                                   *** TMC Soledad                                         ***      16:24:20
 **MODELOPTs:                                                                                       PAGE   1
 CONC                    URBAN  FLAT                             NOCALM

                                   ***    MODEL SETUP OPTIONS SUMMARY     ***
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

 **Intermediate Terrain Processing is Selected

 **Model Is Setup For Calculation of Average CONCentration Values.

   -- SCAVENGING/DEPOSITION LOGIC --
 **Model Uses NO DRY DEPLETION.  DDPLETE =  F
 **Model Uses NO WET DEPLETION.  WDPLETE =  F
 **NO WET SCAVENGING Data Provided.
 **NO GAS DRY DEPOSITION Data Provided.
 **Model Does NOT Use GRIDDED TERRAIN Data for Depletion Calculations

 **Model Uses URBAN Dispersion.

 **Model Uses User-Specified Options:
          1. Final Plume Rise.
          2. Stack-tip Downwash.
          3. Buoyancy-induced Dispersion.
          4. Not Use Calms Processing Routine.
          5. Not Use Missing Data Processing Routine.
          6. Default Wind Profile Exponents.
          7. Default Vertical Potential Temperature Gradients.

 **Model Assumes Receptors on FLAT Terrain.

 **Model Assumes No FLAGPOLE Receptor Heights.

 **Model Calculates  1 Short Term Average(s) of:   1-HR

 **This Run Includes:     4 Source(s);     1 Source Group(s); and    470 Receptor(s)

 **The Model Assumes A Pollutant Type of:  NOX

 **Model Set To Continue RUNning After the Setup Testing.

 **Output Options Selected:
        Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)

 **Misc. Inputs:  Anem. Hgt. (m) =    10.00 ;   Decay Coef. =     0.0000 ;   Rot. Angle =     0.0
                  Emission Units = GRAMS/SEC                          ;  Emission Rate Unit Factor =  0.10000E+07
                  Output Units   = MICROGRAMS/M**3

 **Approximate Storage Requirements of Model =     1.2 MB of RAM.

 **Input Runstream File:        G:\CLIENTS\TR110--1\AIR-28\MODELING\NOX_MODELS\FINALRUNS\NX1HC.DAT
 **Output Print File:           G:\CLIENTS\TR110--1\AIR-28\MODELING\NOX_MODELS\FINALRUNS\NX1HC.LST
1 *** ISCST3 - VERSION 99155 ***   *** NOx, Phase 1, Hourly Average Concentration         ***      11/13/99
                                   *** TMC Soledad                                         ***      16:24:20
 **MODELOPTs:                                                                                       PAGE   2
 CONC                    URBAN  FLAT                             NOCALM
```

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	EMISSION RATE SCALAR VARY BY
PITOPS	0	0.22100E+01	375974.0	3811400.0	0.0	3.50	25.00	7.00	
FINES	0	0.48500E-01	375741.0	3811744.0	0.0	3.50	25.00	7.00	
ROCKPLT	0	0.27600E+00	376359.2	3811119.0	0.0	3.50	25.00	7.00	
STOCKPIL	0	0.61700E+00	376343.8	3811301.2	0.0	3.50	25.00	7.00	

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	PITOPS , FINES , ROCKPLT , STOCKPIL,

*** GRIDDED RECEPTOR NETWORK SUMMARY ***

*** NETWORK ID: CART1 ; NETWORK TYPE: GRIDCART ***

*** X-COORDINATES OF GRID ***
(METERS)

373634.0, 373884.0, 374134.0, 374384.0, 374634.0, 374884.0, 375134.0, 375384.0, 375634.0, 375884.0,
376134.0, 376384.0, 376634.0, 376884.0, 377134.0, 377384.0, 377634.0, 377884.0, 378134.0, 378384.0,

*** Y-COORDINATES OF GRID ***
(METERS)

3809163.0, 3809413.0, 3809663.0, 3809913.0, 3810163.0, 3810413.0, 3810663.0, 3810913.0, 3811163.0, 3811413.0,
3811663.0, 3811913.0, 3812163.0, 3812413.0, 3812663.0, 3812913.0, 3813163.0, 3813413.0, 3813663.0, 3813913.0,

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZFLAG)
(METERS)

(375707.0,	3810561.0,	0.0,	0.0);	(374756.0,	3810927.0,	0.0,	0.0);
(376707.0,	3811134.0,	0.0,	0.0);	(376710.0,	3811038.0,	0.0,	0.0);
(376712.0,	3810939.0,	0.0,	0.0);	(376717.0,	3810843.0,	0.0,	0.0);
(376700.0,	3811250.0,	0.0,	0.0);	(376697.0,	3811346.0,	0.0,	0.0);
(376693.0,	3811450.0,	0.0,	0.0);	(376690.0,	3811546.0,	0.0,	0.0);
(376685.0,	3811645.0,	0.0,	0.0);	(376683.0,	3811744.0,	0.0,	0.0);
(376678.0,	3811840.0,	0.0,	0.0);	(376676.0,	3811936.0,	0.0,	0.0);
(376671.0,	3812035.0,	0.0,	0.0);	(376666.0,	3812134.0,	0.0,	0.0);
(376663.0,	3812230.0,	0.0,	0.0);	(376659.0,	3812329.0,	0.0,	0.0);
(376654.0,	3812426.0,	0.0,	0.0);	(376561.0,	3812442.0,	0.0,	0.0);
(376464.0,	3812452.0,	0.0,	0.0);	(376367.0,	3812464.0,	0.0,	0.0);
(376270.0,	3812474.0,	0.0,	0.0);	(376248.0,	3812399.0,	0.0,	0.0);
(376253.0,	3812303.0,	0.0,	0.0);	(376258.0,	3812206.0,	0.0,	0.0);
(376260.0,	3812110.0,	0.0,	0.0);	(376217.0,	3812057.0,	0.0,	0.0);
(376122.0,	3812069.0,	0.0,	0.0);	(376025.0,	3812081.0,	0.0,	0.0);
(375928.0,	3812093.0,	0.0,	0.0);	(375828.0,	3812105.0,	0.0,	0.0);
(375728.0,	3812117.0,	0.0,	0.0);	(375631.0,	3812129.0,	0.0,	0.0);
(375532.0,	3812141.0,	0.0,	0.0);	(375461.0,	3812124.0,	0.0,	0.0);
(375464.0,	3812028.0,	0.0,	0.0);	(375464.0,	3811924.0,	0.0,	0.0);
(375466.0,	3811828.0,	0.0,	0.0);	(375469.0,	3811732.0,	0.0,	0.0);
(375374.0,	3811746.0,	0.0,	0.0);	(375277.0,	3811756.0,	0.0,	0.0);
(375180.0,	3811770.0,	0.0,	0.0);	(375077.0,	3811785.0,	0.0,	0.0);
(375077.0,	3811688.0,	0.0,	0.0);	(375075.0,	3811589.0,	0.0,	0.0);
(375075.0,	3811493.0,	0.0,	0.0);	(375075.0,	3811394.0,	0.0,	0.0);
(375073.0,	3811298.0,	0.0,	0.0);	(375070.0,	3811202.0,	0.0,	0.0);
(375070.0,	3811105.0,	0.0,	0.0);	(375068.0,	3811009.0,	0.0,	0.0);
(375145.0,	3810970.0,	0.0,	0.0);	(375240.0,	3810956.0,	0.0,	0.0);
(375340.0,	3810941.0,	0.0,	0.0);	(375437.0,	3810927.0,	0.0,	0.0);
(375534.0,	3810912.0,	0.0,	0.0);	(375631.0,	3810898.0,	0.0,	0.0);
(375728.0,	3810881.0,	0.0,	0.0);	(375826.0,	3810867.0,	0.0,	0.0);
(375923.0,	3810852.0,	0.0,	0.0);	(376020.0,	3810835.0,	0.0,	0.0);
(376119.0,	3810821.0,	0.0,	0.0);	(376217.0,	3810806.0,	0.0,	0.0);
(376299.0,	3810794.0,	0.0,	0.0);	(376353.0,	3810785.0,	0.0,	0.0);
(376450.0,	3810768.0,	0.0,	0.0);	(376547.0,	3810753.0,	0.0,	0.0);
(376644.0,	3810739.0,	0.0,	0.0);	(376719.0,	3810744.0,	0.0,	0.0);

* SOURCE-RECEPTOR COMBINATIONS FOR WHICH CALCULATIONS MAY NOT BE PERFORMED *
LESS THAN 1.0 METER OR 3*ZLB IN DISTANCE, OR WITHIN OPEN PIT SOURCE

SOURCE - - RECEPTOR LOCATION - - DISTANCE

*** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
(1=YES; 0=NO)

```
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
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1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1
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METEOROLOGICAL DATA PROCESSED BETWEEN START DATE: 1981 1 1 1
AND END DATE: 1981 12 31 24

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** WIND PROFILE EXPONENTS ***

STABILITY CATEGORY	WIND SPEED CATEGORY 1	2	3	4	5	6
A	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00
B	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00
C	.20000E+00	.20000E+00	.20000E+00	.20000E+00	.20000E+00	.20000E+00
D	.25000E+00	.25000E+00	.25000E+00	.25000E+00	.25000E+00	.25000E+00
E	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00
F	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00

*** VERTICAL POTENTIAL TEMPERATURE GRADIENTS ***
(DEGREES KELVIN PER METER)

STABILITY CATEGORY	WIND SPEED CATEGORY 1	2	3	4	5	6
A	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
B	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
C	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
D	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
E	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01
F	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01

*** THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

FILE: C:\TRINITY\ISC32\NEWHALL.ASC
FORMAT: (4I2,2F9.4,F6.1,I2,2F7.1,f9.4,f10.1,f8.4,i4,f7.2)
SURFACE STATION NO.: 51115 UPPER AIR STATION NO.: 99999
NAME: UNKNOWN NAME: UNKNOWN
YEAR: 1981 YEAR: 1981

YR	MN	DY	HR	FLOW VECTOR	SPEED (M/S)	TEMP (K)	STAB CLASS	MIXING HEIGHT (M) RURAL	URBAN	USTAR (M/S)	M-O LENGTH (M)	Z-0 (M)	IPCODE	PRATE (mm/HR)
81	01	01	01	314.8	1.00	285.9	7	522.6	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	02	304.9	0.00	284.8	7	507.0	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	03	310.0	0.00	284.8	7	491.4	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	04	346.0	1.00	284.8	7	475.8	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	05	309.0	1.00	285.4	7	460.3	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	06	342.0	1.00	284.3	7	444.7	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	07	342.0	0.00	284.3	7	429.1	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	08	337.1	0.00	284.3	6	43.0	190.2	0.0000	0.0	0.0000	0	0.00
81	01	01	09	6.5	1.00	287.6	5	89.2	211.8	0.0000	0.0	0.0000	0	0.00
81	01	01	10	9.1	0.00	291.5	4	135.3	233.4	0.0000	0.0	0.0000	0	0.00
81	01	01	11	291.6	1.00	297.0	3	181.5	255.1	0.0000	0.0	0.0000	0	0.00
81	01	01	12	80.6	1.00	298.7	2	227.7	276.7	0.0000	0.0	0.0000	0	0.00
81	01	01	13	87.2	0.00	299.3	2	273.8	298.4	0.0000	0.0	0.0000	0	0.00
81	01	01	14	326.7	2.24	299.3	3	320.0	320.0	0.0000	0.0	0.0000	0	0.00
81	01	01	15	337.3	2.24	298.7	3	320.0	320.0	0.0000	0.0	0.0000	0	0.00
81	01	01	16	345.7	2.24	297.6	4	320.0	320.0	0.0000	0.0	0.0000	0	0.00
81	01	01	17	20.1	1.34	294.8	5	325.5	318.6	0.0000	0.0	0.0000	0	0.00
81	01	01	18	97.6	1.00	293.1	6	357.1	310.3	0.0000	0.0	0.0000	0	0.00
81	01	01	19	178.0	1.00	290.9	7	388.7	302.1	0.0000	0.0	0.0000	0	0.00
81	01	01	20	303.2	1.00	289.8	7	420.3	293.9	0.0000	0.0	0.0000	0	0.00
81	01	01	21	358.6	1.00	289.3	7	451.9	285.7	0.0000	0.0	0.0000	0	0.00
81	01	01	22	272.0	1.00	287.6	7	483.5	277.4	0.0000	0.0	0.0000	0	0.00
81	01	01	23	0.7	1.00	287.6	7	515.1	269.2	0.0000	0.0	0.0000	0	0.00
81	01	01	24	337.2	1.00	287.6	7	546.7	261.0	0.0000	0.0	0.0000	0	0.00

*** NOTES: STABILITY CLASS 1=A, 2=B, 3=C, 4=D, 5=E AND 6=F.
FLOW VECTOR IS DIRECTION TOWARD WHICH WIND IS BLOWING.

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PITOPS , FINES , ROCKPLT , STOCKPIL,

*** NETWORK ID: CART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF NOX IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 373634.00	373884.00	374134.00	374384.00	374634.00
3813913.0	32.33095 (81121724)	33.96402 (81110719)	35.54261 (81080701)	36.99801 (81031622)	38.25488 (81092918)
3813663.0	34.58946 (81031221)	36.61893 (81122518)	38.63365 (81061906)	40.54089 (81011420)	42.21675 (81052320)
3813413.0	37.00526 (81010407)	39.53634 (81040507)	42.12285 (81052801)	44.65961 (81010702)	46.97638 (81120524)
3813163.0	39.54319 (81091823)	42.68464 (81041323)	46.01962 (81051101)	49.42476 (81050704)	52.68644 (81021704)
3812913.0	42.11496 (81031520)	45.98404 (81102019)	50.25945 (81031505)	54.84640 (81011707)	59.51054 (81120603)
3812663.0	44.60660 (81102007)	49.29158 (81041402)	54.69144 (81080906)	60.80828 (81112822)	67.48479 (81101605)
3812413.0	46.85314 (81022703)	52.38470 (81101220)	59.03009 (81033103)	66.98013 (81100723)	76.34430 (81022224)
3812163.0	48.66156 (81012603)	54.97587 (81040902)	62.84719 (81041201)	72.77346 (81112901)	85.34401 (81092505)
3811913.0	49.83239 (81010706)	56.73779 (81010804)	65.59272 (81112908)	77.27693 (81011704)	93.09193 (81041704)
3811663.0	50.22389 (81122307)	57.38333 (81042723)	66.73769 (81082820)	79.39751 (81082903)	97.32973 (81040401)
3811413.0	49.75468 (81080723)	56.76601 (81080723)	65.94201 (81010919)	78.40475 (81010919)	96.13911 (81091601)
3811163.0	48.49429 (81091401)	55.02579 (81010805)	63.42170 (81021119)	74.56483 (81050402)	89.97174 (81082120)
3810913.0	46.60740 (81102723)	52.40460 (81112703)	59.67469 (81092705)	68.99960 (81110707)	81.34325 (81082707)
3810663.0	44.32032 (81091707)	49.29257 (81112602)	55.36107 (81020719)	62.87700 (81101408)	72.44150 (81011608)
3810413.0	41.82671 (81010624)	46.01999 (81040104)	50.97255 (81091702)	56.88563 (81012223)	64.19457 (81032024)
3810163.0	39.29331 (81091002)	42.77742 (81102602)	46.77559 (81082405)	51.43215 (81071803)	56.89994 (81112305)
3809913.0	36.83278 (81121624)	39.71521 (81022505)	42.93889 (81041605)	46.56207 (81042803)	50.63909 (81073122)
3809663.0	34.49167 (81032024)	36.88300 (81021921)	39.47325 (81092504)	42.30385 (81021808)	45.36182 (81082004)
3809413.0	32.34116 (81073102)	34.30408 (81052403)	36.40229 (81022723)	38.62424 (81022506)	40.94638 (81072021)
3809163.0	30.34844 (81052403)	31.98341 (81050405)	33.68788 (81041202)	35.45447 (81031222)	37.24949 (81081703)

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PITOPS , FINES , ROCKPLT , STOCKPIL,

*** NETWORK ID: CART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF NOX IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 374884.00	375134.00	375384.00	375634.00	375884.00
3813913.0	39.22374 (81052521)	39.88282 (81121808)	40.18343 (81101721)	40.16996 (81022605)	39.84504 (81070423)
3813663.0	43.56181 (81042902)	44.47482 (81110223)	44.94237 (81112006)	44.96687 (81060221)	44.61596 (81070423)
3813413.0	48.88721 (81050304)	50.23262 (81051702)	50.95562 (81071822)	51.10777 (81032604)	50.74906 (81122606)
3813163.0	55.50545 (81030122)	57.58205 (81121019)	58.80095 (81092804)	59.23674 (81082101)	58.96447 (81120620)
3812913.0	63.82497 (81121303)	67.23598 (81120408)	69.39617 (81112823)	70.44878 (81022420)	70.49610 (81060702)
3812663.0	74.24976 (81090801)	80.19141 (81120524)	84.34144 (81071922)	86.73433 (81112006)	87.71418 (81100103)
3812413.0	86.88544 (81121307)	97.63538 (81021507)	106.50135 (81010904)	112.04594 (81100419)	115.47872 (81092524)
3812163.0	101.06213 (81122004)	119.85011 (81101921)	140.23950 (81031522)	155.25351 (81092205)	165.19505 (81122809)
3811913.0	114.97112 (81121304)	145.33694 (81071924)	185.65143 (81010103)	243.58815 (81012306)	270.22690 (81100521)
3811663.0	124.23038 (81080804)	167.53703 (81092507)	242.54800 (81111920)	372.85452 (81061624)	565.89734 (81021321)
3811413.0	123.17151 (81010409)	168.57640 (81031023)	257.34122 (81010122)	485.30594 (81032323)	1602.38196 (81082903)
3811163.0	112.53610 (81042704)	148.38240 (81062102)	213.87407 (81100805)	357.45441 (81092503)	624.88995 (81062401)
3810913.0	98.63995 (81110406)	124.58746 (81102602)	166.38063 (81073102)	229.10416 (81090922)	287.59033 (81030221)
3810663.0	85.21830 (81052722)	102.82732 (81062605)	126.55875 (81082303)	153.59991 (81042324)	172.41695 (81043023)
3810413.0	73.34108 (81092423)	84.77387 (81032022)	98.10506 (81062022)	110.94347 (81101608)	118.79142 (81081521)
3810163.0	63.24168 (81082407)	70.71266 (81062024)	78.45345 (81080307)	85.19081 (81062023)	89.08294 (81052122)
3809913.0	55.17441 (81052721)	60.00377 (81090304)	64.57919 (81110818)	68.59623 (81110321)	70.80909 (81111618)
3809663.0	48.60120 (81042401)	51.87506 (81061703)	54.90523 (81101608)	57.31823 (81013007)	58.75263 (81021105)
3809413.0	43.31140 (81111207)	45.60483 (81082306)	47.64631 (81050103)	49.30211 (81072720)	50.33832 (81011908)
3809163.0	39.02448 (81111507)	40.70370 (81072020)	42.18666 (81091004)	43.37170 (81040924)	44.19092 (81042120)

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PITOPS , FINES , ROCKPLT , STOCKPIL,

*** NETWORK ID: CART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF NOX IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 376134.00	376384.00	376634.00	376884.00	377134.00
3813913.0	39.25488 (81052419)	38.41220 (81060224)	37.35324 (81032606)	36.11799 (81030722)	34.78944 (81011804)
3813663.0	43.88722 (81020405)	42.80595 (81100219)	41.41472 (81022324)	39.80102 (81012920)	38.02692 (81042105)
3813413.0	49.86273 (81082422)	48.43940 (81102020)	46.52493 (81012819)	44.31965 (81011804)	41.98395 (81121503)
3813163.0	57.85797 (81061522)	55.93794 (81110418)	53.13201 (81043021)	50.04716 (81100820)	46.77591 (81010908)
3812913.0	69.23708 (81012705)	66.33172 (81121608)	62.16059 (81031819)	57.37616 (81121401)	52.64415 (81083021)
3812663.0	86.21867 (81110319)	81.45734 (81012819)	74.46249 (81060505)	66.84856 (81012102)	59.80155 (81082301)
3812413.0	113.52797 (81050924)	104.43343 (81012501)	91.72675 (81052002)	79.04161 (81091123)	68.37764 (81052120)
3812163.0	161.78296 (81082923)	141.03746 (81030524)	115.76960 (81120703)	93.87184 (81110303)	78.25835 (81103005)
3811913.0	259.79013 (81013004)	201.62560 (81110819)	147.82855 (81032402)	111.42307 (81090704)	89.25859 (81082624)
3811663.0	505.15402 (81080419)	293.51221 (81010207)	182.33025 (81081604)	129.02437 (81081722)	102.89184 (81011319)
3811413.0	979.40411 (81102822)	382.16122 (81020604)	223.13554 (81051021)	164.11285 (81051021)	124.54694 (81071603)

3810913.0	277.13235 (81102120)	215.06340 (81081302)	220.23152 (81122408)	168.10663 (81113022)	131.54774 (81102403)
3810663.0	169.79587 (81112319)	148.39163 (81081522)	138.58800 (81042620)	133.39188 (81071906)	114.49026 (81032201)
3810413.0	117.97073 (81080524)	109.37178 (81100904)	102.04337 (81010218)	101.37997 (81032304)	94.98537 (81051719)
3810163.0	88.89306 (81100902)	85.19916 (81102120)	81.59834 (81112622)	80.69056 (81052323)	78.37231 (81111703)
3809913.0	70.94518 (81072404)	69.46155 (81072822)	67.84343 (81103003)	67.15582 (81092322)	65.97615 (81061403)
3809663.0	59.08125 (81030819)	58.60002 (81081301)	57.97027 (81120119)	57.54351 (81090121)	56.78008 (81073022)
3809413.0	50.77034 (81081024)	50.75393 (81072407)	50.57157 (81110506)	50.33571 (81072523)	49.79742 (81081203)
3809163.0	44.64711 (81111918)	44.82803 (81072206)	44.84791 (81032320)	44.71046 (81102102)	44.29990 (81090121)

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PITOPS , FINES , ROCKPLT , STOCKPIL,

*** NETWORK ID: CART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF NOX IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 377384.00	377634.00	377884.00	378134.00	378384.00
3813913.0	33.40363 (81030524)	32.00659 (81030521)	30.63180 (81073120)	29.32655 (81080805)	28.05134 (81052121)
3813663.0	36.28770 (81092605)	34.54581 (81012102)	32.87685 (81032224)	31.27748 (81052121)	29.78428 (81011107)
3813413.0	39.65358 (81051923)	37.45220 (81020906)	35.34958 (81052121)	33.43155 (81011107)	31.68279 (81092601)
3813163.0	43.59026 (81021505)	40.71885 (81082301)	38.21033 (81102519)	35.79189 (81040819)	33.76138 (81101118)
3812913.0	48.31063 (81082301)	44.58481 (81103007)	41.38700 (81072921)	38.52938 (81040321)	36.01357 (81111218)
3812663.0	53.84044 (81110122)	48.96923 (81012106)	44.94569 (81080304)	41.50732 (81010707)	38.46310 (81102023)
3812413.0	60.16186 (81040321)	53.88403 (81011905)	48.93272 (81102023)	44.74178 (81091502)	41.09771 (81102904)
3812163.0	67.31433 (81102023)	59.49255 (81092224)	53.32267 (81010620)	48.28354 (81012304)	43.92336 (81102907)
3811913.0	75.62652 (81101808)	65.89278 (81102907)	58.28668 (81103004)	52.03485 (81020207)	46.74441 (81031620)
3811663.0	86.18437 (81080320)	73.50434 (81120721)	63.57135 (81120221)	55.69674 (81121718)	49.36858 (81032321)
3811413.0	98.53270 (81060924)	80.83249 (81020323)	68.19009 (81111906)	58.75891 (81080305)	51.52029 (81080305)
3811163.0	106.14967 (81110618)	85.28720 (81081204)	70.99904 (81120720)	60.65748 (81020408)	52.82582 (81122519)
3810913.0	104.36338 (81072223)	85.02039 (81122319)	71.18349 (81060524)	60.91897 (81082419)	53.06661 (81091606)
3810663.0	95.95073 (81122321)	80.75184 (81061902)	68.84052 (81031008)	59.54673 (81031324)	52.21083 (81010704)
3810413.0	84.45532 (81062705)	73.88309 (81102523)	64.59074 (81010317)	56.69274 (81012706)	50.43254 (81101908)
3810163.0	72.97207 (81030520)	66.20023 (81011222)	59.44349 (81032201)	53.31855 (81080719)	47.94400 (81101619)
3809913.0	63.04488 (81111219)	58.79886 (81022202)	54.06253 (81061705)	49.41647 (81080501)	45.10589 (81022002)
3809663.0	55.02267 (81072621)	52.28484 (81010508)	48.98724 (81032104)	45.50074 (81011722)	42.11176 (81020219)
3809413.0	48.60254 (81010507)	46.76404 (81021203)	44.42145 (81010505)	41.83294 (81061005)	39.18579 (81071906)
3809163.0	43.45323 (81010621)	42.14360 (81081422)	40.43856 (81032203)	38.39842 (81010505)	36.40820 (81080706)

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PITOPS , FINES , ROCKPLT , STOCKPIL,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF NOX IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
375707.00	3810561.00	138.26782	(81112308)	374756.00	3810927.00	89.64085	(81111702)
376707.00	3811134.00	258.70236	(81031008)	376710.00	3811038.00	223.08806	(81101619)
376712.00	3810939.00	205.22740	(81022002)	376717.00	3810843.00	184.43134	(81121418)
376700.00	3811250.00	285.10892	(81070422)	376697.00	3811346.00	244.09097	(81101720)
376693.00	3811450.00	193.39442	(81101708)	376690.00	3811546.00	178.24344	(81080320)
376685.00	3811645.00	169.90053	(81081603)	376683.00	3811744.00	159.44699	(81092224)
376678.00	3811840.00	149.00539	(81011905)	376676.00	3811936.00	137.66591	(81101118)
376671.00	3812035.00	126.49847	(81110122)	376666.00	3812134.00	115.88813	(81080503)
376663.00	3812230.00	106.24952	(81080805)	376659.00	3812329.00	97.34298	(81073120)
376654.00	3812426.00	89.64291	(81020206)	376561.00	3812442.00	92.98267	(81121503)
376464.00	3812452.00	96.66915	(81091907)	376367.00	3812464.00	99.49065	(81043021)
376270.00	3812474.00	101.95740	(81102401)	376248.00	3812399.00	111.98341	(81062220)
376253.00	3812303.00	126.08250	(81013004)	376258.00	3812206.00	143.63393	(81030722)
376260.00	3812110.00	165.62671	(81012501)	376217.00	3812057.00	185.57832	(81043021)
376122.00	3812069.00	190.81453	(81110418)	376025.00	3812081.00	191.80896	(81021602)
375928.00	3812093.00	187.79443	(81121821)	375828.00	3812105.00	179.90674	(81042903)
375728.00	3812117.00	170.93130	(81120905)	375631.00	3812129.00	163.43420	(81081923)
375532.00	3812141.00	155.33278	(81111407)	375461.00	3812124.00	153.64340	(81021824)
375464.00	3812028.00	174.61403	(81121805)	375464.00	3811924.00	198.72932	(81010322)
375466.00	3811828.00	224.44415	(81041522)	375469.00	3811732.00	256.52051	(81112706)
375374.00	3811746.00	220.93115	(81012622)	375277.00	3811756.00	192.33493	(81011318)
375180.00	3811770.00	168.58357	(81011622)	375077.00	3811785.00	148.18469	(81111501)
375077.00	3811688.00	154.39526	(81011704)	375075.00	3811589.00	157.55165	(81051723)
375075.00	3811493.00	157.71657	(81121903)	375075.00	3811394.00	154.47516	(81020607)
375073.00	3811298.00	148.31456	(81080124)	375070.00	3811202.00	140.45555	(81042704)
375070.00	3811105.00	132.56802	(81021423)	375068.00	3811009.00	124.33958	(81021624)
375145.00	3810970.00	131.50591	(81082603)	375240.00	3810956.00	145.06781	(81080824)
375340.00	3810941.00	161.97491	(81032024)	375437.00	3810927.00	181.02608	(81072702)
375534.00	3810912.00	201.48941	(81040306)	375631.00	3810898.00	222.40454	(81020608)
375728.00	3810881.00	238.99957	(81040404)	375826.00	3810867.00	250.57358	(81090624)
375923.00	3810852.00	252.25555	(81062202)	376020.00	3810835.00	243.41354	(81072424)
376119.00	3810821.00	228.80580	(81062703)	376217.00	3810806.00	209.46939	(81080119)
376299.00	3810794.00	192.25703	(81020121)	376353.00	3810785.00	180.79759	(81082222)
376450.00	3810768.00	164.03046	(81020220)	376547.00	3810753.00	158.50821	(81042620)
376644.00	3810739.00	157.96921	(81040605)	376719.00	3810744.00	158.50484	(81022202)

*** THE SUMMARY OF HIGHEST 1-HR RESULTS ***

** CONC OF NOX IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)		OF TYPE	NETWORK GRID-ID
ALL	HIGH 1ST HIGH VALUE IS	1602.38196	ON 81082903: AT (	375884.00, 3811413.00,	0.00, 0.00)	GC	CART1

```
 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
                      BD = BOUNDARY
1 *** ISCST3 - VERSION 99155 ***    ***  NOx, Phase 1, Hourly Average Concentration                    ***        11/13/99
                                    ***  TMC Soledad                                                    ***        16:24:20
 **MODELOPTs:                                                                                                      PAGE  15
 CONC                       URBAN  FLAT                                    NOCALM


 *** Message Summary : ISCST3 Model Execution ***

  --------- Summary of Total Messages --------

 A Total of            0 Fatal Error Message(s)
 A Total of            0 Warning Message(s)
 A Total of         1228 Informational Message(s)

 A Total of         1228 Calm Hours Identified


    ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


    ********   WARNING MESSAGES   ********
              ***  NONE  ***


    ************************************
    *** ISCST3 Finishes Successfully ***
    ************************************
```

```
            ISCST3X  PC (32 BIT) VERSION  3.3.0
           (C) COPYRIGHT 1991-1999, TRINITY CONSULTANTS

Run Began on 11/13/1999 at 16:23:47

** BREEZE ISC SUITE v3.2.2 - G:\Clients\tr110 - TMC Sole\Air-28\Modeling\NOx_Models\11-4-99\nxlac.dat
** Trinity Consultants, Dallas, TX

CO STARTING
CO TITLEONE  NOx, Phase 1 Annual Average
CO TITLETWO  TMC Soledad
CO MODELOPT  CONC  URBAN  NOCALM
CO AVERTIME  1  ANNUAL
CO POLLUTID  NOX
CO TERRHGTS  FLAT
CO RUNORNOT  RUN
CO FINISHED

SO STARTING
SO ELEVUNIT  METERS
SO LOCATION  PITOPS  VOLUME  375974.0  3811400.0  0
SO LOCATION  FINES  VOLUME  375741.0  3811744.0  0
** SRCDESCR  Fines
SO LOCATION  STOCKPIL  VOLUME  376343.8  3811301.3  0
** SRCDESCR  Stockpile
SO LOCATION  ROCKPLT  VOLUME  376359.2  3811119.0  0
** SRCDESCR  Rock Plant
SO SRCPARAM  PITOPS  1.470000E+00  3.5  25  7
SO SRCPARAM  FINES  3.230000E-02  3.5  25  7
SO SRCPARAM  STOCKPIL  4.120000E-01  3.5  25  7
SO SRCPARAM  ROCKPLT  1.840000E-01  3.5  25  7
SO SRCGROUP  ALL
SO FINISHED

RE STARTING
RE GRIDCART CART1 STA
RE GRIDCART CART1 XYINC  373634  20  250  3809163  20  250
RE GRIDCART CART1 END
RE DISCCART  375707.0  3810561.0
** RCPDESCR  Nearest Dwelling
RE DISCCART  374756.0  3810927.0
** RCPDESCR  Trailer Park
** BOUNDARY
RE DISCCART  376707.0  3811134.0
RE DISCCART  376710.0  3811038.0
RE DISCCART  376712.0  3810939.0
RE DISCCART  376717.0  3810843.0
RE DISCCART  376700.0  3811250.0
RE DISCCART  376697.0  3811346.0
RE DISCCART  376693.0  3811450.0
RE DISCCART  376690.0  3811546.0
RE DISCCART  376685.0  3811645.0
RE DISCCART  376683.0  3811744.0
RE DISCCART  376678.0  3811840.0
RE DISCCART  376676.0  3811936.0
RE DISCCART  376671.0  3812035.0
RE DISCCART  376666.0  3812134.0
RE DISCCART  376663.0  3812230.0
RE DISCCART  376659.0  3812329.0
RE DISCCART  376654.0  3812426.0
RE DISCCART  376561.0  3812442.0
RE DISCCART  376464.0  3812452.0
RE DISCCART  376367.0  3812464.0
RE DISCCART  376270.0  3812474.0
RE DISCCART  376248.0  3812399.0
RE DISCCART  376253.0  3812303.0
RE DISCCART  376258.0  3812206.0
RE DISCCART  376260.0  3812110.0
RE DISCCART  376217.0  3812057.0
RE DISCCART  376122.0  3812069.0
RE DISCCART  376025.0  3812081.0
RE DISCCART  375928.0  3812093.0
RE DISCCART  375828.0  3812105.0
RE DISCCART  375728.0  3812117.0
RE DISCCART  375631.0  3812129.0
RE DISCCART  375532.0  3812141.0
RE DISCCART  375461.0  3812124.0
RE DISCCART  375464.0  3812028.0
RE DISCCART  375464.0  3811924.0
RE DISCCART  375466.0  3811828.0
RE DISCCART  375469.0  3811732.0
RE DISCCART  375374.0  3811746.0
RE DISCCART  375277.0  3811756.0
RE DISCCART  375180.0  3811770.0
RE DISCCART  375077.0  3811785.0
RE DISCCART  375077.0  3811688.0
RE DISCCART  375075.0  3811589.0
RE DISCCART  375075.0  3811493.0
RE DISCCART  375075.0  3811394.0
RE DISCCART  375073.0  3811298.0
RE DISCCART  375070.0  3811202.0
RE DISCCART  375070.0  3811105.0
RE DISCCART  375068.0  3811009.0
RE DISCCART  375145.0  3810970.0
RE DISCCART  375240.0  3810956.0
RE DISCCART  375340.0  3810941.0
RE DISCCART  375437.0  3810927.0
RE DISCCART  375534.0  3810912.0
RE DISCCART  375631.0  3810898.0
RE DISCCART  375728.0  3810861.0
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RE DISCCART  375923.0  3810852.0
RE DISCCART  376020.0  3810835.0
RE DISCCART  376119.0  3810821.0
RE DISCCART  376217.0  3810806.0
RE DISCCART  376299.0  3810794.0
RE DISCCART  376353.0  3810785.0
RE DISCCART  376450.0  3810768.0
RE DISCCART  376547.0  3810753.0
RE DISCCART  376644.0  3810739.0
RE DISCCART  376719.0  3810744.0
RE FINISHED

ME STARTING
ME INPUTFIL  C:\TRINITY\ISC32\NEWHALL.ASC
ME ANEMHGHT  10  METERS
ME SURFDATA  51115  1981
ME UAIRDATA  99999  1981
ME STARTEND  1981  01  01  1  1981  12  31  24
ME FINISHED

OU STARTING
OU RECTABLE  1  FIRST
OU FINISHED

** PROJECTN  0 104 7 -177 0 0.9996 500000 0
** OUTFILE  G:\Clients\TR110-~1\Air-28\Modeling\NOX_MO~1\11-4-99\NX1AC.LST
** RAWFILE  G:\Clients\TR110-~1\Air-28\Modeling\NOX_MO~1\11-4-99\NX1AC.RAW
** RAWFMT  2

** POLLUTNT IDN  01  NOX  X
** POLLUTNT NAM  01
** POLLUTNT EMS  PITOPS 1.470000E+00
** POLLUTNT EMS  FINES 3.230000E-02
** POLLUTNT EMS  STOCKPIL 4.120000E-01
** POLLUTNT EMS  ROCKPLT 1.840000E-01


*********************************
*** SETUP Finishes Successfully ***
*********************************
```



```
                         ***     MODEL SETUP OPTIONS SUMMARY      ***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

**Intermediate Terrain Processing is Selected

**Model Is Setup For Calculation of Average CONCentration Values.

  --  SCAVENGING/DEPOSITION LOGIC --
**Model Uses NO DRY DEPLETION.  DDPLETE =  F
**Model Uses NO WET DEPLETION.  WDPLETE =  F
**NO WET SCAVENGING Data Provided.
**NO GAS DRY DEPOSITION Data Provided.
**Model Does NOT Use GRIDDED TERRAIN Data for Depletion Calculations

**Model Uses URBAN Dispersion.

**Model Uses User-Specified Options:
          1. Final Plume Rise.
          2. Stack-tip Downwash.
          3. Buoyancy-induced Dispersion.
          4. Not Use Calms Processing Routine.
          5. Not Use Missing Data Processing Routine.
          6. Default Wind Profile Exponents.
          7. Default Vertical Potential Temperature Gradients.

**Model Assumes Receptors on FLAT Terrain.

**Model Assumes No FLAGPOLE Receptor Heights.

**Model Calculates  1 Short Term Average(s) of:   1-HR
   and Calculates ANNUAL Averages

**This Run Includes:     4 Source(s);      1 Source Group(s); and     470 Receptor(s)

**The Model Assumes A Pollutant Type of:  NOX

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
       Model Outputs Tables of ANNUAL Averages by Receptor
       Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)

**Misc. Inputs:  Anem. Hgt. (m) =    10.00 ;    Decay Coef. =      0.0000 ;    Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                       ;  Emission Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

**Approximate Storage Requirements of Model =     1.2 MB of RAM.

**Input Runstream File:          G:\CLIENTS\TR110~-1\AIR-28\MODELING\NOX_MODELS\FINALRUNS\NX1AC.DAT
**Output Print File:             G:\CLIENTS\TR110~-1\AIR-28\MODELING\NOX_MODELS\FINALRUNS\NX1AC.LST
```

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	EMISSION RATE SCALAR VARY BY
PITOPS	0	0.14700E+01	375974.0	3811400.0	0.0	3.50	25.00	7.00	
FINES	0	0.32300E-01	375741.0	3811744.0	0.0	3.50	25.00	7.00	
STOCKPIL	0	0.41200E+00	376343.8	3811301.2	0.0	3.50	25.00	7.00	
ROCKPLT	0	0.18400E+00	376359.2	3811119.0	0.0	3.50	25.00	7.00	

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	PITOPS , FINES , STOCKPIL, ROCKPLT ,

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** GRIDDED RECEPTOR NETWORK SUMMARY ***

*** NETWORK ID: CART1 ; NETWORK TYPE: GRIDCART ***

*** X-COORDINATES OF GRID ***
(METERS)

373634.0, 373884.0, 374134.0, 374384.0, 374634.0, 374884.0, 375134.0, 375384.0, 375634.0, 375884.0,
376134.0, 376384.0, 376634.0, 376884.0, 377134.0, 377384.0, 377634.0, 377884.0, 378134.0, 378384.0,

*** Y-COORDINATES OF GRID ***
(METERS)

3809163.0, 3809413.0, 3809663.0, 3809913.0, 3810163.0, 3810413.0, 3810663.0, 3810913.0, 3811163.0, 3811413.0,
3811663.0, 3811913.0, 3812163.0, 3812413.0, 3812663.0, 3812913.0, 3813163.0, 3813413.0, 3813663.0, 3813913.0,

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZFLAG)
(METERS)

(375707.0,	3810561.0,	0.0,	0.0);	(374756.0,	3810927.0,	0.0,	0.0);
(376707.0,	3811134.0,	0.0,	0.0);	(376710.0,	3811038.0,	0.0,	0.0);
(376712.0,	3810939.0,	0.0,	0.0);	(376717.0,	3810843.0,	0.0,	0.0);
(376700.0,	3811250.0,	0.0,	0.0);	(376697.0,	3811346.0,	0.0,	0.0);
(376693.0,	3811450.0,	0.0,	0.0);	(376690.0,	3811546.0,	0.0,	0.0);
(376685.0,	3811645.0,	0.0,	0.0);	(376683.0,	3811744.0,	0.0,	0.0);
(376678.0,	3811840.0,	0.0,	0.0);	(376676.0,	3811936.0,	0.0,	0.0);
(376671.0,	3812035.0,	0.0,	0.0);	(376666.0,	3812134.0,	0.0,	0.0);
(376663.0,	3812230.0,	0.0,	0.0);	(376659.0,	3812329.0,	0.0,	0.0);
(376654.0,	3812426.0,	0.0,	0.0);	(376561.0,	3812442.0,	0.0,	0.0);
(376464.0,	3812452.0,	0.0,	0.0);	(376367.0,	3812464.0,	0.0,	0.0);
(376270.0,	3812474.0,	0.0,	0.0);	(376248.0,	3812399.0,	0.0,	0.0);
(376253.0,	3812303.0,	0.0,	0.0);	(376258.0,	3812206.0,	0.0,	0.0);
(376260.0,	3812110.0,	0.0,	0.0);	(376217.0,	3812057.0,	0.0,	0.0);
(376122.0,	3812069.0,	0.0,	0.0);	(376025.0,	3812081.0,	0.0,	0.0);
(375928.0,	3812093.0,	0.0,	0.0);	(375828.0,	3812105.0,	0.0,	0.0);
(375728.0,	3812117.0,	0.0,	0.0);	(375631.0,	3812129.0,	0.0,	0.0);
(375532.0,	3812141.0,	0.0,	0.0);	(375461.0,	3812124.0,	0.0,	0.0);
(375464.0,	3812028.0,	0.0,	0.0);	(375464.0,	3811924.0,	0.0,	0.0);
(375466.0,	3811828.0,	0.0,	0.0);	(375469.0,	3811732.0,	0.0,	0.0);
(375374.0,	3811746.0,	0.0,	0.0);	(375277.0,	3811756.0,	0.0,	0.0);
(375180.0,	3811770.0,	0.0,	0.0);	(375077.0,	3811785.0,	0.0,	0.0);
(375077.0,	3811688.0,	0.0,	0.0);	(375075.0,	3811589.0,	0.0,	0.0);
(375075.0,	3811493.0,	0.0,	0.0);	(375075.0,	3811394.0,	0.0,	0.0);
(375073.0,	3811298.0,	0.0,	0.0);	(375070.0,	3811202.0,	0.0,	0.0);
(375070.0,	3811105.0,	0.0,	0.0);	(375068.0,	3811009.0,	0.0,	0.0);
(375145.0,	3810970.0,	0.0,	0.0);	(375240.0,	3810956.0,	0.0,	0.0);
(375340.0,	3810941.0,	0.0,	0.0);	(375437.0,	3810927.0,	0.0,	0.0);
(375534.0,	3810912.0,	0.0,	0.0);	(375631.0,	3810896.0,	0.0,	0.0);
(375728.0,	3810881.0,	0.0,	0.0);	(375826.0,	3810867.0,	0.0,	0.0);
(375923.0,	3810852.0,	0.0,	0.0);	(376020.0,	3810835.0,	0.0,	0.0);
(376119.0,	3810821.0,	0.0,	0.0);	(376217.0,	3810806.0,	0.0,	0.0);
(376299.0,	3810794.0,	0.0,	0.0);	(376353.0,	3810785.0,	0.0,	0.0);
(376450.0,	3810768.0,	0.0,	0.0);	(376547.0,	3810753.0,	0.0,	0.0);
(376644.0,	3810739.0,	0.0,	0.0);	(376719.0,	3810744.0,	0.0,	0.0);

**MODELOPTs:
CONC URBAN FLAT NOCALM

* SOURCE-RECEPTOR COMBINATIONS FOR WHICH CALCULATIONS MAY NOT BE PERFORMED *
LESS THAN 1.0 METER OR 3*ZLB IN DISTANCE, OR WITHIN OPEN PIT SOURCE

ID	XR (METERS)	YR (METERS)	(METERS)
ROCKPLT	376384.0	3811163.0	-3.24

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
(1=YES; 0=NO)

```
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1
```

METEOROLOGICAL DATA PROCESSED BETWEEN START DATE: 1981 1 1 1
AND END DATE: 1981 12 31 24

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** WIND PROFILE EXPONENTS ***

STABILITY CATEGORY	WIND SPEED CATEGORY 1	2	3	4	5	6
A	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00
B	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00
C	.20000E+00	.20000E+00	.20000E+00	.20000E+00	.20000E+00	.20000E+00
D	.25000E+00	.25000E+00	.25000E+00	.25000E+00	.25000E+00	.25000E+00
E	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00
F	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00

*** VERTICAL POTENTIAL TEMPERATURE GRADIENTS ***
(DEGREES KELVIN PER METER)

STABILITY CATEGORY	WIND SPEED CATEGORY 1	2	3	4	5	6
A	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
B	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
C	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
D	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
E	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01
F	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

FILE: C:\TRINITY\ISC32\NEWHALL.ASC
FORMAT: (4I2,2F9.4,F6.1,I2,2F7.1,f9.4,f10.1,f8.4,i4,f7.2)
SURFACE STATION NO.: 51115 UPPER AIR STATION NO.: 99999
NAME: UNKNOWN NAME: UNKNOWN
YEAR: 1981 YEAR: 1981

YR	MN	DY	HR	FLOW VECTOR	SPEED (M/S)	TEMP (K)	STAB CLASS	MIXING HEIGHT (M) RURAL	MIXING HEIGHT (M) URBAN	USTAR (M/S)	M-O LENGTH (M)	Z-0 (M)	IPCODE	PRATE (mm/HR)
81	01	01	01	314.8	1.00	285.9	7	522.6	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	02	304.9	0.00	284.8	7	507.0	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	03	310.0	0.00	284.8	7	491.4	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	04	346.0	1.00	284.8	7	475.8	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	05	309.0	1.00	285.4	7	460.3	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	06	342.0	1.00	284.3	7	444.7	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	07	342.0	0.00	284.3	7	429.1	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	08	337.1	0.00	284.3	6	43.0	190.2	0.0000	0.0	0.0000	0	0.00
81	01	01	09	6.5	1.00	287.6	5	88.2	211.8	0.0000	0.0	0.0000	0	0.00
81	01	01	10	9.1	0.00	291.5	4	135.3	233.4	0.0000	0.0	0.0000	0	0.00
81	01	01	11	291.6	1.00	297.0	3	181.5	255.1	0.0000	0.0	0.0000	0	0.00
81	01	01	12	80.6	1.00	298.7	2	227.7	276.7	0.0000	0.0	0.0000	0	0.00
81	01	01	13	87.2	0.00	299.3	2	273.8	298.4	0.0000	0.0	0.0000	0	0.00
81	01	01	14	326.7	2.24	299.3	3	320.0	320.0	0.0000	0.0	0.0000	0	0.00
81	01	01	15	337.3	2.24	298.7	3	320.0	320.0	0.0000	0.0	0.0000	0	0.00
81	01	01	16	345.7	2.24	297.6	4	320.0	320.0	0.0000	0.0	0.0000	0	0.00
81	01	01	17	20.1	1.34	294.6	5	325.5	316.6	0.0000	0.0	0.0000	0	0.00
81	01	01	18	97.6	1.00	293.1	6	357.1	310.3	0.0000	0.0	0.0000	0	0.00
81	01	01	19	178.0	1.00	290.9	7	388.7	302.1	0.0000	0.0	0.0000	0	0.00
81	01	01	20	303.2	1.00	289.8	7	420.3	293.9	0.0000	0.0	0.0000	0	0.00
81	01	01	21	358.6	1.00	289.3	7	451.9	285.7	0.0000	0.0	0.0000	0	0.00
81	01	01	22	272.0	1.00	287.6	7	483.5	277.4	0.0000	0.0	0.0000	0	0.00
81	01	01	23	0.7	1.00	287.6	7	515.1	269.2	0.0000	0.0	0.0000	0	0.00
81	01	01	24	[illegible]	1.00	287.6	7	546.7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

*** NOTES: STABILITY CLASS 1=A, 2=B, 3=C, 4=D, 5=E AND 6=F.
FLOW VECTOR IS DIRECTION TOWARD WHICH WIND IS BLOWING.

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE ANNUAL (1 YRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PITOPS , FINES , STOCKPIL, ROCKPLT ,

*** NETWORK ID: CART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF NOX IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 373634.00	373884.00	374134.00	374384.00	374634.00	374884.00	375134.00	375384.00	375634.00
3813913.00	1.22483	1.27723	1.24318	1.09634	0.92428	0.83685	0.83754	0.83203	0.76782
3813663.00	1.31181	1.43851	1.49582	1.41926	1.21051	1.03252	0.96525	0.98859	0.91903
3813413.00	1.33361	1.55307	1.72302	1.77985	1.62982	1.35551	1.20525	1.19499	1.12359
3813163.00	1.23516	1.56611	1.87930	2.11582	2.15681	1.88676	1.57086	1.48578	1.41226
3812913.00	1.00129	1.39498	1.86902	2.33899	2.68386	2.66885	2.22543	1.94423	1.84423
3812663.00	0.78185	1.07720	1.57666	2.27213	3.02301	3.55759	3.38533	2.76881	2.54887
3812413.00	0.70938	0.87182	1.17745	1.78394	2.82061	4.12058	5.02109	4.45866	3.83423
3812163.00	0.73540	0.85841	1.03811	1.35383	2.04497	3.58567	6.08842	7.80323	6.51934
3811913.00	0.77722	0.91545	1.09565	1.34368	1.72785	2.50423	4.71371	10.32431	14.64813
3811663.00	0.75738	0.90739	1.11125	1.39861	1.82294	2.49213	3.68782	6.83189	23.19744
3811413.00	0.71746	0.85453	1.04090	1.30535	1.70235	2.34701	3.52449	6.13612	14.46827
3811163.00	0.66753	0.77604	0.91392	1.09180	1.32599	1.64671	2.12414	3.01823	6.26431
3810913.00	0.50728	0.55499	0.61335	0.69324	0.81368	1.00807	1.41163	2.42090	4.26209
3810663.00	0.35077	0.38906	0.44177	0.51444	0.63674	0.89085	1.33103	1.98977	2.69845
3810413.00	0.28599	0.32178	0.37552	0.47428	0.64342	0.87571	1.19410	1.54400	1.99790
3810163.00	0.25407	0.30172	0.38176	0.49508	0.63425	0.81520	1.02743	1.17649	1.56883
3809913.00	0.25537	0.31842	0.39702	0.48803	0.60102	0.73579	0.83506	0.94923	1.25412
3809663.00	0.27178	0.32830	0.39108	0.46609	0.55561	0.63480	0.68044	0.79723	1.02785
3809413.00	0.27769	0.32255	0.37471	0.43685	0.49917	0.53535	0.57338	0.68222	0.86739
3809163.00	0.27186	0.30953	0.35439	0.40270	0.43786	0.45365	0.49688	0.59480	0.74852

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE ANNUAL (1 YRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PITOPS , FINES , STOCKPIL, ROCKPLT ,

*** NETWORK ID: CART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF NOX IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 375884.00	376134.00	376384.00	376634.00	376884.00	377134.00	377384.00	377634.00	377884.00
3813913.00	0.74100	0.72440	0.61808	0.44331	0.31048	0.24184	0.21015	0.19378	0.17976
3813663.00	0.88069	0.84725	0.69185	0.47915	0.33909	0.26759	0.23580	0.21675	0.19817
3813413.00	1.06880	1.00833	0.77893	0.52667	0.37695	0.30075	0.26831	0.24281	0.22047
3813163.00	1.33072	1.22606	0.88429	0.59462	0.42545	0.34596	0.30731	0.27450	0.24950
3812913.00	1.71174	1.53135	1.01962	0.69383	0.49002	0.40654	0.35519	0.31683	0.28463
3812663.00	2.30283	1.97870	1.21623	0.83411	0.58362	0.48518	0.42100	0.36751	0.31544
3812413.00	3.32503	2.66817	1.55364	1.02990	0.72161	0.59759	0.49796	0.40569	0.32976
3812163.00	5.47345	3.79927	2.20474	1.31698	0.94102	0.72347	0.55051	0.43152	0.35073
3811913.00	11.30419	5.91896	3.56321	1.81853	1.17895	0.83526	0.63847	0.51777	0.44141
3811663.00	33.41490	12.90186	6.77379	2.60336	1.68036	1.17788	0.89010	0.70820	0.58169
3811413.00	126.64897	41.64225	22.30383	5.05291	2.63344	1.66053	1.16879	0.87866	0.69052
3811163.00	19.34947	19.77260	18.33910	6.22406	3.02011	1.90438	1.33373	0.99485	0.77572
3810913.00	7.93264	8.17857	10.05321	4.57737	2.38887	1.49560	1.08979	0.86173	0.71138
3810663.00	4.66075	4.64398	4.41532	2.92054	2.06529	1.35688	0.94019	0.71554	0.58174
3810413.00	3.02691	3.07983	2.67922	1.96746	1.58661	1.24607	0.92013	0.68226	0.53497
3810163.00	2.12691	2.23172	1.90593	1.42387	1.18978	1.03748	0.85691	0.68070	0.53192
3809913.00	1.60837	1.70380	1.46600	1.11327	0.91529	0.83630	0.74533	0.63652	0.53111
3809663.00	1.27895	1.35074	1.17986	0.91995	0.73718	0.67153	0.63226	0.56868	0.49758
3809413.00	1.05066	1.10234	0.97893	0.78354	0.62341	0.55095	0.52764	0.49971	0.45263
3809163.00	0.88341	0.92048	0.83029	0.67974	0.54619	0.46799	0.44149	0.43097	0.40767

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE ANNUAL (1 YRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PITOPS , FINES , STOCKPIL, ROCKPLT ,

*** NETWORK ID: CART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF NOX IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 378134.00	378384.00
3813913.00	0.16584	0.15389
3813663.00	0.18219	0.16948
3813413.00	0.20307	0.18844
3813163.00	0.22845	0.20858
3812913.00	0.25344	0.22165
3812663.00	0.26639	0.22432
3812413.00	0.27181	0.22941
3812163.00	0.29772	0.26372
3811913.00	0.38826	0.34685

3811163.00	0.62539	0.51752
3810913.00	0.60092	0.51475
3810663.00	0.49436	0.43350
3810413.00	0.44241	0.37832
3810163.00	0.42682	0.35831
3809913.00	0.43322	0.35488
3809663.00	0.42980	0.36308
3809413.00	0.40338	0.35732
3809163.00	0.37170	0.33603

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE ANNUAL (1 YRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PITOPS , FINES , STOCKPIL, ROCKPLT ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF NOX IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
375707.00	3810561.00	2.70808	374756.00	3810927.00	0.91370
376707.00	3811134.00	4.67570	376710.00	3811038.00	4.27359
376712.00	3810939.00	3.79269	376717.00	3810843.00	3.37699
376700.00	3811250.00	5.23109	376697.00	3811346.00	4.87748
376693.00	3811450.00	3.85563	376690.00	3811546.00	3.15367
376685.00	3811645.00	2.46078	376683.00	3811744.00	2.01252
376678.00	3811840.00	1.81139	376676.00	3811936.00	1.62647
376671.00	3812035.00	1.43790	376666.00	3812134.00	1.27862
376663.00	3812230.00	1.15673	376659.00	3812329.00	1.05858
376654.00	3812426.00	0.97931	376561.00	3812442.00	1.15472
376464.00	3812452.00	1.33681	376367.00	3812464.00	1.50254
376270.00	3812474.00	1.78270	376248.00	3812399.00	2.02354
376253.00	3812303.00	2.22096	376258.00	3812206.00	2.48305
376260.00	3812110.00	2.85950	376217.00	3812057.00	3.45404
376122.00	3812069.00	4.60877	376025.00	3812081.00	5.82107
375928.00	3812093.00	6.27337	375828.00	3812105.00	6.71325
375728.00	3812117.00	7.01071	375631.00	3812129.00	7.13098
375532.00	3812141.00	7.54311	375461.00	3812124.00	8.36974
375464.00	3812028.00	10.52045	375464.00	3811924.00	12.44426
375466.00	3811828.00	12.91669	375469.00	3811732.00	11.47734
375374.00	3811746.00	7.80601	375277.00	3811756.00	5.55050
375180.00	3811770.00	4.23943	375077.00	3811785.00	3.36394
375077.00	3811688.00	3.32049	375075.00	3811589.00	3.35937
375075.00	3811493.00	3.29518	375075.00	3811394.00	3.12931
375073.00	3811298.00	2.78148	375070.00	3811202.00	2.20719
375070.00	3811105.00	1.70325	375068.00	3811009.00	1.41268
375145.00	3810970.00	1.49796	375240.00	3810956.00	1.76520
375340.00	3810941.00	2.20351	375437.00	3810927.00	2.77831
375534.00	3810912.00	3.45385	375631.00	3810898.00	4.10940
375728.00	3810881.00	4.64251	375826.00	3810867.00	5.89526
375923.00	3810852.00	7.50070	376020.00	3810835.00	7.63061
376119.00	3810821.00	6.63163	376217.00	3810806.00	6.11886
376299.00	3810794.00	6.42644	376353.00	3810785.00	6.38629
376450.00	3810768.00	5.19076	376547.00	3810753.00	4.00717
376644.00	3810739.00	3.29918	376719.00	3810744.00	2.95430

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PITOPS , FINES , STOCKPIL, ROCKPLT ,

*** NETWORK ID: CART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF NOX IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 373634.00	373884.00	374134.00	374384.00	374634.00
3813913.0	21.52283 (81121724)	22.60941 (81110719)	23.65940 (81080701)	24.62722 (81031622)	25.46284 (81092918)
3813663.0	23.02637 (81031221)	24.37677 (81122518)	25.71712 (81061906)	26.98564 (81011420)	28.10004 (81052320)
3813413.0	24.63457 (81010407)	26.31899 (81040507)	28.04003 (81021902)	29.72725 (81010702)	31.26773 (81120524)
3813163.0	26.32431 (81091823)	28.41494 (81041323)	30.63407 (81051101)	32.89935 (81050704)	35.06840 (81021704)
3812913.0	28.03653 (81031520)	30.61150 (81121604)	33.45672 (81090901)	36.50857 (81011707)	39.61091 (81120603)
3812663.0	29.69528 (81102007)	32.81250 (81041402)	36.40725 (81080906)	40.47759 (81112823)	44.91942 (81101605)
3812413.0	31.19082 (81022703)	34.87271 (81101220)	39.29564 (81033103)	44.58662 (81100723)	50.81744 (81022224)
3812163.0	32.39459 (81012603)	36.59757 (81040902)	41.83675 (81041201)	48.44315 (81112901)	56.80893 (81092505)
3811913.0	33.17377 (81010706)	37.77013 (81010804)	43.66409 (81112908)	51.44089 (81011704)	61.96652 (81041704)
3811663.0	33.43373 (81122307)	38.19905 (81042723)	44.42524 (81082820)	52.85118 (81082903)	64.78597 (81040401)
3811413.0	33.12042 (81080723)	37.78661 (81080723)	43.89414 (81010919)	52.16772 (81010919)	63.98890 (81091601)
3811163.0	32.28058 (81091401)	36.62675 (81010805)	42.21358 (81021119)	49.62745 (81050402)	59.87637 (81082120)
3810913.0	31.02338 (81102723)	34.67993 (81112703)	39.71661 (81092705)	45.91904 (81110707)	54.12654 (81082707)
3810663.0	29.49951 (81091707)	32.80760 (81112602)	36.84346 (81020719)	41.84088 (81101408)	48.20005 (81011608)
3810413.0	27.83861 (81010624)	30.62757 (81040104)	33.92091 (81091702)	37.85109 (81012223)	42.70982 (81032024)
3810163.0	26.15202 (81091002)	28.46893 (81102602)	31.12633 (81082405)	34.22232 (81071803)	37.65625 (81112305)
3809913.0	24.51384 (81121624)	26.43014 (81022505)	28.57325 (81041605)	30.98138 (81042803)	33.69107 (81073122)
3809663.0	22.95482 (81032024)	24.54520 (81021921)	26.26674 (81092504)	28.14842 (81010406)	30.18062 (81082004)
3809413.0	21.52394 (81073102)	22.82913 (81092504)	24.22362 (81022723)	25.70050 (81022506)	27.24384 (81072021)
3809163.0	20.19807 (81052403)	21.28490 (81050405)	22.41782 (81091222)	23.59202 (81031222)	24.78513 (81081703)

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PITOPS , FINES , STOCKPIL, ROCKPLT ,

** CONC OF NOX IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 374884.00	375134.00	375384.00	375634.00	375884.00
3813913.0	26.10588 (81052521)	26.54326 (81121808)	26.74185 (81101721)	26.73066 (81022605)	26.51352 (81070423)
3813663.0	28.99275 (81042902)	29.59807 (81110223)	29.90730 (81112006)	29.92077 (81060221)	29.68568 (81070423)
3813413.0	32.53702 (81050304)	33.42945 (81051702)	33.90690 (81071822)	34.00549 (81032604)	33.76426 (81122606)
3813163.0	36.94151 (81030122)	38.31988 (81121019)	39.12588 (81121708)	39.41129 (81082101)	39.22737 (81120620)
3812913.0	42.47873 (81121303)	44.74363 (81120408)	46.17414 (81112823)	46.86814 (81022420)	46.89561 (81060702)
3812663.0	49.41789 (81090801)	53.36511 (81120524)	56.11652 (81071922)	57.70007 (81112006)	58.34677 (81100103)
3812413.0	57.82939 (81121307)	64.97571 (81022607)	70.86131 (81010904)	74.53584 (81100419)	76.81331 (81092524)
3812163.0	67.26704 (81122004)	79.76296 (81101921)	93.31354 (81031522)	103.27791 (81092205)	109.88148 (81122809)
3811913.0	76.52649 (81121304)	96.73032 (81071924)	123.53970 (81010103)	162.05307 (81012306)	179.74387 (81100521)
3811663.0	82.68906 (81080804)	111.50871 (81092507)	161.41853 (81111920)	248.07253 (81061624)	376.41159 (81021321)
3811413.0	81.97673 (81031823)	112.18758 (81031023)	171.24297 (81010122)	322.89963 (81032323)	1066.03674 (81082903)
3811163.0	74.88531 (81042704)	98.72163 (81062102)	142.27057 (81100805)	237.76416 (81092503)	415.65079 (81062401)
3810913.0	65.62746 (81110406)	82.87881 (81102602)	110.67116 (81073102)	152.39059 (81090922)	191.29317 (81030221)
3810663.0	56.69266 (81052722)	68.40041 (81062605)	84.18268 (81082303)	102.16837 (81042324)	114.68472 (81043023)
3810413.0	48.79007 (81092423)	56.39127 (81032022)	65.25660 (81062022)	73.79542 (81101608)	79.01550 (81081521)
3810163.0	42.07092 (81082407)	47.03859 (81062024)	52.18579 (81080307)	56.66647 (81062023)	59.25525 (81052122)
3809913.0	36.70559 (81052721)	39.91621 (81090304)	42.95864 (81110818)	45.62943 (81110321)	47.10131 (81111618)
3809663.0	32.33375 (81042401)	34.51001 (81061703)	36.52443 (81101608)	38.12913 (81013007)	39.08332 (81021105)
3809413.0	28.81580 (81111207)	30.34038 (81082306)	31.69778 (81050103)	32.79860 (81072720)	33.48796 (81011908)
3809163.0	25.96482 (81111507)	27.08115 (81072020)	28.06699 (81091004)	28.85536 (81040924)	29.40075 (81042120)

1 *** ISCST3 - VERSION 99155 *** *** NOx, Phase 1 Annual Average *** 11/13/99
*** TMC Soledad *** 16:23:47
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**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PITOPS , FINES , STOCKPIL, ROCKPLT ,

*** NETWORK ID: CART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF NOX IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 376134.00	376384.00	376634.00	376884.00	377134.00
3813913.0	26.11972 (81052419)	25.55811 (81060224)	24.85356 (81032606)	24.03170 (81030722)	23.14877 (81011804)
3813663.0	29.19973 (81020405)	28.47969 (81100219)	27.55417 (81022324)	26.48094 (81012920)	25.30079 (81042105)
3813413.0	33.17304 (81082422)	32.22548 (81102020)	30.95151 (81012819)	29.48505 (81011804)	27.93294 (81121503)
3813163.0	38.48985 (81061522)	37.21153 (81110418)	35.34472 (81043021)	33.29412 (81100820)	31.11899 (81010908)
3812913.0	46.05657 (81012705)	44.12371 (81121608)	41.34938 (81031819)	38.16784 (81121401)	35.02168 (81083021)
3812663.0	57.35059 (81110319)	54.18325 (81012819)	49.53080 (81060505)	44.46750 (81012102)	39.78200 (81082301)
3812413.0	75.51455 (81050924)	69.46517 (81012501)	61.01352 (81052002)	52.57698 (81091123)	45.48639 (81052120)
3812163.0	107.61134 (81082923)	93.81230 (81030524)	77.00535 (81120703)	62.44082 (81110303)	52.05968 (81103005)
3811913.0	172.80159 (81013004)	134.11296 (81110819)	98.32951 (81032402)	74.11611 (81090704)	59.38061 (81082624)
3811663.0	336.00742 (81080419)	195.23210 (81010207)	121.27891 (81081604)	85.83162 (81081722)	68.46748 (81011319)
3811413.0	651.45886 (81102822)	255.14720 (81020604)	148.48845 (81051021)	109.25411 (81051021)	82.92524 (81071603)
3811163.0	367.47574 (81010507)	207.51155 (81053023)	203.91875 (81022424)	131.92914 (81112919)	92.72971 (81021504)
3810913.0	184.33826 (81102120)	143.05788 (81081302)	146.60823 (81122408)	111.94188 (81113022)	87.60440 (81102403)
3810663.0	112.94195 (81112319)	98.70628 (81081522)	92.22102 (81042620)	88.80286 (81071906)	76.23536 (81032201)
3810413.0	78.47009 (81080524)	72.75205 (81100904)	67.89115 (81010218)	67.48029 (81032304)	63.23930 (81051719)
3810163.0	59.12952 (81100902)	56.67444 (81102120)	54.28829 (81112622)	53.70245 (81052323)	52.17419 (81111703)
3809913.0	47.19273 (81072404)	46.20834 (81072822)	45.13876 (81103003)	44.69265 (81092322)	43.91825 (81061403)
3809663.0	39.30305 (81030819)	38.98537 (81081301)	38.57194 (81120119)	38.29649 (81090121)	37.79563 (81073022)
3809413.0	33.77664 (81081024)	33.76828 (81072407)	33.65075 (81110506)	33.49898 (81072523)	33.14611 (81081203)
3809163.0	29.70538 (81111918)	29.82788 (81062003)	29.84436 (81032320)	29.75725 (81102102)	29.48659 (81090121)

1 *** ISCST3 - VERSION 99155 *** *** NOx, Phase 1 Annual Average *** 11/13/99
*** TMC Soledad *** 16:23:47
PAGE 16

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PITOPS , FINES , STOCKPIL, ROCKPLT ,

*** NETWORK ID: CART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF NOX IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 377384.00	377634.00	377884.00	378134.00	378384.00
3813913.0	22.22726 (81030524)	21.29847 (81030521)	20.38454 (81073120)	19.51750 (81080805)	18.66976 (81052121)
3813663.0	24.14538 (81092605)	22.98751 (81012102)	21.87853 (81032224)	20.81514 (81052121)	19.82310 (81011107)
3813413.0	26.38332 (81051923)	24.92076 (81020906)	23.52278 (81052121)	22.24976 (81011107)	21.08654 (81092601)
3813163.0	29.00263 (81021505)	27.09472 (81082301)	25.42677 (81102519)	23.82115 (81040619)	22.47030 (81101118)
3812913.0	32.14193 (81082301)	29.66615 (81103007)	27.54093 (81072921)	25.64272 (81040321)	23.97033 (81111218)
3812663.0	35.81963 (81110122)	32.56295 (81012106)	29.90925 (81080304)	27.62427 (81010707)	25.60185 (81102023)
3812413.0	40.02530 (81040321)	35.85470 (81011905)	32.56436 (81102023)	29.77975 (81091502)	27.35712 (81102904)
3812163.0	44.78538 (81102023)	39.58850 (81092224)	35.48760 (81010620)	32.13966 (81012304)	29.23909 (81102907)
3811913.0	50.32347 (81101808)	43.85711 (81102907)	38.79650 (81103004)	34.63951 (81020207)	31.11955 (81031620)
3811663.0	57.36384 (81080320)	48.93146 (81120721)	42.32221 (81120221)	37.08098 (81121718)	32.86959 (81032321)
3811413.0	65.60464 (81060924)	53.82087 (81020323)	45.40358 (81111906)	39.12307 (81080305)	34.30362 (81080305)
3811163.0	70.68896 (81110618)	56.79323 (81081204)	47.27766 (81120720)	40.39034 (81020408)	35.17480 (81122519)
3810913.0	69.50021 (81072223)	56.61720 (81122319)	47.40176 (81060524)	40.56548 (81082419)	35.33598 (81091606)
3810663.0	63.89410 (81122321)	53.77312 (81061902)	45.84105 (81031008)	39.65182 (81031324)	34.76641 (81010704)
3810413.0	56.23334 (81062705)	49.19628 (81102523)	43.01030 (81010317)	37.75126 (81012706)	33.58204 (81101908)
3810163.0	48.58463 (81030520)	44.07863 (81011222)	39.58072 (81032201)	35.50308 (81080719)	31.92426 (81101619)
3809913.0	41.97237 (81111219)	39.14845 (81022202)	35.99693 (81061705)	32.90390 (81080501)	30.03412 (81022002)
3809663.0	36.62975 (81072621)	34.80986 (81010508)	32.61614 (81032104)	30.29606 (81011722)	28.03951 (81020219)
3809413.0	32.35555 (81010507)	31.13313 (81021203)	29.57560 (81010505)	27.85274 (81061005)	26.09105 (81071906)
3809163.0	28.92690 (81010621)	28.05649 (81081422)	26.92295 (81032203)	25.56650 (81010505)	24.24084 (81080706)

1 *** ISCST3 - VERSION 99155 *** *** NOx, Phase 1 Annual Average *** 11/13/99
*** TMC Soledad *** 16:23:47

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PITOPS , FINES , STOCKPIL, ROCKPLT ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF NOX IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
375707.00	3810561.00	91.97015	(81112308)	374756.00	3810927.00	59.64495	(81111702)
376707.00	3811134.00	172.33109	(81031008)	376710.00	3811038.00	148.55980	(81101619)
376712.00	3810939.00	136.63199	(81022002)	376717.00	3810843.00	122.77943	(81121418)
376700.00	3811250.00	189.93706	(81070422)	376697.00	3811346.00	162.55579	(81101720)
376693.00	3811450.00	128.68042	(81101708)	376690.00	3811546.00	118.56672	(81080320)
376685.00	3811645.00	113.01207	(81081603)	376683.00	3811744.00	106.05787	(81092224)
376678.00	3811840.00	99.11247	(81011905)	376676.00	3811936.00	91.56984	(81101118)
376671.00	3812035.00	84.14175	(81110122)	376666.00	3812134.00	77.08425	(81080503)
376663.00	3812230.00	70.67314	(81080805)	376659.00	3812329.00	64.74904	(81073120)
376654.00	3812426.00	59.62755	(81020206)	376561.00	3812442.00	61.84886	(81121503)
376464.00	3812452.00	64.30081	(81091907)	376367.00	3812464.00	66.17746	(81043021)
376270.00	3812474.00	67.81832	(81102401)	376248.00	3812399.00	74.48705	(81062220)
376253.00	3812303.00	83.86498	(81013004)	376258.00	3812206.00	95.53938	(81030722)
376260.00	3812110.00	110.16801	(81012501)	376217.00	3812057.00	123.43897	(81043021)
376122.00	3812069.00	126.92189	(81110418)	376025.00	3812081.00	127.58337	(81021602)
375928.00	3812093.00	124.91328	(81121821)	375828.00	3812105.00	119.66753	(81042903)
375728.00	3812117.00	113.70065	(81120905)	375631.00	3812129.00	108.72057	(81081923)
375532.00	3812141.00	103.34091	(81111407)	375461.00	3812124.00	102.22510	(81021824)
375464.00	3812028.00	116.18132	(81121805)	375464.00	3811924.00	132.23122	(81010322)
375466.00	3811828.00	149.34586	(81041522)	375469.00	3811732.00	170.69875	(81112706)
375374.00	3811746.00	147.02823	(81012622)	375277.00	3811756.00	128.00575	(81011318)
375180.00	3811770.00	112.20287	(81011622)	375077.00	3811785.00	98.62976	(81111501)
375077.00	3811688.00	102.76350	(81011704)	375075.00	3811589.00	104.86246	(81051723)
375075.00	3811493.00	104.96806	(81121903)	375075.00	3811394.00	102.80356	(81020607)
375073.00	3811298.00	98.69481	(81080124)	375070.00	3811202.00	93.45741	(81042704)
375070.00	3811105.00	88.19988	(81021423)	375068.00	3811009.00	82.72063	(81021624)
375145.00	3810970.00	87.48190	(81082603)	375240.00	3810956.00	96.49915	(81080824)
375340.00	3810941.00	107.74171	(81032024)	375437.00	3810927.00	120.41205	(81072702)
375534.00	3810912.00	134.02269	(81040306)	375631.00	3810898.00	147.93430	(81020608)
375728.00	3810881.00	158.97256	(81040404)	375826.00	3810867.00	166.67113	(81090624)
375923.00	3810852.00	167.78999	(81062202)	376020.00	3810835.00	161.90892	(81072424)
376119.00	3810821.00	152.19304	(81062703)	376217.00	3810806.00	139.33182	(81080119)
376299.00	3810794.00	127.88317	(81020121)	376353.00	3810785.00	120.26114	(81082222)
376450.00	3810768.00	109.11379	(81020220)	376547.00	3810753.00	105.46265	(81042620)
376644.00	3810739.00	105.13299	(81040605)	376719.00	3810744.00	105.50716	(81022202)

*** THE SUMMARY OF MAXIMUM ANNUAL (1 YRS) RESULTS ***

** CONC OF NOX IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS	126.64897 AT	(375884.00, 3811413.00, 0.00, 0.00)	GC	CART1
	2ND HIGHEST VALUE IS	41.64225 AT	(376134.00, 3811413.00, 0.00, 0.00)	GC	CART1
	3RD HIGHEST VALUE IS	33.41490 AT	(375884.00, 3811663.00, 0.00, 0.00)	GC	CART1
	4TH HIGHEST VALUE IS	23.19744 AT	(375634.00, 3811663.00, 0.00, 0.00)	GC	CART1
	5TH HIGHEST VALUE IS	22.30383 AT	(376384.00, 3811413.00, 0.00, 0.00)	GC	CART1
	6TH HIGHEST VALUE IS	19.77260 AT	(376134.00, 3811163.00, 0.00, 0.00)	GC	CART1
	7TH HIGHEST VALUE IS	19.34947 AT	(375884.00, 3811163.00, 0.00, 0.00)	GC	CART1
	8TH HIGHEST VALUE IS	18.33910 AT	(376384.00, 3811163.00, 0.00, 0.00)	GC	CART1
	9TH HIGHEST VALUE IS	14.64813 AT	(375634.00, 3811913.00, 0.00, 0.00)	GC	CART1
	10TH HIGHEST VALUE IS	14.46827 AT	(375634.00, 3811413.00, 0.00, 0.00)	GC	CART1

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** THE SUMMARY OF HIGHEST 1-HR RESULTS ***

** CONC OF NOX IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	HIGH 1ST HIGH VALUE IS	1066.03674	ON 81082903: AT	(375884.00, 3811413.00, 0.00, 0.00)	GC	CART1

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

```
*** Message Summary : ISCST3 Model Execution ***

 --------- Summary of Total Messages --------

A Total of            0 Fatal Error Message(s)
A Total of            0 Warning Message(s)
A Total of         1467 Informational Message(s)

A Total of         1467 Calm Hours Identified


   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
              ***  NONE  ***


   ************************************
   *** ISCST3 Finishes Successfully ***
   ************************************
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            ISCST3X  PC (32 BIT) VERSION  3.3.0
          (C) COPYRIGHT 1991-1999, TRINITY CONSULTANTS

Run Began on  5/05/2000 at 16:42:26

** BREEZE ISC SUITE v3.2.2 - G:\Clients\tr110 - TMC Sole\Air-28\Modeling\FEIS_Changes\new-pplnc.dat
** Trinity Consultants, Dallas, TX

CO STARTING
CO TITLEONE  Proposed Project with Fines Conveyor and Mitigated Combustion PM-10
CO TITLETWO  Phase 1 Annual and 24 Hour Average PM-10 Concentrations (NO CALM)
CO MODELOPT  CONC  URBAN  NOCALM
CO AVERTIME  24  ANNUAL
CO POLLUTID  10-PM
CO TERRHGTS  FLAT
CO RUNORNOT  RUN
CO FINISHED

SO STARTING
SO ELEVUNIT  METERS
SO LOCATION  RCKPLNT  VOLUME  376359.2  3811119.0  0
SO LOCATION  BTCHPLNT  VOLUME  376329.4  3810975.0  0
SO LOCATION  FINES1  AREA  375691.0  3811794.0  0
SO LOCATION  FINES2  AREA  375791.0  3811794.0  0
SO LOCATION  FINES3  AREA  375691.0  3811694.0  0
SO LOCATION  FINES4  AREA  375791.0  3811694.0  0
SO LOCATION  STCKPILE  AREA  376343.8  3811301.3  0
SO LOCATION  PITOPS  AREA  375974.0  3811400.0  0
SO LOCATION  SRC3  AREALINE  376284.2  3811113.0  0
SO LOCATION  SRC5  AREALINE  376267.7  3810992.4  0
SO LOCATION  SRC6  AREALINE  376150.3  3811086.2  0
SO LOCATION  SRC7  AREALINE  376066.7  3810858.5  0
SO LOCATION  SRC8  AREALINE  375902.5  3810908.6  0
SO LOCATION  SRC9  AREALINE  375892.5  3810975.7  0
SO LOCATION  SRC11  AREALINE  375765.1  3810955.6  0
SO LOCATION  SRC12  AREALINE  375778.5  3811116.3  0
SO LOCATION  SRC14  AREALINE  375681.5  3811143.0  0
SO LOCATION  SRC16  AREALINE  375497.2  3811354.0  0
SO LOCATION  SRC18  AREALINE  375825.5  3811725.8  0
SO LOCATION  SRC19  AREALINE  375664.7  3811786.0  0
SO LOCATION  SRC20  AREALINE  375520.8  3811638.7  0
SO SRCPARAM  RCKPLNT  3.400000E-01  3.5  50  7
SO SRCPARAM  BTCHPLNT  3.250000E-02  3.5  50  7
SO SRCPARAM  FINES1  1.040000E-06  0  100  100  0  0
SO SRCPARAM  FINES2  1.040000E-06  0  100  100  0  0
SO SRCPARAM  FINES3  1.040000E-06  0  100  100  0  0
SO SRCPARAM  FINES4  1.040000E-06  0  100  100  0  0
SO SRCPARAM  STCKPILE  1.100000E-05  0  100  100  0  0
SO SRCPARAM  PITOPS  5.310000E-05  0  100  100  0  0
SO SRCPARAM  SRC3  6.220000E-07  0  122  10  98  0
SO SRCPARAM  SRC5  6.220000E-07  0  151.9  10  -140  0
SO SRCPARAM  SRC6  6.220000E-07  0  243.8  10  110.9  0
SO SRCPARAM  SRC7  6.220000E-07  0  169.5  10  -161.6  0
SO SRCPARAM  SRC8  6.220000E-07  0  60.8  10  -96.4  0
SO SRCPARAM  SRC9  6.220000E-07  0  121.8  10  172.1  0
SO SRCPARAM  SRC11  6.220000E-07  0  151.5  10  -83.6  0
SO SRCPARAM  SRC12  6.220000E-07  0  92  10  -164  0
SO SRCPARAM  SRC14  6.220000E-07  0  274  10  -130.5  0
SO SRCPARAM  SRC16  6.220000E-07  0  488.5  10  -47.8  0
SO SRCPARAM  SRC18  6.220000E-07  0  166.8  10  -157.6  0
SO SRCPARAM  SRC19  6.220000E-07  0  198.9  10  135.1  0
SO SRCPARAM  SRC20  6.220000E-07  0  121.8  10  -172.1  0
SO SRCGROUP  ALL
SO FINISHED

RE STARTING
RE GRIDCART GRD1 STA
RE GRIDCART GRD1 XYINC  373634  20  250  3809163  20  250
RE GRIDCART GRD1 END
RE DISCCART  375707.0  3810561.0
** RCPDESCR  Nearest Dwelling
RE DISCCART  374756.0  3810927.0
** RCPDESCR  Trailer Park
** BOUNDARY
RE DISCCART  376707.0  3811134.0
RE DISCCART  376710.0  3811038.0
RE DISCCART  376712.0  3810939.0
RE DISCCART  376717.0  3810843.0
RE DISCCART  376700.0  3811250.0
RE DISCCART  376697.0  3811346.0
RE DISCCART  376693.0  3811450.0
RE DISCCART  376690.0  3811546.0
RE DISCCART  376685.0  3811645.0
RE DISCCART  376683.0  3811744.0
RE DISCCART  376678.0  3811840.0
RE DISCCART  376676.0  3811936.0
RE DISCCART  376671.0  3812035.0
RE DISCCART  376666.0  3812134.0
RE DISCCART  376663.0  3812230.0
RE DISCCART  376659.0  3812329.0
RE DISCCART  376654.0  3812426.0
RE DISCCART  376561.0  3812442.0
RE DISCCART  376464.0  3812452.0
RE DISCCART  376367.0  3812464.0
RE DISCCART  376270.0  3812474.0
RE DISCCART  376248.0  3812399.0
RE DISCCART  376253.0  3812303.0
RE DISCCART  376258.0  3812206.0
```

```
RE DISCCART  376260.0  3812110.0
RE DISCCART  376217.0  3812057.0
RE DISCCART  376122.0  3812069.0
RE DISCCART  376025.0  3812081.0
RE DISCCART  375928.0  3812093.0
RE DISCCART  375828.0  3812105.0
RE DISCCART  375728.0  3812117.0
RE DISCCART  375631.0  3812129.0
RE DISCCART  375532.0  3812141.0
RE DISCCART  375461.0  3812124.0
RE DISCCART  375464.0  3812028.0
RE DISCCART  375464.0  3811924.0
RE DISCCART  375466.0  3811828.0
RE DISCCART  375469.0  3811732.0
RE DISCCART  375374.0  3811746.0
RE DISCCART  375277.0  3811756.0
RE DISCCART  375180.0  3811770.0
RE DISCCART  375077.0  3811785.0
RE DISCCART  375077.0  3811688.0
RE DISCCART  375075.0  3811589.0
RE DISCCART  375075.0  3811493.0
RE DISCCART  375075.0  3811394.0
RE DISCCART  375073.0  3811298.0
RE DISCCART  375070.0  3811202.0
RE DISCCART  375070.0  3811105.0
RE DISCCART  375068.0  3811009.0
RE DISCCART  375145.0  3810970.0
RE DISCCART  375240.0  3810956.0
RE DISCCART  375340.0  3810941.0
RE DISCCART  375437.0  3810927.0
RE DISCCART  375534.0  3810912.0
RE DISCCART  375631.0  3810898.0
RE DISCCART  375728.0  3810881.0
RE DISCCART  375826.0  3810867.0
RE DISCCART  375923.0  3810852.0
RE DISCCART  376020.0  3810835.0
RE DISCCART  376119.0  3810821.0
RE DISCCART  376217.0  3810806.0
RE DISCCART  376299.0  3810794.0
RE DISCCART  376353.0  3810785.0
RE DISCCART  376450.0  3810768.0
RE DISCCART  376547.0  3810753.0
RE DISCCART  376644.0  3810739.0
RE DISCCART  376719.0  3810744.0
RE FINISHED

ME STARTING
ME INPUTFIL  C:\TRINITY\ISC32\NEWHALL.ASC
ME ANEMHGHT  10  METERS
ME SURFDATA  51115  1981
ME UAIRDATA  99999  1981
ME STARTEND  1981  01  01  1  1981  12  31  24
ME FINISHED

OU STARTING
OU RECTABLE  24  FIRST  FOURTH
OU MAXTABLE  24  50
OU FINISHED

** PROJECTN  0 104 7 -177 0 0.9996 500000 0
** OUTFILE  G:\Clients\tr110 - TMC Sole\Air-28\Modeling\FEIS_Changes\new-pplnc.LST
** RAWFILE  G:\Clients\tr110 - TMC Sole\Air-28\Modeling\FEIS_Changes\new-pplnc.RAW
** RAWFMT  2

** POLLUTNT IDN  01  10-PM  X
** POLLUTNT NAM  01
** POLLUTNT EMS  RCKPLNT 3.400000E-01
** POLLUTNT EMS  BTCHPLNT 3.250000E-02
** POLLUTNT EMS  FINES1 1.040000E-06
** POLLUTNT EMS  FINES2 1.040000E-06
** POLLUTNT EMS  FINES3 1.040000E-06
** POLLUTNT EMS  FINES4 1.040000E-06
** POLLUTNT EMS  STCKPILE 1.100000E-05
** POLLUTNT EMS  PITOPS 5.310000E-05
** POLLUTNT EMS  SRC3 6.220000E-07
** POLLUTNT EMS  SRC5 6.220000E-07
** POLLUTNT EMS  SRC6 6.220000E-07
** POLLUTNT EMS  SRC7 6.220000E-07
** POLLUTNT EMS  SRC8 6.220000E-07
** POLLUTNT EMS  SRC9 6.220000E-07
** POLLUTNT EMS  SRC11 6.220000E-07
** POLLUTNT EMS  SRC12 6.220000E-07
** POLLUTNT EMS  SRC14 6.220000E-07
** POLLUTNT EMS  SRC16 6.220000E-07
** POLLUTNT EMS  SRC18 6.220000E-07
** POLLUTNT EMS  SRC19 6.220000E-07
** POLLUTNT EMS  SRC20 6.220000E-07


***********************************
*** SETUP Finishes Successfully ***
***********************************
```



```
                                          ***     MODEL SETUP OPTIONS SUMMARY       ***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
```

```
**Intermediate Terrain Processing is Selected

**Model Is Setup For Calculation of Average CONCentration Values.

  -- SCAVENGING/DEPOSITION LOGIC --
**Model Uses NO DRY DEPLETION.  DDPLETE =  F
**Model Uses NO WET DEPLETION.  WDPLETE =  F
**NO WET SCAVENGING Data Provided.
**NO GAS DRY DEPOSITION Data Provided.
**Model Does NOT Use GRIDDED TERRAIN Data for Depletion Calculations

**Model Uses URBAN Dispersion.

**Model Uses User-Specified Options:
          1. Final Plume Rise.
          2. Stack-tip Downwash.
          3. Buoyancy-induced Dispersion.
          4. Not Use Calms Processing Routine.
          5. Not Use Missing Data Processing Routine.
          6. Default Wind Profile Exponents.
          7. Default Vertical Potential Temperature Gradients.

**Model Assumes Receptors on FLAT Terrain.

**Model Assumes No FLAGPOLE Receptor Heights.

**Model Calculates  1 Short Term Average(s) of:  24-HR
    and Calculates ANNUAL Averages

**This Run Includes:    21 Source(s);      1 Source Group(s); and     470 Receptor(s)

**The Model Assumes A Pollutant Type of:  10-PM

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
         Model Outputs Tables of ANNUAL Averages by Receptor
         Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)
         Model Outputs Tables of Overall Maximum Short Term Values (MAXTABLE Keyword)

**Misc. Inputs:  Anem. Hgt. (m) =    10.00 ;    Decay Coef. =       0.0000 ;    Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                                   ;  Emission Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

**Approximate Storage Requirements of Model =     1.3 MB of RAM.

**Input Runstream File:          G:\CLIENTS\TR110--1\AIR-28\MODELING\FEIS_C-1\NEW-PP1NC.DAT
**Output Print File:             G:\CLIENTS\TR110--1\AIR-28\MODELING\FEIS_C-1\NEW-PP1NC.LST
1 *** ISCST3 - VERSION 99155 ***    ***  Proposed Project with Fines Conveyor and Mitigated Combustion PM-10 ***        05/05/00
                                    ***  Phase 1 Annual and 24 Hour Average PM-10 Concentrations (NO CALM)   ***        16:42:26
**MODELOPTs:                                                                                                            PAGE   2
CONC                        URBAN  FLAT                                    NOCALM


                                          *** VOLUME SOURCE DATA ***

             NUMBER EMISSION RATE                    BASE    RELEASE    INIT.    INIT.   EMISSION RATE
   SOURCE     PART.  (GRAMS/SEC)     X        Y      ELEV.   HEIGHT     SY       SZ      SCALAR VARY
    ID        CATS.                (METERS) (METERS) (METERS) (METERS) (METERS) (METERS)        BY
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

  RCKPLNT       0   0.34000E+00  376359.2 3811119.0     0.0     3.50    50.00     7.00
  BTCHPLNT      0   0.32500E-01  376329.4 3810975.0     0.0     3.50    50.00     7.00
1 *** ISCST3 - VERSION 99155 ***    ***  Proposed Project with Fines Conveyor and Mitigated Combustion PM-10 ***        05/05/00
                                    ***  Phase 1 Annual and 24 Hour Average PM-10 Concentrations (NO CALM)   ***        16:42:26
**MODELOPTs:                                                                                                            PAGE   3
CONC                        URBAN  FLAT                                    NOCALM


                                          *** AREA SOURCE DATA ***

             NUMBER EMISSION RATE  COORD (SW CORNER)  BASE     RELEASE  X-DIM     Y-DIM    ORIENT.    INIT.  EMISSION RATE
   SOURCE     PART.  (GRAMS/SEC       X        Y      ELEV.   HEIGHT  OF AREA   OF AREA   OF AREA     SZ     SCALAR VARY
    ID        CATS.   /METER**2)   (METERS) (METERS) (METERS) (METERS) (METERS)  (METERS)   (DEG.)  (METERS)       BY
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

  FINES1        0   0.10400E-05  375691.0 3811794.0     0.0     0.00    100.00    100.00      0.00     0.00
  FINES2        0   0.10400E-05  375791.0 3811794.0     0.0     0.00    100.00    100.00      0.00     0.00
  FINES3        0   0.10400E-05  375691.0 3811694.0     0.0     0.00    100.00    100.00      0.00     0.00
  FINES4        0   0.10400E-05  375791.0 3811694.0     0.0     0.00    100.00    100.00      0.00     0.00
  STCKPILE      0   0.11000E-04  376343.8 3811301.2     0.0     0.00    100.00    100.00      0.00     0.00
  PITOPS        0   0.53100E-04  375974.0 3811400.0     0.0     0.00    100.00    100.00      0.00     0.00
1 *** ISCST3 - VERSION 99155 ***    ***  Proposed Project with Fines Conveyor and Mitigated Combustion PM-10 ***        05/05/00
                                    ***  Phase 1 Annual and 24 Hour Average PM-10 Concentrations (NO CALM)   ***        16:42:26
**MODELOPTs:                                                                                                            PAGE   4
CONC                        URBAN  FLAT                                    NOCALM


                                          *** AREALINE SOURCE DATA ***

             NUMBER EMISSION RATE  COORD (SW CORNER)  BASE     RELEASE  X-DIM     Y-DIM    ORIENT.    INIT.  EMISSION RATE
   SOURCE     PART.  (GRAMS/SEC       X        Y      ELEV.   HEIGHT  OF AREA   OF AREA   OF AREA     SZ     SCALAR VARY
    ID        CATS.   /METER**2)   (METERS) (METERS) (METERS) (METERS) (METERS)  (METERS)   (DEG.)  (METERS)       BY
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

  SRC3          0   0.62200E-06  376284.2 3811113.0     0.0     0.00    122.00     10.00     98.00     0.00
```

SRC5	0	0.62200E-06	376267.7	3810992.5	0.0	0.00	151.90	10.00	-140.00	0.00
SRC6	0	0.62200E-06	376150.3	3811086.2	0.0	0.00	243.80	10.00	110.90	0.00
SRC7	0	0.62200E-06	376066.7	3810858.5	0.0	0.00	169.50	10.00	-161.60	0.00
SRC8	0	0.62200E-06	375902.5	3810908.5	0.0	0.00	60.80	10.00	-96.40	0.00
SRC9	0	0.62200E-06	375892.5	3810975.7	0.0	0.00	121.80	10.00	172.10	0.00
SRC11	0	0.62200E-06	375765.1	3810955.5	0.0	0.00	151.50	10.00	-83.60	0.00
SRC12	0	0.62200E-06	375778.5	3811116.2	0.0	0.00	92.00	10.00	-164.00	0.00
SRC14	0	0.62200E-06	375681.5	3811143.0	0.0	0.00	274.00	10.00	-130.50	0.00
SRC16	0	0.62200E-06	375497.2	3811354.0	0.0	0.00	488.50	10.00	-47.80	0.00
SRC18	0	0.62200E-06	375825.5	3811725.7	0.0	0.00	166.80	10.00	-157.60	0.00
SRC19	0	0.62200E-06	375664.7	3811786.0	0.0	0.00	198.90	10.00	135.10	0.00
SRC20	0	0.62200E-06	375520.8	3811638.7	0.0	0.00	121.80	10.00	-172.10	0.00

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID SOURCE IDs

ALL RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE, PITOPS , SRC3 , SRC5 , SRC6 , SRC7 ,
SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 , SRC19 , SRC20 ,

*** GRIDDED RECEPTOR NETWORK SUMMARY ***

*** NETWORK ID: GRD1 ; NETWORK TYPE: GRIDCART ***

*** X-COORDINATES OF GRID ***
(METERS)

373634.0, 373884.0, 374134.0, 374384.0, 374634.0, 374884.0, 375134.0, 375384.0, 375634.0, 375884.0,
376134.0, 376384.0, 376634.0, 376884.0, 377134.0, 377384.0, 377634.0, 377884.0, 378134.0, 378384.0,

*** Y-COORDINATES OF GRID ***
(METERS)

3809163.0, 3809413.0, 3809663.0, 3809913.0, 3810163.0, 3810413.0, 3810663.0, 3810913.0, 3811163.0, 3811413.0,
3811663.0, 3811913.0, 3812163.0, 3812413.0, 3812663.0, 3812913.0, 3813163.0, 3813413.0, 3813663.0, 3813913.0,

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZFLAG)
(METERS)

(375707.0,	3810561.0,	0.0,	0.0);	(374756.0,	3810927.0,	0.0,	0.0);
(376707.0,	3811134.0,	0.0,	0.0);	(376710.0,	3811038.0,	0.0,	0.0);
(376712.0,	3810939.0,	0.0,	0.0);	(376717.0,	3810843.0,	0.0,	0.0);
(376700.0,	3811250.0,	0.0,	0.0);	(376697.0,	3811346.0,	0.0,	0.0);
(376693.0,	3811450.0,	0.0,	0.0);	(376690.0,	3811546.0,	0.0,	0.0);
(376685.0,	3811645.0,	0.0,	0.0);	(376683.0,	3811744.0,	0.0,	0.0);
(376678.0,	3811840.0,	0.0,	0.0);	(376676.0,	3811936.0,	0.0,	0.0);
(376671.0,	3812035.0,	0.0,	0.0);	(376666.0,	3812134.0,	0.0,	0.0);
(376663.0,	3812230.0,	0.0,	0.0);	(376659.0,	3812329.0,	0.0,	0.0);
(376654.0,	3812426.0,	0.0,	0.0);	(376561.0,	3812442.0,	0.0,	0.0);
(376464.0,	3812452.0,	0.0,	0.0);	(376367.0,	3812464.0,	0.0,	0.0);
(376270.0,	3812474.0,	0.0,	0.0);	(376248.0,	3812399.0,	0.0,	0.0);
(376253.0,	3812303.0,	0.0,	0.0);	(376258.0,	3812206.0,	0.0,	0.0);
(376260.0,	3812110.0,	0.0,	0.0);	(376217.0,	3812057.0,	0.0,	0.0);
(376122.0,	3812069.0,	0.0,	0.0);	(376025.0,	3812081.0,	0.0,	0.0);
(375928.0,	3812093.0,	0.0,	0.0);	(375828.0,	3812105.0,	0.0,	0.0);
(375728.0,	3812117.0,	0.0,	0.0);	(375631.0,	3812129.0,	0.0,	0.0);
(375532.0,	3812141.0,	0.0,	0.0);	(375461.0,	3812124.0,	0.0,	0.0);
(375464.0,	3812028.0,	0.0,	0.0);	(375464.0,	3811924.0,	0.0,	0.0);
(375466.0,	3811828.0,	0.0,	0.0);	(375469.0,	3811732.0,	0.0,	0.0);
(375374.0,	3811746.0,	0.0,	0.0);	(375277.0,	3811756.0,	0.0,	0.0);
(375180.0,	3811770.0,	0.0,	0.0);	(375077.0,	3811785.0,	0.0,	0.0);
(375077.0,	3811688.0,	0.0,	0.0);	(375075.0,	3811589.0,	0.0,	0.0);
(375075.0,	3811493.0,	0.0,	0.0);	(375075.0,	3811394.0,	0.0,	0.0);
(375073.0,	3811298.0,	0.0,	0.0);	(375070.0,	3811202.0,	0.0,	0.0);
(375070.0,	3811105.0,	0.0,	0.0);	(375068.0,	3811009.0,	0.0,	0.0);
(375145.0,	3810970.0,	0.0,	0.0);	(375240.0,	3810956.0,	0.0,	0.0);
(375340.0,	3810941.0,	0.0,	0.0);	(375437.0,	3810927.0,	0.0,	0.0);
(375534.0,	3810912.0,	0.0,	0.0);	(375631.0,	3810898.0,	0.0,	0.0);
(375728.0,	3810881.0,	0.0,	0.0);	(375826.0,	3810867.0,	0.0,	0.0);
(375923.0,	3810852.0,	0.0,	0.0);	(376020.0,	3810835.0,	0.0,	0.0);
(376119.0,	3810821.0,	0.0,	0.0);	(376217.0,	3810806.0,	0.0,	0.0);
(376299.0,	3810794.0,	0.0,	0.0);	(376353.0,	3810785.0,	0.0,	0.0);
(376450.0,	3810768.0,	0.0,	0.0);	(376547.0,	3810753.0,	0.0,	0.0);
(376644.0,	3810739.0,	0.0,	0.0);	(376719.0,	3810744.0,	0.0,	0.0);

* SOURCE-RECEPTOR COMBINATIONS FOR WHICH CALCULATIONS MAY NOT BE PERFORMED *
LESS THAN 1.0 METER OR 3*ZLB IN DISTANCE, OR WITHIN OPEN PIT SOURCE

SOURCE ID	- - RECEPTOR LOCATION - - XR (METERS)	YR (METERS)	DISTANCE (METERS)
RCKPLNT	376384.0	3811163.0	-56.99
BTCHPLNT	376384.0	3810913.0	-24.89

*** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
(1=YES; 0=NO)

```
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1
```

METEOROLOGICAL DATA PROCESSED BETWEEN START DATE: 1981 1 1 1
AND END DATE: 1981 12 31 24

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** WIND PROFILE EXPONENTS ***

STABILITY CATEGORY	WIND SPEED CATEGORY 1	2	3	4	5	6
A	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00
B	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00
C	.20000E+00	.20000E+00	.20000E+00	.20000E+00	.20000E+00	.20000E+00
D	.25000E+00	.25000E+00	.25000E+00	.25000E+00	.25000E+00	.25000E+00
E	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00
F	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00

*** VERTICAL POTENTIAL TEMPERATURE GRADIENTS ***
(DEGREES KELVIN PER METER)

STABILITY CATEGORY	WIND SPEED CATEGORY 1	2	3	4	5	6
A	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
B	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
C	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
D	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
E	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01
F	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01

*** THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

FILE: C:\TRINITY\ISC32\NEWHALL.ASC
FORMAT: (4I2,2F9.4,F6.1,I2,2F7.1,f9.4,f10.1,f8.4,i4,f7.2)
SURFACE STATION NO.: 51115 UPPER AIR STATION NO.: 99999
NAME: UNKNOWN NAME: UNKNOWN
YEAR: 1981 YEAR: 1981

YR	MN	DY	HR	FLOW VECTOR	SPEED (M/S)	TEMP (K)	STAB CLASS	MIXING HEIGHT (M) RURAL	URBAN	USTAR (M/S)	M-O LENGTH (M)	Z-0 (M)	IPCODE	PRATE (mm/HR)
81	01	01	01	314.8	1.00	285.9	7	522.6	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	02	304.9	0.00	284.8	7	507.0	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	03	310.0	0.00	284.8	7	491.4	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	04	346.0	1.00	284.8	7	475.8	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	05	309.0	1.00	285.4	7	460.3	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	06	342.0	1.00	284.3	7	444.7	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	07	342.0	0.00	284.3	7	429.1	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	08	337.1	0.00	284.3	6	43.0	190.2	0.0000	0.0	0.0000	0	0.00
81	01	01	09	6.5	1.00	287.6	5	89.2	211.8	0.0000	0.0	0.0000	0	0.00
81	01	01	10	9.1	0.00	291.5	4	135.3	233.4	0.0000	0.0	0.0000	0	0.00
81	01	01	11	291.6	1.00	297.0	3	181.5	255.1	0.0000	0.0	0.0000	0	0.00
81	01	01	12	80.6	1.00	298.7	2	227.7	276.7	0.0000	0.0	0.0000	0	0.00
81	01	01	13	87.2	0.00	299.3	2	273.8	298.4	0.0000	0.0	0.0000	0	0.00
81	01	01	14	326.7	2.24	299.3	3	320.0	320.0	0.0000	0.0	0.0000	0	0.00
81	01	01	15	337.3	2.24	298.7	3	320.0	320.0	0.0000	0.0	0.0000	0	0.00

81 01 01 16	345.7	2.24	297.6	4	320.0	320.0	0.0000	0.0	0.0000	0	0.00
81 01 01 17	20.1	1.34	294.8	5	325.5	318.6	0.0000	0.0	0.0000	0	0.00
81 01 01 18	97.6	1.00	293.1	6	357.1	310.3	0.0000	0.0	0.0000	0	0.00
81 01 01 19	178.0	1.00	290.9	7	388.7	302.1	0.0000	0.0	0.0000	0	0.00
81 01 01 20	303.2	1.00	289.8	7	420.3	293.9	0.0000	0.0	0.0000	0	0.00
81 01 01 21	358.6	1.00	289.3	7	451.9	285.7	0.0000	0.0	0.0000	0	0.00
81 01 01 22	272.0	1.00	287.6	7	483.5	277.4	0.0000	0.0	0.0000	0	0.00
81 01 01 23	0.7	1.00	287.6	7	515.1	269.2	0.0000	0.0	0.0000	0	0.00
81 01 01 24	337.2	1.00	287.6	7	546.7	261.0	0.0000	0.0	0.0000	0	0.00

*** NOTES: STABILITY CLASS 1=A, 2=B, 3=C, 4=D, 5=E AND 6=F.
FLOW VECTOR IS DIRECTION TOWARD WHICH WIND IS BLOWING.

CONC URBAN FLAT NOCALM

*** THE ANNUAL (1 YRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,
PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

*** NETWORK ID: GRD1 ; NETWORK TYPE: GRIDCART ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 373634.00	373884.00	374134.00	374384.00	374634.00	374884.00	375134.00	375384.00	375634.00
3813913.00	0.61337	0.64871	0.64820	0.58743	0.49223	0.43234	0.42408	0.43044	0.40452
3813663.00	0.64855	0.72000	0.76340	0.74940	0.65298	0.54432	0.50249	0.50826	0.48506
3813413.00	0.64800	0.76471	0.86233	0.91574	0.87420	0.73117	0.62534	0.61193	0.59383
3813163.00	0.58508	0.75320	0.92025	1.05986	1.12474	1.02884	0.83802	0.76380	0.74715
3812913.00	0.46851	0.65034	0.88565	1.13641	1.34862	1.42303	1.22569	1.01867	0.97687
3812663.00	0.37807	0.50415	0.72241	1.05346	1.45142	1.80223	1.86903	1.51138	1.35721
3812413.00	0.35148	0.42742	0.55831	0.80761	1.26741	1.93965	2.59671	2.57631	2.08301
3812163.00	0.36307	0.42435	0.51294	0.65762	0.93509	1.54904	2.76729	4.27106	3.92598
3811913.00	0.37801	0.44513	0.53390	0.65808	0.84983	1.19507	1.99765	4.43144	10.36418
3811663.00	0.36900	0.43859	0.53232	0.66406	0.86044	1.18028	1.77436	3.49138	8.38641
3811413.00	0.35157	0.41584	0.50201	0.62224	0.79926	1.08051	1.58782	2.77200	5.73251
3811163.00	0.32239	0.37279	0.43626	0.51724	0.62375	0.77569	1.02333	1.52346	3.92883
3810913.00	0.25394	0.28123	0.31677	0.36780	0.44376	0.55538	0.76132	1.20776	2.01760
3810663.00	0.19066	0.21300	0.24182	0.27854	0.33607	0.44900	0.62556	0.89508	1.24296
3810413.00	0.15113	0.16801	0.19312	0.23786	0.31078	0.40632	0.54192	0.73070	0.96507
3810163.00	0.12936	0.15193	0.18757	0.23584	0.29553	0.37785	0.48885	0.58831	0.77331
3809913.00	0.12724	0.15437	0.18805	0.22944	0.28426	0.35309	0.41662	0.48393	0.61534
3809663.00	0.13040	0.15557	0.18599	0.22407	0.26930	0.31408	0.34876	0.40677	0.49713
3809413.00	0.13231	0.15522	0.18240	0.21363	0.24601	0.27188	0.29743	0.34342	0.41576
3809163.00	0.13221	0.15206	0.17452	0.19851	0.21995	0.23507	0.25700	0.29382	0.35872

CONC URBAN FLAT NOCALM

*** THE ANNUAL (1 YRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,
PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

*** NETWORK ID: GRD1 ; NETWORK TYPE: GRIDCART ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 375884.00	376134.00	376384.00	376634.00	376884.00	377134.00	377384.00	377634.00	377884.00
3813913.00	0.38071	0.37112	0.33356	0.25660	0.18233	0.13440	0.11113	0.10139	0.09403
3813663.00	0.45444	0.43669	0.37915	0.28142	0.19843	0.14687	0.12432	0.11381	0.10403
3813413.00	0.55399	0.52416	0.43504	0.31292	0.21924	0.16309	0.14167	0.12808	0.11614
3813163.00	0.69308	0.64518	0.50477	0.35617	0.24523	0.18609	0.16315	0.14531	0.13151
3812913.00	0.89714	0.82080	0.59468	0.41873	0.27877	0.21870	0.18928	0.16776	0.14963
3812663.00	1.22071	1.09164	0.72095	0.50769	0.32805	0.26135	0.22450	0.19471	0.16685
3812413.00	1.80880	1.54075	0.93207	0.63092	0.40093	0.32278	0.26751	0.21816	0.17992
3812163.00	3.16056	2.34747	1.34814	0.80551	0.52498	0.39855	0.30424	0.24231	0.19832
3811913.00	8.46878	3.99130	2.27039	1.12306	0.67358	0.47849	0.36800	0.29452	0.24315
3811663.00	27.50787	9.53445	4.73868	1.65802	1.01824	0.68753	0.49529	0.37817	0.30388
3811413.00	24.63623	41.80787	67.75847	3.40418	1.55733	0.92542	0.63828	0.47759	0.37491
3811163.00	7.10434	14.38339	6.73216	4.50459	1.82410	1.09089	0.74808	0.55027	0.42441
3810913.00	4.48660	5.76794	8.69797	3.60995	1.66515	0.96934	0.66247	0.49748	0.39678
3810663.00	2.15388	2.88053	3.34798	2.05149	1.33837	0.84554	0.56909	0.42365	0.33838
3810413.00	1.46912	1.76418	1.83947	1.25403	0.97703	0.74839	0.54273	0.39553	0.30449
3810163.00	1.03316	1.23505	1.22648	0.88434	0.69600	0.60537	0.49391	0.38861	0.30121
3809913.00	0.77962	0.92722	0.90058	0.68402	0.52292	0.47186	0.42223	0.35757	0.29660
3809663.00	0.62345	0.72743	0.70091	0.55499	0.42212	0.36995	0.35006	0.31610	0.27471
3809413.00	0.51667	0.58931	0.56704	0.46344	0.35868	0.30215	0.28589	0.27339	0.24826
3809163.00	0.43806	0.48937	0.47154	0.39535	0.31341	0.25827	0.23695	0.23152	0.22112

CONC URBAN FLAT NOCALM

*** THE ANNUAL (1 YRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,
PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

*** NETWORK ID: GRD1 ; NETWORK TYPE: GRIDCART ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 378134.00	378384.00
3813913.00	0.08675	0.08061
3813663.00	0.09566	0.08879
3813413.00	0.10668	0.09829
3813163.00	0.11952	0.10860
3812913.00	0.13276	0.11671
3812663.00	0.14220	0.12172
3812413.00	0.15083	0.12788
3812163.00	0.16646	0.14419
3811913.00	0.20694	0.18049
3811663.00	0.25316	0.21606
3811413.00	0.30400	0.25259
3811163.00	0.33919	0.27872
3810913.00	0.32831	0.27781
3810663.00	0.28180	0.24195
3810413.00	0.24913	0.21190
3810163.00	0.23842	0.19760
3809913.00	0.24120	0.19608
3809663.00	0.23627	0.19946
3809413.00	0.21995	0.19415
3809163.00	0.20186	0.18153

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE ANNUAL (1 YRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,
PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
375707.00	3810561.00	1.26040	374756.00	3810927.00	0.50058
376707.00	3811134.00	3.31047	376710.00	3811038.00	3.25543
376712.00	3810939.00	2.86127	376717.00	3810843.00	2.44155
376700.00	3811250.00	3.12759	376697.00	3811346.00	3.08974
376693.00	3811450.00	2.44753	376690.00	3811546.00	1.98846
376685.00	3811645.00	1.54972	376683.00	3811744.00	1.22162
376678.00	3811840.00	1.09236	376676.00	3811936.00	0.98089
376671.00	3812035.00	0.86380	376666.00	3812134.00	0.76825
376663.00	3812230.00	0.69837	376659.00	3812329.00	0.64267
376654.00	3812426.00	0.59637	376561.00	3812442.00	0.71311
376464.00	3812452.00	0.81351	376367.00	3812464.00	0.89722
376270.00	3812474.00	1.06210	376248.00	3812399.00	1.21626
376253.00	3812303.00	1.34914	376258.00	3812206.00	1.51893
376260.00	3812110.00	1.75855	376217.00	3812057.00	2.15950
376122.00	3812069.00	2.92571	376025.00	3812081.00	3.38450
375928.00	3812093.00	3.59586	375828.00	3812105.00	4.01584
375728.00	3812117.00	4.17761	375631.00	3812129.00	4.43575
375532.00	3812141.00	4.69617	375461.00	3812124.00	4.87626
375464.00	3812028.00	5.65951	375464.00	3811924.00	5.89680
375466.00	3811828.00	5.37011	375469.00	3811732.00	4.46889
375374.00	3811746.00	3.25839	375277.00	3811756.00	2.46698
375180.00	3811770.00	1.97408	375077.00	3811785.00	1.61693
375077.00	3811688.00	1.60644	375075.00	3811589.00	1.55262
375075.00	3811493.00	1.48311	375075.00	3811394.00	1.41775
375073.00	3811298.00	1.25136	375070.00	3811202.00	1.01859
375070.00	3811105.00	0.86528	375068.00	3811009.00	0.76610
375145.00	3810970.00	0.81465	375240.00	3810956.00	0.94513
375340.00	3810941.00	1.13896	375437.00	3810927.00	1.36857
375534.00	3810912.00	1.63529	375631.00	3810898.00	1.93656
375728.00	3810881.00	2.17772	375826.00	3810867.00	2.61016
375923.00	3810852.00	3.51780	376020.00	3810835.00	4.31635
376119.00	3810821.00	4.32383	376217.00	3810806.00	4.65594
376299.00	3810794.00	5.32344	376353.00	3810785.00	5.35132
376450.00	3810768.00	4.27124	376547.00	3810753.00	3.10991
376644.00	3810739.00	2.38896	376719.00	3810744.00	2.05828

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE 1ST HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,
PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

*** NETWORK ID: GRD1 ; NETWORK TYPE: GRIDCART ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 373634.00	373884.00	374134.00	374384.00	374634.00
3813913.0	2.61935 (81121824)	2.85010 (81120624)	2.92568 (81120624)	2.44152 (81050924)	2.44258 (81110824)
3813663.0	2.86695 (81112024)	3.05261 (81121824)	3.36197 (81120624)	3.24920 (81120624)	2.57047 (81050924)
3813413.0	2.84442 (81112224)	3.33521 (81112224)	3.62172 (81121824)	4.02245 (81120624)	3.59166 (81050924)

3813163.0	2.74255	(81011824)	3.28551	(81112224)	3.99829	(81112224)	4.39673	(81121824)	4.88767	(81120624)
3812913.0	1.97802	(81011824)	3.00836	(81011824)	3.82543	(81112224)	4.91347	(81112224)	5.50447	(81121824)
3812663.0	2.01300	(81120324)	2.18634	(81120324)	3.17795	(81011824)	4.57196	(81011824)	6.23519	(81112224)
3812413.0	2.23558	(81122624)	2.53810	(81122624)	2.82342	(81120324)	3.28077	(81011824)	5.51022	(81011824)
3812163.0	2.41173	(81120324)	2.77715	(81120324)	3.16555	(81120324)	3.68001	(81120324)	4.40234	(81120324)
3811913.0	1.86832	(81121424)	2.30579	(81120324)	3.04541	(81120324)	3.98903	(81120324)	5.09112	(81120324)
3811663.0	1.85685	(81030324)	2.17794	(81030324)	2.59247	(81030324)	3.13849	(81030324)	3.89668	(81122624)
3811413.0	2.08328	(81080424)	2.36687	(81080424)	2.73721	(81080424)	3.23877	(81080424)	3.96256	(81080424)
3811163.0	1.61064	(81080424)	1.73469	(81040124)	2.03096	(81040124)	2.39422	(81040124)	2.85140	(81040124)
3810913.0	1.40057	(81081524)	1.46612	(81040124)	1.70927	(81040124)	2.06108	(81040124)	2.51977	(81040124)
3810663.0	1.21098	(81041624)	1.38976	(81041624)	1.54999	(81041624)	1.70169	(81091724)	2.22012	(81091724)
3810413.0	1.14888	(81041624)	1.19668	(81091724)	1.44966	(81091724)	1.55586	(81091724)	1.95488	(81082424)
3810163.0	1.00698	(81091724)	1.10353	(81091724)	1.17255	(81082424)	1.63364	(81082424)	1.77041	(81082424)
3809913.0	0.85085	(81091724)	1.11989	(81082424)	1.40624	(81082424)	1.50911	(81082424)	1.68492	(81073124)
3809663.0	1.05070	(81082424)	1.23420	(81082424)	1.30214	(81082424)	1.39021	(81073124)	1.52646	(81073124)
3809413.0	1.09266	(81082424)	1.12551	(81082424)	1.16324	(81073124)	1.22909	(81073124)	1.47863	(81062324)
3809163.0	0.97390	(81082424)	1.01610	(81043024)	1.01317	(81073124)	1.21564	(81062324)	1.34479	(81062324)

CONC URBAN FLAT NOCALM

*** THE 1ST HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,
PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

*** NETWORK ID: GRD1 ; NETWORK TYPE: GRIDCART ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 374884.00		375134.00		375384.00		375634.00		375884.00	
3813913.0	2.33450	(81022324)	2.39772	(81010124)	3.69826	(81102324)	3.08425	(81102324)	1.70822	(81111124)
3813663.0	2.88971	(81110824)	2.88314	(81022324)	3.92632	(81102324)	3.79444	(81102324)	2.15328	(81102324)
3813413.0	3.15386	(81110824)	3.19539	(81022324)	3.90359	(81102324)	4.65744	(81102324)	2.83789	(81102324)
3813163.0	4.11339	(81050924)	4.02374	(81110824)	3.94694	(81022324)	5.71168	(81102324)	3.72254	(81102324)
3812913.0	6.03130	(81120624)	4.50868	(81050924)	4.79887	(81022324)	6.88563	(81102324)	4.85386	(81102324)
3812663.0	7.19877	(81121824)	7.53202	(81120624)	6.36905	(81110824)	7.66380	(81102324)	6.42977	(81102324)
3812413.0	8.24053	(81112224)	10.05832	(81121824)	9.57652	(81050924)	8.50135	(81022324)	9.31526	(81102324)
3812163.0	6.46725	(81011824)	11.44205	(81112224)	15.71820	(81121824)	13.76091	(81110824)	16.28487	(81102324)
3811913.0	6.35949	(81120324)	8.23118	(81120324)	17.00136	(81112224)	34.92067	(81120624)	34.92316	(81102324)
3811663.0	5.20711	(81122624)	8.53225	(81120324)	17.06071	(81120324)	29.37753	(81011824)	85.79014	(81120624)
3811413.0	5.09757	(81080424)	7.18552	(81080424)	11.06505	(81080424)	19.90847	(81050824)	90.55389	(81040124)
3811163.0	3.54585	(81040124)	5.15825	(81041624)	6.79679	(81041624)	13.77066	(81082424)	26.14733	(81080324)
3810913.0	2.85708	(81040124)	3.69527	(81091724)	5.37237	(81073124)	8.47015	(81011624)	15.93028	(81072524)
3810663.0	2.36658	(81071724)	3.24508	(81073124)	4.51224	(81011624)	5.17048	(81111524)	7.99634	(81072524)
3810413.0	2.20746	(81073124)	2.70559	(81011624)	3.74183	(81073124)	3.68861	(81101224)	5.75996	(81042424)
3810163.0	2.08496	(81073124)	2.64362	(81073124)	2.64839	(81073124)	3.04189	(81062324)	4.43933	(81042424)
3809913.0	1.96002	(81073124)	2.16020	(81073124)	2.25534	(81090124)	2.83883	(81072524)	3.47212	(81042424)
3809663.0	1.80089	(81062324)	1.62331	(81062324)	1.91088	(81090124)	2.57365	(81072524)	2.91958	(81042424)
3809413.0	1.49968	(81062324)	1.59396	(81080324)	1.71744	(81080324)	2.35426	(81072524)	2.56659	(81042424)
3809163.0	1.25378	(81111524)	1.47074	(81080324)	1.65298	(81080324)	2.18903	(81072524)	2.32978	(81070624)

CONC URBAN FLAT NOCALM

*** THE 1ST HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,
PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

*** NETWORK ID: GRD1 ; NETWORK TYPE: GRIDCART ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 376134.00		376384.00		376634.00		376884.00		377134.00	
3813913.0	1.89779	(81110324)	2.24818	(81110324)	2.01508	(81110324)	1.40648	(81110324)	0.87312	(81100824)
3813663.0	2.19107	(81110324)	2.62580	(81110324)	2.16027	(81110324)	1.38439	(81110324)	1.06128	(81100824)
3813413.0	2.57897	(81110324)	3.08463	(81110324)	2.26579	(81110324)	1.34951	(81110324)	1.23929	(81100824)
3813163.0	3.11081	(81110324)	3.62372	(81110324)	2.32453	(81110324)	1.47458	(81100824)	1.82670	(81052024)
3812913.0	3.88227	(81110324)	4.20158	(81110324)	2.38597	(81110324)	1.99899	(81052024)	2.30917	(81052024)
3812663.0	5.11954	(81110324)	4.66719	(81110324)	2.62994	(81110324)	2.94726	(81052024)	2.16903	(81052024)
3812413.0	7.41550	(81102324)	4.84230	(81110324)	4.30087	(81052024)	2.73352	(81083024)	2.21252	(81052024)
3812163.0	12.37257	(81110324)	6.42853	(81052024)	4.76621	(81083024)	3.45404	(81121524)	2.29919	(81052024)
3811913.0	21.20062	(81110324)	14.00933	(81052024)	5.74075	(81121524)	3.97524	(81052024)	2.52826	(81102024)
3811663.0	39.10157	(81052024)	18.05897	(81102024)	8.91242	(81052024)	4.70678	(81032024)	3.67561	(81032024)
3811413.0	191.34052	(81111924)	165.54170	(81110324)	17.34860	(81122524)	9.91318	(81122524)	6.50361	(81111924)
3811163.0	33.42567	(81072824)	27.74358	(81022224)	21.82788	(81111924)	13.07381	(81111924)	7.95523	(81111924)
3810913.0	20.70031	(81100924)	37.87933	(81100924)	25.34992	(81010524)	8.73849	(81022224)	6.71667	(81111924)
3810663.0	11.82639	(81070924)	18.66727	(81100924)	15.27937	(81010524)	13.02783	(81010524)	6.91180	(81022224)
3810413.0	8.46737	(81100924)	11.18167	(81100924)	6.43583	(81010524)	9.06409	(81010524)	8.28431	(81010524)
3810163.0	6.69747	(81100924)	7.92804	(81100924)	4.58152	(81103024)	4.67849	(81010524)	6.29560	(81010524)
3809913.0	5.49417	(81100924)	6.33793	(81100924)	3.77941	(81100924)	2.96176	(81080724)	3.68759	(81010524)
3809663.0	4.61750	(81100924)	5.35951	(81100924)	3.30112	(81100924)	2.48715	(81103024)	2.31654	(81010524)
3809413.0	3.95065	(81100924)	4.63270	(81100924)	2.94460	(81100924)	2.15815	(81103024)	1.97878	(81080724)
3809163.0	3.42706	(81100924)	4.04512	(81100924)	2.70952	(81100924)	2.02776	(81072824)	1.76984	(81080724)

CONC URBAN FLAT NOCALM

*** THE 1ST HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,

PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

*** NETWORK ID: GRD1 ; NETWORK TYPE: GRIDCART ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 377384.00	377634.00	377884.00	378134.00	378384.00
3813913.0	0.97814 (81100824)	1.22301 (81052024)	1.36519 (81052024)	1.16962 (81052024)	0.84017 (81052024)
3813663.0	1.24386 (81052024)	1.52213 (81052024)	1.37845 (81052024)	1.01391 (81052024)	0.75337 (81091124)
3813413.0	1.67322 (81052024)	1.62693 (81052024)	1.22917 (81052024)	0.87406 (81052124)	0.76209 (81091124)
3813163.0	1.92356 (81052024)	1.49269 (81052024)	1.04379 (81052124)	0.87293 (81091124)	0.73512 (81091124)
3812913.0	1.80613 (81052024)	1.31609 (81052024)	1.01795 (81091124)	0.86080 (81091124)	0.83110 (81121524)
3812663.0	1.71475 (81052024)	1.21426 (81091124)	1.01680 (81091124)	1.07806 (81102024)	1.11343 (81102024)
3812413.0	1.48894 (81091124)	1.36202 (81102024)	1.42289 (81102024)	1.34944 (81102024)	1.15235 (81102024)
3812163.0	1.95496 (81102024)	1.80040 (81102024)	1.51379 (81102024)	1.26966 (81081624)	1.13246 (81081624)
3811913.0	2.19054 (81032024)	1.97795 (81032024)	1.69171 (81032024)	1.44312 (81032024)	1.23987 (81032024)
3811663.0	2.80803 (81032024)	2.14628 (81032024)	1.80684 (81113024)	1.58884 (81113024)	1.39808 (81113024)
3811413.0	4.74209 (81122524)	3.79694 (81122524)	3.15310 (81122524)	2.68200 (81122524)	2.32062 (81122524)
3811163.0	5.46250 (81111924)	4.03694 (81111924)	3.14797 (81111924)	2.68042 (81122524)	2.42941 (81122524)
3810913.0	5.32674 (81111924)	3.98315 (81111924)	3.10767 (81111924)	2.52899 (81111924)	2.10326 (81111924)
3810663.0	3.39988 (81022024)	3.17801 (81111924)	2.85957 (81111924)	2.35154 (81111924)	1.92538 (81111924)
3810413.0	5.56051 (81022224)	2.76240 (81022024)	2.01659 (81022024)	1.96202 (81111924)	1.86865 (81111924)
3810163.0	5.86235 (81010524)	4.50328 (81022224)	2.59875 (81022224)	1.87014 (81022024)	1.33169 (81022024)
3809913.0	4.73293 (81010524)	4.43631 (81010524)	3.70538 (81022224)	2.40966 (81022224)	1.59568 (81022024)
3809663.0	3.05008 (81010524)	3.73066 (81010524)	3.51543 (81010524)	3.10101 (81022224)	2.20721 (81022224)
3809413.0	1.99984 (81072624)	2.58703 (81010524)	3.04148 (81010524)	2.87958 (81010524)	2.63608 (81022224)
3809163.0	1.40698 (81010524)	1.76868 (81010524)	2.22667 (81010524)	2.54504 (81010524)	2.41860 (81010524)

*** THE 1ST HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,
PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
375707.00	3810561.00	4.57205	(81101224)	374756.00	3810927.00	2.78379	(81040124)
376707.00	3811134.00	18.88863	(81111924)	376710.00	3811038.00	15.98377	(81111924)
376712.00	3810939.00	16.45017	(81022224)	376717.00	3810843.00	19.27615	(81010524)
376700.00	3811250.00	18.39385	(81111924)	376697.00	3811346.00	16.63660	(81111924)
376693.00	3811450.00	12.88800	(81122524)	376690.00	3811546.00	8.07025	(81102424)
376685.00	3811645.00	7.38314	(81052024)	376683.00	3811744.00	6.84778	(81052024)
376678.00	3811840.00	6.27777	(81121524)	376676.00	3811936.00	5.68889	(81121524)
376671.00	3812035.00	4.22765	(81040824)	376666.00	3812134.00	4.52674	(81083024)
376663.00	3812230.00	4.43598	(81052024)	376659.00	3812329.00	4.74049	(81052024)
376654.00	3812426.00	4.20389	(81052024)	376561.00	3812442.00	3.66365	(81052024)
376464.00	3812452.00	3.87786	(81110324)	376367.00	3812464.00	5.09049	(81110324)
376270.00	3812474.00	6.45170	(81110324)	376248.00	3812399.00	7.11514	(81110324)
376253.00	3812303.00	7.60112	(81110324)	376258.00	3812206.00	7.77748	(81110324)
376260.00	3812110.00	7.52089	(81110324)	376217.00	3812057.00	10.25331	(81110324)
376122.00	3812069.00	15.65211	(81110324)	376025.00	3812081.00	14.08389	(81110324)
375928.00	3812093.00	15.59608	(81102324)	375828.00	3812105.00	19.73985	(81102324)
375728.00	3812117.00	14.38182	(81022324)	375631.00	3812129.00	14.96983	(81120624)
375532.00	3812141.00	17.34672	(81120624)	375461.00	3812124.00	18.28334	(81120624)
375464.00	3812028.00	20.51649	(81112224)	375464.00	3811924.00	23.00687	(81112224)
375466.00	3811828.00	20.11234	(81011824)	375469.00	3811732.00	16.48321	(81011824)
375374.00	3811746.00	13.71664	(81120324)	375277.00	3811756.00	11.67451	(81120324)
375180.00	3811770.00	10.02842	(81120324)	375077.00	3811785.00	8.64041	(81120324)
375077.00	3811688.00	8.06770	(81120324)	375075.00	3811589.00	6.80342	(81122624)
375075.00	3811493.00	5.87712	(81030324)	375075.00	3811394.00	6.32420	(81080424)
375073.00	3811298.00	4.94615	(81040124)	375070.00	3811202.00	4.50218	(81040124)
375070.00	3811105.00	4.44036	(81041624)	375068.00	3811009.00	3.79077	(81040124)
375145.00	3810970.00	3.88636	(81091724)	375240.00	3810956.00	4.12930	(81091724)
375340.00	3810941.00	5.24272	(81082424)	375437.00	3810927.00	5.93347	(81073124)
375534.00	3810912.00	8.20083	(81011624)	375631.00	3810898.00	7.92583	(81011624)
375728.00	3810881.00	8.25929	(81111524)	375826.00	3810867.00	8.87721	(81072524)
375923.00	3810852.00	12.80858	(81072524)	376020.00	3810835.00	21.43085	(81100924)
376119.00	3810821.00	18.30464	(81100924)	376217.00	3810806.00	17.58716	(81072824)
376299.00	3810794.00	18.77065	(81100924)	376353.00	3810785.00	24.98107	(81100924)
376450.00	3810768.00	20.41215	(81100924)	376547.00	3810753.00	19.93943	(81010524)
376644.00	3810739.00	20.15205	(81010524)	376719.00	3810744.00	19.04669	(81010524)

*** THE 4TH HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,
PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

*** NETWORK ID: GRD1 ; NETWORK TYPE: GRIDCART ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 373634.00	373884.00	374134.00	374384.00	374634.00

3813913.0	2.43548 (81112024)	2.74147 (81010924)	2.63209 (81050924)	2.20641 (81120624)	1.70014 (81123024)
3813663.0	2.43556 (81121824)	2.80523 (81112024)	3.11209 (81010924)	2.96855 (81031524)	2.33098 (81051724)
3813413.0	2.53358 (81121324)	2.80813 (81121824)	3.28966 (81112024)	3.56695 (81010924)	3.28170 (81061724)
3813163.0	2.28507 (81021824)	2.85994 (81112024)	3.29222 (81010924)	3.96073 (81120624)	4.24481 (81111024)
3812913.0	1.76268 (81112224)	2.41827 (81030824)	3.34776 (81021824)	4.03746 (81031724)	5.03755 (81120624)
3812663.0	1.80658 (81122624)	2.01124 (81011324)	2.61517 (81021724)	3.83887 (81030824)	5.17013 (81031724)
3812413.0	1.92171 (81042124)	2.21238 (81111524)	2.44914 (81122624)	2.96619 (81021724)	4.46547 (81021824)
3812163.0	1.76387 (81112324)	2.11385 (81111524)	2.69639 (81042124)	3.19989 (81111524)	3.75260 (81122824)
3811913.0	1.71200 (81122724)	2.15162 (81122724)	2.52635 (81122424)	2.91845 (81042124)	3.77229 (81111524)
3811663.0	1.59733 (81092424)	1.83776 (81092424)	2.13397 (81092424)	2.54171 (81052224)	3.14868 (81121224)
3811413.0	1.52986 (81050524)	1.78327 (81050524)	2.10154 (81071824)	2.54160 (81030324)	3.18753 (81121224)
3811163.0	1.48859 (81050824)	1.65677 (81050824)	1.83762 (81050824)	2.00156 (81080124)	2.47582 (81052124)
3810913.0	1.12505 (81052124)	1.26361 (81052124)	1.44190 (81081524)	1.63644 (81091724)	1.88858 (81091724)
3810663.0	1.03041 (81091724)	1.13852 (81091724)	1.32077 (81091724)	1.54406 (81040124)	1.55541 (81121624)
3810413.0	0.93001 (81100624)	0.99164 (81040124)	1.01020 (81121624)	1.18266 (81111224)	1.64687 (81073124)
3810163.0	0.73629 (81121624)	0.82487 (81041624)	1.02985 (81071724)	1.24865 (81092524)	1.50915 (81043024)
3809913.0	0.73525 (81082424)	0.86092 (81032024)	1.01692 (81061824)	1.20516 (81092524)	1.36609 (81092524)
3809663.0	0.78393 (81071724)	0.84154 (81092524)	0.98524 (81092524)	1.12084 (81072724)	1.29942 (81072724)
3809413.0	0.74110 (81041024)	0.82823 (81092524)	0.97516 (81072724)	1.05903 (81043024)	1.11965 (81062924)
3809163.0	0.73591 (81072724)	0.86052 (81072724)	0.93236 (81062324)	0.93763 (81072724)	0.96865 (81111524)

CONC URBAN FLAT NOCALM

*** THE 4TH HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,
PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

*** NETWORK ID: GRD1 ; NETWORK TYPE: GRIDCART ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 374884.00	375134.00	375384.00	375634.00	375884.00
3813913.0	2.10904 (81051724)	1.90146 (81102224)	1.97402 (81102224)	1.50529 (81010124)	1.52344 (81090324)
3813663.0	2.16919 (81022324)	2.26781 (81121024)	2.27285 (81102224)	1.96898 (81010124)	1.74002 (81090324)
3813413.0	2.53012 (81061624)	2.85773 (81121024)	2.64599 (81102224)	2.55548 (81110924)	2.04688 (81010124)
3813163.0	3.61598 (81111024)	3.00486 (81022324)	3.11419 (81102224)	3.15497 (81110924)	2.66171 (81010124)
3812913.0	5.25761 (81031524)	4.27729 (81051724)	4.12409 (81121024)	3.92895 (81022324)	3.41395 (81122924)
3812663.0	6.71962 (81120624)	6.54677 (81031524)	4.92738 (81121024)	5.38220 (81102224)	4.47854 (81122924)
3812413.0	6.92084 (81011824)	9.33486 (81112224)	8.36740 (81072024)	7.28467 (81010124)	6.25296 (81122924)
3812163.0	5.15303 (81020724)	9.81420 (81121324)	14.51474 (81020324)	11.54663 (81050924)	9.82228 (81110924)
3811913.0	5.31457 (81111524)	7.46773 (81042124)	13.95752 (81021824)	31.70741 (81030924)	24.48084 (81110924)
3811663.0	4.71790 (81030324)	7.12875 (81121424)	13.20051 (81011824)	25.07987 (81122824)	68.38865 (81051724)
3811413.0	4.26582 (81050524)	6.11531 (81050824)	10.22653 (81121224)	19.26057 (81031824)	78.78250 (81011624)
3811163.0	3.08265 (81052124)	4.10491 (81091724)	6.05571 (81011624)	11.97053 (81041024)	21.09873 (81071524)
3810913.0	2.57650 (81041624)	2.94267 (81031824)	4.50571 (81071724)	7.14619 (81073124)	11.57379 (81071524)
3810663.0	2.26802 (81091724)	2.64348 (81043024)	3.64570 (81062324)	4.07789 (81111224)	6.84234 (81062224)
3810413.0	1.91673 (81043024)	2.35196 (81092524)	3.08853 (81062324)	3.33290 (81062424)	5.13594 (81062224)
3810163.0	1.75271 (81092524)	2.01280 (81081724)	2.33020 (81111524)	2.91772 (81072524)	3.54573 (81120124)
3809913.0	1.53333 (81072724)	1.78368 (81111524)	2.00891 (81062924)	2.55238 (81062224)	2.97668 (81072524)
3809663.0	1.34857 (81101224)	1.56457 (81080324)	1.65626 (81071524)	2.07736 (81070224)	2.54799 (81062224)
3809413.0	1.29085 (81111524)	1.34073 (81111524)	1.48304 (81071524)	1.77781 (81070624)	2.19642 (81062224)
3809163.0	1.13908 (81080324)	1.17265 (81070224)	1.30440 (81062224)	1.49341 (81070124)	1.93191 (81100924)

CONC URBAN FLAT NOCALM

*** THE 4TH HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,
PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

*** NETWORK ID: GRD1 ; NETWORK TYPE: GRIDCART ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 376134.00	376384.00	376634.00	376884.00	377134.00
3813913.0	1.55764 (81060624)	1.46375 (81021524)	1.15362 (81040724)	1.06452 (81013024)	0.83142 (81040124)
3813663.0	1.77966 (81060624)	1.56197 (81101124)	1.27981 (81013024)	1.06319 (81102024)	0.85475 (81102424)
3813413.0	2.10496 (81021524)	1.74643 (81101124)	1.44274 (81013024)	1.19074 (81083024)	0.94331 (81083024)
3813163.0	2.53824 (81021524)	2.03309 (81102024)	1.51838 (81083024)	1.30263 (81040124)	1.03465 (81030524)
3812913.0	3.23703 (81110524)	2.35667 (81040724)	1.89953 (81083024)	1.38478 (81040124)	1.28649 (81110624)
3812663.0	4.26689 (81110524)	2.71454 (81040724)	2.27453 (81101124)	1.66787 (81110624)	1.53224 (81091124)
3812413.0	5.88007 (81010124)	3.50793 (81040724)	2.85822 (81100824)	2.05219 (81091124)	1.69813 (81033124)
3812163.0	8.71819 (81110924)	5.11374 (81111124)	3.35637 (81110924)	2.50704 (81052124)	1.97922 (81102024)
3811913.0	13.61767 (81102324)	8.06449 (81021524)	5.10655 (81110324)	3.19472 (81101824)	2.15501 (81102924)
3811663.0	30.61534 (81083024)	14.52516 (81022424)	5.90612 (81032024)	3.76614 (81103024)	2.76039 (81113024)
3811413.0	113.68247 (81121724)	144.04004 (81102224)	11.44731 (81113024)	6.35828 (81052224)	4.01068 (81113024)
3811163.0	29.67637 (81052324)	21.40099 (81100924)	14.23424 (81113024)	6.37737 (81031324)	4.80974 (81121724)
3810913.0	17.48214 (81072824)	26.58688 (81042424)	13.78149 (81030524)	6.87371 (81010524)	3.32852 (81042324)
3810663.0	9.95084 (81062924)	12.24162 (81042424)	8.01123 (81011224)	6.18590 (81011724)	4.21953 (81110124)
3810413.0	6.37830 (81072824)	7.30251 (81080624)	5.05050 (81103024)	4.91996 (81013124)	3.92662 (81011724)
3810163.0	4.61325 (81080624)	5.22748 (81080624)	4.15921 (81052624)	3.24980 (81050424)	3.35944 (81050424)
3809913.0	3.82544 (81042424)	4.05204 (81072824)	3.58084 (81070924)	2.65622 (81090124)	2.48004 (81063024)
3809663.0	3.20096 (81060824)	3.13663 (81052724)	3.01271 (81052624)	2.24593 (81072724)	1.90039 (81080724)
3809413.0	2.63388 (81070924)	2.58894 (81052724)	2.43663 (81052624)	1.90410 (81011224)	1.60631 (81011224)
3809163.0	2.30357 (81032724)	2.17363 (81052724)	2.13537 (81122124)	1.66394 (81070124)	1.47769 (81011224)

CONC URBAN FLAT NOCALM

*** THE 4TH HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,
PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

*** NETWORK ID: GRD1 ; NETWORK TYPE: GRIDCART ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 377384.00	377634.00	377884.00	378134.00	378384.00
3813913.0	0.72084 (81091924)	0.69425 (81121524)	0.63077 (81030524)	0.54875 (81091124)	0.63407 (81083024)
3813663.0	0.81872 (81121524)	0.74536 (81030524)	0.59882 (81091124)	0.72254 (81083024)	0.63770 (81040824)
3813413.0	0.86742 (81030524)	0.77630 (81052124)	0.84040 (81083024)	0.72633 (81040824)	0.58199 (81110424)
3813163.0	0.95292 (81100724)	1.00184 (81091124)	0.84330 (81040824)	0.66143 (81110424)	0.64957 (81103024)
3812913.0	1.21182 (81091124)	1.00540 (81040824)	0.77819 (81033124)	0.77771 (81103024)	0.75206 (81022424)
3812663.0	1.24735 (81040824)	1.02220 (81121524)	0.95357 (81033124)	0.86845 (81033124)	0.77262 (81022424)
3812413.0	1.43765 (81121524)	1.20436 (81091124)	0.97854 (81022424)	0.86305 (81032024)	0.85115 (81102924)
3812163.0	1.44549 (81021424)	1.26015 (81081624)	1.28260 (81032024)	1.09181 (81102924)	0.91123 (81101824)
3811913.0	1.96513 (81022424)	1.52917 (81101824)	1.28227 (81101924)	1.13330 (81101824)	1.05094 (81121724)
3811663.0	2.33889 (81121724)	1.96656 (81121724)	1.68450 (81032024)	1.44959 (81121724)	1.26849 (81121724)
3811413.0	3.07558 (81113024)	2.46885 (81052224)	2.07489 (81052224)	1.77072 (81052224)	1.52954 (81052224)
3811163.0	3.66184 (81121724)	3.22053 (81111824)	2.53326 (81111824)	2.01437 (81111824)	1.62645 (81111824)
3810913.0	2.74676 (81031324)	2.11023 (81021324)	1.85460 (81112924)	1.65391 (81112924)	1.49713 (81110224)
3810663.0	2.59712 (81102524)	1.82155 (81010724)	1.76821 (81031324)	1.57717 (81031324)	1.30229 (81021324)
3810413.0	3.02461 (81011124)	2.03358 (81042724)	1.31525 (81022224)	1.22843 (81102524)	1.21283 (81031324)
3810163.0	2.76258 (81011724)	2.46216 (81011724)	1.73798 (81011124)	1.24839 (81042724)	0.92119 (81101624)
3809913.0	2.65815 (81022224)	2.11758 (81080524)	2.03240 (81011724)	1.50582 (81011124)	1.12672 (81010524)
3809663.0	1.93215 (81013124)	2.07734 (81013124)	1.70577 (81080524)	1.69027 (81011724)	1.29103 (81011124)
3809413.0	1.66191 (81050424)	1.71668 (81013124)	1.66160 (81013124)	1.41811 (81080524)	1.42011 (81011724)
3809163.0	1.34549 (81090124)	1.44615 (81063024)	1.49951 (81013124)	1.36003 (81013124)	1.20778 (81080524)

1 *** ISCST3 - VERSION 99155 *** *** Proposed Project with Fines Conveyor and Mitigated Combustion PM-10 *** 05/05/00
*** Phase 1 Annual and 24 Hour Average PM-10 Concentrations (NO CALM) *** 16:42:26
**MODELOPTs: PAGE 24
CONC URBAN FLAT NOCALM

*** THE 4TH HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,
PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
375707.00	3810561.00	4.11196	(81072824)	374756.00	3810927.00	2.12658	(81091724)
376707.00	3811134.00	11.13305	(81121724)	376710.00	3811038.00	10.94357	(81121724)
376712.00	3810939.00	10.95367	(81110124)	376717.00	3810843.00	10.05391	(81030524)
376700.00	3811250.00	9.80426	(81010724)	376697.00	3811346.00	12.99646	(81111824)
376693.00	3811450.00	8.41655	(81052224)	376690.00	3811546.00	6.81893	(81032024)
376685.00	3811645.00	5.38585	(81081624)	376683.00	3811744.00	5.25331	(81101824)
376678.00	3811840.00	4.62295	(81033124)	376676.00	3811936.00	4.24146	(81033124)
376671.00	3812035.00	3.69994	(81101124)	376666.00	3812134.00	3.32554	(81040824)
376663.00	3812230.00	2.90995	(81110924)	376659.00	3812329.00	2.67158	(81071024)
376654.00	3812426.00	2.70239	(81100824)	376561.00	3812442.00	3.12401	(81101124)
376464.00	3812452.00	3.38773	(81040724)	376367.00	3812464.00	3.37985	(81051924)
376270.00	3812474.00	3.85671	(81101124)	376248.00	3812399.00	4.39279	(81101124)
376253.00	3812303.00	4.76908	(81101124)	376258.00	3812206.00	5.45210	(81101124)
376260.00	3812110.00	6.50576	(81111124)	376217.00	3812057.00	7.60863	(81110924)
376122.00	3812069.00	10.69667	(81102024)	376025.00	3812081.00	11.48891	(81051924)
375928.00	3812093.00	11.10036	(81122924)	375828.00	3812105.00	12.54661	(81110924)
375728.00	3812117.00	13.35572	(81102224)	375631.00	3812129.00	13.83394	(81050924)
375532.00	3812141.00	14.14582	(81031524)	375461.00	3812124.00	16.52967	(81050924)
375464.00	3812028.00	18.89218	(81112024)	375464.00	3811924.00	19.60401	(81121324)
375466.00	3811828.00	15.67979	(81122324)	375469.00	3811732.00	15.05911	(81122824)
375374.00	3811746.00	12.20652	(81122624)	375277.00	3811756.00	10.04547	(81042124)
375180.00	3811770.00	8.39313	(81042124)	375077.00	3811785.00	6.86623	(81011824)
375077.00	3811688.00	6.54300	(81122624)	375075.00	3811589.00	5.36517	(81121224)
375075.00	3811493.00	5.47681	(81031824)	375075.00	3811394.00	5.58283	(81050824)
375073.00	3811298.00	4.54653	(81081524)	375070.00	3811202.00	3.93258	(81052124)
375070.00	3811105.00	3.44833	(81041224)	375068.00	3811009.00	3.28727	(81091724)
375145.00	3810970.00	3.29943	(81040124)	375240.00	3810956.00	3.78779	(81061824)
375340.00	3810941.00	4.77847	(81031424)	375437.00	3810927.00	5.13754	(81043024)
375534.00	3810912.00	6.29383	(81073124)	375631.00	3810898.00	6.93824	(81041224)
375728.00	3810881.00	6.82357	(81073124)	375826.00	3810867.00	7.48049	(81072824)
375923.00	3810852.00	10.77094	(81062224)	376020.00	3810835.00	14.04824	(81043024)
376119.00	3810821.00	14.62203	(81062324)	376217.00	3810806.00	14.29208	(81062924)
376299.00	3810794.00	17.42413	(81072824)	376353.00	3810785.00	18.30261	(81100124)
376450.00	3810768.00	15.29013	(81080624)	376547.00	3810753.00	10.75473	(81122224)
376644.00	3810739.00	9.91823	(81112524)	376719.00	3810744.00	8.93972	(81112524)

1 *** ISCST3 - VERSION 99155 *** *** Proposed Project with Fines Conveyor and Mitigated Combustion PM-10 *** 05/05/00
*** Phase 1 Annual and 24 Hour Average PM-10 Concentrations (NO CALM) *** 16:42:26
**MODELOPTs: PAGE 25
CONC URBAN FLAT NOCALM

*** THE MAXIMUM 50 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,
PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

** CONC OF 10-PM IN MICROGRAMS/M**3 **

RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE	RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE
1.	191.34052	(81111924)	AT	(376134.00, 3811413.00)	GC	26.	115.64655	(81051924)	AT	(376384.00, 3811413.00)	GC

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  2.     165.54170 (81110324) AT ( 376384.00, 3811413.00)  GC      27.     113.68247 (81121724) AT ( 376134.00, 3811413.00)  GC
  3.     159.51839 (81010124) AT ( 376384.00, 3811413.00)  GC      28.     112.85618 (81110224) AT ( 376384.00, 3811413.00)  GC
  4.     146.62108 (81122524) AT ( 376134.00, 3811413.00)  GC      29.     111.52496 (81121524) AT ( 376384.00, 3811413.00)  GC
  5.     144.97218 (81102324) AT ( 376384.00, 3811413.00)  GC      30.     110.94733 (81110824) AT ( 376384.00, 3811413.00)  GC
  6.     144.04004 (81102224) AT ( 376384.00, 3811413.00)  GC      31.     110.39587 (81111824) AT ( 376134.00, 3811413.00)  GC
  7.     141.33833 (81101124) AT ( 376384.00, 3811413.00)  GC      32.     110.36890 (81112224) AT ( 376384.00, 3811413.00)  GC
  8.     141.18173 (81111124) AT ( 376384.00, 3811413.00)  GC      33.     109.68662 (81010824) AT ( 376384.00, 3811413.00)  GC
  9.     139.78590 (81110924) AT ( 376384.00, 3811413.00)  GC      34.     109.22890 (81010924) AT ( 376384.00, 3811413.00)  GC
 10.     138.40782 (81120624) AT ( 376384.00, 3811413.00)  GC      35.     109.04449 (81101424) AT ( 376384.00, 3811413.00)  GC
 11.     138.06294 (81101524) AT ( 376384.00, 3811413.00)  GC      36.     108.99216 (81110724) AT ( 376384.00, 3811413.00)  GC
 12.     137.71016 (81111024) AT ( 376384.00, 3811413.00)  GC      37.     108.64185 (81110524) AT ( 376384.00, 3811413.00)  GC
 13.     130.88029 (81120924) AT ( 376384.00, 3811413.00)  GC      38.     108.13277 (81021524) AT ( 376384.00, 3811413.00)  GC
 14.     126.28718 (81120724) AT ( 376384.00, 3811413.00)  GC      39.     108.11582 (81120524) AT ( 376384.00, 3811413.00)  GC
 15.     122.92346 (81092924) AT ( 376384.00, 3811413.00)  GC      40.     107.83664 (81112924) AT ( 376384.00, 3811413.00)  GC
 16.     122.10916 (81122924) AT ( 376384.00, 3811413.00)  GC      41.     106.97210 (81112124) AT ( 376384.00, 3811413.00)  GC
 17.     122.01779 (81102024) AT ( 376384.00, 3811413.00)  GC      42.     106.57001 (81110224) AT ( 376134.00, 3811413.00)  GC
 18.     120.89159 (81011324) AT ( 376384.00, 3811413.00)  GC      43.     106.35636 (81020424) AT ( 376384.00, 3811413.00)  GC
 19.     120.67187 (81122824) AT ( 376384.00, 3811413.00)  GC      44.     106.33099 (81121924) AT ( 376384.00, 3811413.00)  GC
 20.     119.57007 (81112024) AT ( 376384.00, 3811413.00)  GC      45.     105.69656 (81113024) AT ( 376134.00, 3811413.00)  GC
 21.     118.27832 (81050924) AT ( 376384.00, 3811413.00)  GC      46.     105.22476 (81010724) AT ( 376384.00, 3811413.00)  GC
 22.     117.08368 (81022324) AT ( 376384.00, 3811413.00)  GC      47.     104.41251 (81022724) AT ( 376384.00, 3811413.00)  GC
 23.     116.87663 (81022224) AT ( 376134.00, 3811413.00)  GC      48.     104.02244 (81022424) AT ( 376384.00, 3811413.00)  GC
 24.     116.79709 (81121824) AT ( 376384.00, 3811413.00)  GC      49.     103.59199 (81082824) AT ( 376384.00, 3811413.00)  GC
 25.     116.72424 (81120424) AT ( 376384.00, 3811413.00)  GC      50.     103.09757 (81011524) AT ( 376384.00, 3811413.00)  GC

 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
                      BD = BOUNDARY
1 *** ISCST3 - VERSION 99155 ***    ***  Proposed Project with Fines Conveyor and Mitigated Combustion PM-10 ***        05/05/00
                                    ***  Phase 1 Annual and 24 Hour Average PM-10 Concentrations (NO CALM)   ***        16:42:26
 **MODELOPTs:                                                                                                            PAGE  26
 CONC                       URBAN  FLAT                                    NOCALM

                                        *** THE SUMMARY OF MAXIMUM ANNUAL (   1 YRS) RESULTS ***


                                     ** CONC OF 10-PM    IN MICROGRAMS/M**3                          **

                                                                                                   NETWORK
 GROUP ID                      AVERAGE CONC              RECEPTOR  (XR, YR, ZELEV, ZFLAG)   OF TYPE  GRID-ID
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

 ALL      1ST HIGHEST VALUE IS      67.75847 AT (  376384.00,  3811413.00,      0.00,      0.00)  GC   GRD1
          2ND HIGHEST VALUE IS      41.80787 AT (  376134.00,  3811413.00,      0.00,      0.00)  GC   GRD1
          3RD HIGHEST VALUE IS      27.50787 AT (  375884.00,  3811663.00,      0.00,      0.00)  GC   GRD1
          4TH HIGHEST VALUE IS      24.63623 AT (  375884.00,  3811413.00,      0.00,      0.00)  GC   GRD1
          5TH HIGHEST VALUE IS      14.38339 AT (  376134.00,  3811163.00,      0.00,      0.00)  GC   GRD1
          6TH HIGHEST VALUE IS      10.36418 AT (  375634.00,  3811913.00,      0.00,      0.00)  GC   GRD1
          7TH HIGHEST VALUE IS       9.53445 AT (  376134.00,  3811663.00,      0.00,      0.00)  GC   GRD1
          8TH HIGHEST VALUE IS       8.69797 AT (  376384.00,  3810913.00,      0.00,      0.00)  GC   GRD1
          9TH HIGHEST VALUE IS       8.46878 AT (  375884.00,  3811913.00,      0.00,      0.00)  GC   GRD1
         10TH HIGHEST VALUE IS       8.38641 AT (  375634.00,  3811663.00,      0.00,      0.00)  GC   GRD1


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
                      BD = BOUNDARY
1 *** ISCST3 - VERSION 99155 ***    ***  Proposed Project with Fines Conveyor and Mitigated Combustion PM-10 ***        05/05/00
                                    ***  Phase 1 Annual and 24 Hour Average PM-10 Concentrations (NO CALM)   ***        16:42:26
 **MODELOPTs:                                                                                                            PAGE  27
 CONC                       URBAN  FLAT                                    NOCALM

                                        *** THE SUMMARY OF HIGHEST 24-HR RESULTS ***


                                     ** CONC OF 10-PM    IN MICROGRAMS/M**3                          **

                                                   DATE                                                            NETWORK
 GROUP ID                      AVERAGE CONC     (YYMMDDHH)            RECEPTOR  (XR, YR, ZELEV, ZFLAG)     OF TYPE  GRID-ID
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

 ALL      HIGH  1ST HIGH VALUE IS    191.34052  ON 81111924: AT (  376134.00,  3811413.00,      0.00,      0.00)  GC   GRD1
          HIGH  4TH HIGH VALUE IS    144.04004  ON 81102224: AT (  376384.00,  3811413.00,      0.00,      0.00)  GC   GRD1


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
                      BD = BOUNDARY
1 *** ISCST3 - VERSION 99155 ***    ***  Proposed Project with Fines Conveyor and Mitigated Combustion PM-10 ***        05/05/00
                                    ***  Phase 1 Annual and 24 Hour Average PM-10 Concentrations (NO CALM)   ***        16:42:26
 **MODELOPTs:                                                                                                            PAGE  28
 CONC                       URBAN  FLAT                                    NOCALM


 *** Message Summary : ISCST3 Model Execution ***

  --------- Summary of Total Messages --------

 A Total of            0 Fatal Error Message(s)
 A Total of            0 Warning Message(s)
 A Total of         1085 Informational Message(s)

 A Total of         1085 Calm Hours Identified
```

```
******** FATAL ERROR MESSAGES ********
           ***  NONE  ***

********   WARNING MESSAGES   ********
           ***  NONE  ***

************************************
*** ISCST3 Finishes Successfully ***
************************************
```

```
              ISCST3X  PC (32 BIT) VERSION  3.3.0
             (C) COPYRIGHT 1991-1999, TRINITY CONSULTANTS

 Run Began on 11/13/1999 at 16:25:26

 ** BREEZE ISC SUITE v3.2.2 - G:\Clients\tr110 - TMC Sole\Air-28\Modeling\NOx_Models\11-4-99\nx2hc.dat
 ** Trinity Consultants, Dallas, TX

 CO STARTING
 CO TITLEONE  NOx, Phase 1, Hourly Average Concentration
 CO TITLETWO  TMC Soledad
 CO MODELOPT  CONC  URBAN  NOCALM
 CO AVERTIME  1
 CO POLLUTID  NOX
 CO TERRHGTS  FLAT
 CO RUNORNOT  RUN
 CO FINISHED

 SO STARTING
 SO ELEVUNIT  METERS
 SO LOCATION  PITOPS  VOLUME  375974.0  3811400.0  0
 ** SRCDESCR  Pit Ops
 SO LOCATION  FINES  VOLUME  375741.0  3811744.0  0
 ** SRCDESCR  Fines
 SO LOCATION  ROCKPLT  VOLUME  376359.2  3811119.0  0
 ** SRCDESCR  Rock Plant
 SO LOCATION  STOCKPIL  VOLUME  376343.8  3811301.3  0
 ** SRCDESCR  Stockpile
 SO SRCPARAM  PITOPS  3.910000E+00  3.5  25  7
 SO SRCPARAM  FINES  9.700000E-02  3.5  25  7
 SO SRCPARAM  ROCKPLT  4.090000E-01  3.5  25  7
 SO SRCPARAM  STOCKPIL  8.180000E-01  3.5  25  7
 SO SRCGROUP  ALL
 SO FINISHED

 RE STARTING
 RE GRIDCART CART1 STA
 RE GRIDCART CART1 XYINC  373634  20  250  3809163  20  250
 RE GRIDCART CART1 END
 RE DISCCART  375707.0  3810561.0
 ** RCPDESCR  Nearest Dwelling
 RE DISCCART  374756.0  3810927.0
 ** RCPDESCR  Trailer Park
 ** BOUNDARY
 RE DISCCART  376707.0  3811134.0
 RE DISCCART  376710.0  3811038.0
 RE DISCCART  376712.0  3810939.0
 RE DISCCART  376717.0  3810843.0
 RE DISCCART  376700.0  3811250.0
 RE DISCCART  376697.0  3811346.0
 RE DISCCART  376693.0  3811450.0
 RE DISCCART  376690.0  3811546.0
 RE DISCCART  376685.0  3811645.0
 RE DISCCART  376683.0  3811744.0
 RE DISCCART  376678.0  3811840.0
 RE DISCCART  376676.0  3811936.0
 RE DISCCART  376671.0  3812035.0
 RE DISCCART  376666.0  3812134.0
 RE DISCCART  376663.0  3812230.0
 RE DISCCART  376659.0  3812329.0
 RE DISCCART  376654.0  3812426.0
 RE DISCCART  376561.0  3812442.0
 RE DISCCART  376464.0  3812452.0
 RE DISCCART  376367.0  3812464.0
 RE DISCCART  376270.0  3812474.0
 RE DISCCART  376248.0  3812399.0
 RE DISCCART  376253.0  3812303.0
 RE DISCCART  376258.0  3812206.0
 RE DISCCART  376260.0  3812110.0
 RE DISCCART  376217.0  3812057.0
 RE DISCCART  376122.0  3812069.0
 RE DISCCART  376025.0  3812081.0
 RE DISCCART  375928.0  3812093.0
 RE DISCCART  375828.0  3812105.0
 RE DISCCART  375728.0  3812117.0
 RE DISCCART  375631.0  3812129.0
 RE DISCCART  375532.0  3812141.0
 RE DISCCART  375461.0  3812124.0
 RE DISCCART  375464.0  3812028.0
 RE DISCCART  375464.0  3811924.0
 RE DISCCART  375466.0  3811828.0
 RE DISCCART  375469.0  3811732.0
 RE DISCCART  375374.0  3811746.0
 RE DISCCART  375277.0  3811756.0
 RE DISCCART  375180.0  3811770.0
 RE DISCCART  375077.0  3811785.0
 RE DISCCART  375077.0  3811688.0
 RE DISCCART  375075.0  3811589.0
 RE DISCCART  375075.0  3811493.0
 RE DISCCART  375075.0  3811394.0
 RE DISCCART  375073.0  3811298.0
 RE DISCCART  375070.0  3811202.0
 RE DISCCART  375070.0  3811105.0
 RE DISCCART  375068.0  3811009.0
 RE DISCCART  375145.0  3810970.0
 RE DISCCART  375240.0  3810956.0
 RE DISCCART  375340.0  3810941.0
 RE DISCCART  375437.0  3810927.0
 RE DISCCART  375534.0  3810912.0
 RE DISCCART  375631.0  3810898.0
```

```
RE DISCCART  375826.0  3810867.0
RE DISCCART  375923.0  3810852.0
RE DISCCART  376020.0  3810835.0
RE DISCCART  376119.0  3810821.0
RE DISCCART  376217.0  3810806.0
RE DISCCART  376299.0  3810794.0
RE DISCCART  376353.0  3810785.0
RE DISCCART  376450.0  3810768.0
RE DISCCART  376547.0  3810753.0
RE DISCCART  376644.0  3810739.0
RE DISCCART  376719.0  3810744.0
RE FINISHED

ME STARTING
ME INPUTFIL  C:\TRINITY\ISC32\NEWHALL.ASC
ME ANEMHGHT  10  METERS
ME SURFDATA  51115  1981
ME UAIRDATA  99999  1981
ME STARTEND  1981  01  01  1  1981  12  31  24
ME FINISHED

OU STARTING
OU RECTABLE  1  FIRST
OU FINISHED

** PROJECTN  0 104 7 -177 0 0.9996 500000 0
** OUTFILE  G:\Clients\TR110--1\Air-28\Modeling\NOX_MO~1\11-4-99\NX2HC.LST
** RAWFILE  G:\Clients\TR110--1\Air-28\Modeling\NOX_MO~1\11-4-99\NX2HC.RAW
** RAWFMT  2

** POLLUTNT IDN  01  NOX  X
** POLLUTNT NAM  01
** POLLUTNT EMS  PITOPS 3.910000E+00
** POLLUTNT EMS  FINES 9.700000E-02
** POLLUTNT EMS  ROCKPLT 4.090000E-01
** POLLUTNT EMS  STOCKPIL 8.180000E-01


***********************************
*** SETUP Finishes Successfully ***
***********************************

1 *** ISCST3 - VERSION 99155 ***    ***  NOx, Phase 1, Hourly Average Concentration          ***      11/13/99
                                    ***  TMC Soledad                                          ***      16:25:26
**MODELOPTs:                                                                                  -        PAGE   1
CONC                      URBAN  FLAT                               NOCALM

                                         ***     MODEL SETUP OPTIONS SUMMARY       ***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

**Intermediate Terrain Processing is Selected

**Model Is Setup For Calculation of Average CONCentration Values.

  -- SCAVENGING/DEPOSITION LOGIC --
**Model Uses NO DRY DEPLETION.  DDPLETE =  F
**Model Uses NO WET DEPLETION.  WDPLETE =  F
**NO WET SCAVENGING Data Provided.
**NO GAS DRY DEPOSITION Data Provided.
**Model Does NOT Use GRIDDED TERRAIN Data for Depletion Calculations

**Model Uses URBAN Dispersion.

**Model Uses User-Specified Options:
          1. Final Plume Rise.
          2. Stack-tip Downwash.
          3. Buoyancy-induced Dispersion.
          4. Not Use Calms Processing Routine.
          5. Not Use Missing Data Processing Routine.
          6. Default Wind Profile Exponents.
          7. Default Vertical Potential Temperature Gradients.

**Model Assumes Receptors on FLAT Terrain.

**Model Assumes No FLAGPOLE Receptor Heights.

**Model Calculates  1 Short Term Average(s) of:   1-HR

**This Run Includes:     4 Source(s);      1 Source Group(s); and      470 Receptor(s)

**The Model Assumes A Pollutant Type of:  NOX

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
        Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)

**Misc. Inputs:  Anem. Hgt. (m) =    10.00 ;    Decay Coef. =      0.0000 ;    Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                              ;  Emission Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

**Approximate Storage Requirements of Model =     1.2 MB of RAM.

**Input Runstream File:          G:\CLIENTS\TR110--1\AIR-28\MODELING\NOX_MODELS\FINALRUNS\NX2HC.DAT
**Output Print File:             G:\CLIENTS\TR110--1\AIR-28\MODELING\NOX_MODELS\FINALRUNS\NX2HC.LST
1 *** ISCST3 - VERSION 99155 ***    ***  NOx, Phase 1, Hourly Average Concentration          ***      11/13/99
                                    ***  TMC Soledad                                          ***      16:25:26
**MODELOPTs:                                                                                           PAGE   2
CONC                      URBAN  FLAT                               NOCALM
```

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	EMISSION RATE SCALAR VARY BY
PITOPS	0	0.39100E+01	375974.0	3811400.0	0.0	3.50	25.00	7.00	
FINES	0	0.97000E-01	375741.0	3811744.0	0.0	3.50	25.00	7.00	
ROCKPLT	0	0.40900E+00	376359.2	3811119.0	0.0	3.50	25.00	7.00	
STOCKPIL	0	0.81800E+00	376343.8	3811301.2	0.0	3.50	25.00	7.00	

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	PITOPS , FINES , ROCKPLT , STOCKPIL,

*** GRIDDED RECEPTOR NETWORK SUMMARY ***

*** NETWORK ID: CART1 ; NETWORK TYPE: GRIDCART ***

*** X-COORDINATES OF GRID ***
(METERS)

373634.0, 373884.0, 374134.0, 374384.0, 374634.0, 374884.0, 375134.0, 375384.0, 375634.0, 375884.0,
376134.0, 376384.0, 376634.0, 376884.0, 377134.0, 377384.0, 377634.0, 377884.0, 378134.0, 378384.0,

*** Y-COORDINATES OF GRID ***
(METERS)

3809163.0, 3809413.0, 3809663.0, 3809913.0, 3810163.0, 3810413.0, 3810663.0, 3810913.0, 3811163.0, 3811413.0,
3811663.0, 3811913.0, 3812163.0, 3812413.0, 3812663.0, 3812913.0, 3813163.0, 3813413.0, 3813663.0, 3813913.0,

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZFLAG)
(METERS)

(375707.0,	3810561.0,	0.0,	0.0);	(374756.0,	3810927.0,	0.0,	0.0);
(376707.0,	3811134.0,	0.0,	0.0);	(376710.0,	3811038.0,	0.0,	0.0);
(376712.0,	3810939.0,	0.0,	0.0);	(376717.0,	3810843.0,	0.0,	0.0);
(376700.0,	3811250.0,	0.0,	0.0);	(376697.0,	3811346.0,	0.0,	0.0);
(376693.0,	3811450.0,	0.0,	0.0);	(376690.0,	3811546.0,	0.0,	0.0);
(376685.0,	3811645.0,	0.0,	0.0);	(376683.0,	3811744.0,	0.0,	0.0);
(376678.0,	3811840.0,	0.0,	0.0);	(376676.0,	3811936.0,	0.0,	0.0);
(376671.0,	3812035.0,	0.0,	0.0);	(376666.0,	3812134.0,	0.0,	0.0);
(376663.0,	3812230.0,	0.0,	0.0);	(376659.0,	3812329.0,	0.0,	0.0);
(376654.0,	3812426.0,	0.0,	0.0);	(376561.0,	3812442.0,	0.0,	0.0);
(376464.0,	3812452.0,	0.0,	0.0);	(376367.0,	3812464.0,	0.0,	0.0);
(376270.0,	3812474.0,	0.0,	0.0);	(376248.0,	3812399.0,	0.0,	0.0);
(376253.0,	3812303.0,	0.0,	0.0);	(376258.0,	3812206.0,	0.0,	0.0);
(376260.0,	3812110.0,	0.0,	0.0);	(376217.0,	3812057.0,	0.0,	0.0);
(376122.0,	3812069.0,	0.0,	0.0);	(376025.0,	3812081.0,	0.0,	0.0);
(375928.0,	3812093.0,	0.0,	0.0);	(375828.0,	3812105.0,	0.0,	0.0);
(375728.0,	3812117.0,	0.0,	0.0);	(375631.0,	3812129.0,	0.0,	0.0);
(375532.0,	3812141.0,	0.0,	0.0);	(375461.0,	3812124.0,	0.0,	0.0);
(375464.0,	3812028.0,	0.0,	0.0);	(375464.0,	3811924.0,	0.0,	0.0);
(375466.0,	3811828.0,	0.0,	0.0);	(375469.0,	3811732.0,	0.0,	0.0);
(375374.0,	3811746.0,	0.0,	0.0);	(375277.0,	3811756.0,	0.0,	0.0);
(375180.0,	3811770.0,	0.0,	0.0);	(375077.0,	3811785.0,	0.0,	0.0);
(375077.0,	3811688.0,	0.0,	0.0);	(375075.0,	3811589.0,	0.0,	0.0);
(375075.0,	3811493.0,	0.0,	0.0);	(375075.0,	3811394.0,	0.0,	0.0);
(375073.0,	3811298.0,	0.0,	0.0);	(375070.0,	3811202.0,	0.0,	0.0);
(375070.0,	3811105.0,	0.0,	0.0);	(375068.0,	3811009.0,	0.0,	0.0);
(375145.0,	3810970.0,	0.0,	0.0);	(375240.0,	3810956.0,	0.0,	0.0);
(375340.0,	3810941.0,	0.0,	0.0);	(375437.0,	3810927.0,	0.0,	0.0);
(375534.0,	3810912.0,	0.0,	0.0);	(375631.0,	3810898.0,	0.0,	0.0);
(375728.0,	3810981.0,	0.0,	0.0);	(375826.0,	3810867.0,	0.0,	0.0);
(375923.0,	3810852.0,	0.0,	0.0);	(376020.0,	3810835.0,	0.0,	0.0);
(376119.0,	3810821.0,	0.0,	0.0);	(376217.0,	3810806.0,	0.0,	0.0);
(376299.0,	3810794.0,	0.0,	0.0);	(376353.0,	3810785.0,	0.0,	0.0);
(376450.0,	3810768.0,	0.0,	0.0);	(376547.0,	3810753.0,	0.0,	0.0);
(376644.0,	3810739.0,	0.0,	0.0);	(376719.0,	3810744.0,	0.0,	0.0);

* SOURCE-RECEPTOR COMBINATIONS FOR WHICH CALCULATIONS MAY NOT BE PERFORMED *
LESS THAN 1.0 METER OR 3*ZLB IN DISTANCE, OR WITHIN OPEN PIT SOURCE

SOURCE - - RECEPTOR LOCATION - - DISTANCE

*** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
(1=YES; 0=NO)

```
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1
```

METEOROLOGICAL DATA PROCESSED BETWEEN START DATE: 1981 1 1 1
AND END DATE: 1981 12 31 24

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** WIND PROFILE EXPONENTS ***

STABILITY CATEGORY	WIND SPEED CATEGORY 1	2	3	4	5	6
A	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00
B	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00
C	.20000E+00	.20000E+00	.20000E+00	.20000E+00	.20000E+00	.20000E+00
D	.25000E+00	.25000E+00	.25000E+00	.25000E+00	.25000E+00	.25000E+00
E	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00
F	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00

*** VERTICAL POTENTIAL TEMPERATURE GRADIENTS ***
(DEGREES KELVIN PER METER)

STABILITY CATEGORY	WIND SPEED CATEGORY 1	2	3	4	5	6
A	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
B	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
C	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
D	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
E	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01
F	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01

*** THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

FILE: C:\TRINITY\ISC32\NEWHALL.ASC
FORMAT: (4I2,2F9.4,F6.1,I2,2F7.1,f9.4,f10.1,f8.4,i4,f7.2)
SURFACE STATION NO.: 51115 UPPER AIR STATION NO.: 99999
NAME: UNKNOWN NAME: UNKNOWN
YEAR: 1981 YEAR: 1981

YR	MN	DY	HR	FLOW VECTOR	SPEED (M/S)	TEMP (K)	STAB CLASS	MIXING HEIGHT (M) RURAL	URBAN	USTAR (M/S)	M-O LENGTH (M)	Z-0 (M)	IPCODE	PRATE (mm/HR)
81	01	01	01	314.8	1.00	285.9	7	522.6	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	02	304.9	0.00	284.8	7	507.0	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	03	310.0	0.00	284.8	7	491.4	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	04	346.0	1.00	284.8	7	475.8	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	05	309.0	1.00	285.4	7	460.3	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	06	342.0	1.00	284.3	7	444.7	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	07	342.0	0.00	284.3	7	429.1	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	08	337.1	0.00	284.3	6	43.0	190.2	0.0000	0.0	0.0000	0	0.00
81	01	01	09	6.5	1.00	287.6	5	89.2	211.8	0.0000	0.0	0.0000	0	0.00
81	01	01	10	9.1	0.00	291.5	4	135.3	233.4	0.0000	0.0	0.0000	0	0.00
81	01	01	11	291.6	1.00	297.0	3	181.5	255.1	0.0000	0.0	0.0000	0	0.00
81	01	01	12	80.6	1.00	298.7	2	227.7	276.7	0.0000	0.0	0.0000	0	0.00
81	01	01	13	87.2	0.00	299.3	2	273.8	298.4	0.0000	0.0	0.0000	0	0.00
81	01	01	14	326.7	2.24	299.3	3	320.0	320.0	0.0000	0.0	0.0000	0	0.00
81	01	01	15	337.3	2.24	298.7	3	320.0	320.0	0.0000	0.0	0.0000	0	0.00
81	01	01	16	345.7	2.24	297.6	4	320.0	320.0	0.0000	0.0	0.0000	0	0.00
81	01	01	17	20.1	1.34	294.8	5	325.5	318.6	0.0000	0.0	0.0000	0	0.00
81	01	01	18	97.6	1.00	293.1	6	357.1	310.3	0.0000	0.0	0.0000	0	0.00
81	01	01	19	178.0	1.00	290.9	7	388.7	302.1	0.0000	0.0	0.0000	0	0.00
81	01	01	20	303.2	1.00	289.8	7	420.3	293.9	0.0000	0.0	0.0000	0	0.00
81	01	01	21	358.6	1.00	289.3	7	451.9	285.7	0.0000	0.0	0.0000	0	0.00
81	01	01	22	272.0	1.00	287.6	7	483.5	277.4	0.0000	0.0	0.0000	0	0.00
81	01	01	23	0.7	1.00	287.6	7	515.1	269.2	0.0000	0.0	0.0000	0	0.00
81	01	01	24	337.2	1.00	287.6	7	546.7	261.0	0.0000	0.0	0.0000	0	0.00

*** NOTES: STABILITY CLASS 1=A, 2=B, 3=C, 4=D, 5=E AND 6=F.
FLOW VECTOR IS DIRECTION TOWARD WHICH WIND IS BLOWING.

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PITOPS , FINES , ROCKPLT , STOCKPIL,

*** NETWORK ID: CART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF NOX IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 373634.00	373884.00	374134.00	374384.00	374634.00
3813913.0	54.36305 (81112206)	57.21807 (81021208)	60.01878 (81030820)	62.65281 (81081601)	64.98991 (81122706)
3813663.0	58.13954 (81041405)	61.67370 (81050920)	65.22942 (81012508)	68.65974 (81101521)	71.77639 (81111407)
3813413.0	62.17612 (81090804)	66.55483 (81031221)	71.09801 (81042824)	75.62432 (81082524)	79.88529 (81082622)
3813163.0	66.39558 (81121324)	71.80974 (81020105)	77.61663 (81010701)	83.65218 (81022622)	89.58374 (81061701)
3812913.0	70.64967 (81031520)	77.29527 (81050601)	84.68916 (81082206)	92.73455 (81010806)	101.10874 (81082122)
3812663.0	74.78704 (81102007)	82.77132 (81042223)	92.04266 (81021821)	102.66129 (81060902)	114.47183 (81021406)
3812413.0	78.51467 (81022703)	87.89417 (81032008)	99.21583 (81033103)	112.88276 (81120924)	129.18388 (81091823)
3812163.0	81.52832 (81012603)	92.19593 (81040902)	105.53343 (81041201)	122.44591 (81112901)	144.01744 (81121205)
3811913.0	83.51389 (81021807)	95.17058 (81012408)	110.15028 (81111921)	129.94785 (81011704)	156.85339 (81041704)
3811663.0	84.25833 (81092403)	96.37080 (81011523)	112.21490 (81041122)	133.70050 (81082903)	164.19942 (81031701)
3811413.0	83.62921 (81012421)	95.58051 (81080723)	111.22682 (81080723)	132.48840 (81080723)	163.01451 (81010919)
3811163.0	81.71773 (81081506)	92.93177 (81010224)	107.40913 (81050805)	126.81659 (81061802)	153.89351 (81092201)
3810913.0	78.77309 (81071306)	88.83627 (81112703)	101.59676 (81050505)	118.15059 (81082523)	140.41338 (81082707)
3810663.0	75.07069 (81091707)	83.88882 (81100623)	94.70556 (81092622)	108.28909 (81072905)	125.81988 (81071421)
3810413.0	71.09561 (81041204)	78.57220 (81092502)	87.47550 (81071101)	98.39742 (81012223)	111.82210 (81032024)
3810163.0	66.93763 (81112923)	73.08598 (81102602)	80.52069 (81020208)	88.98139 (81071803)	99.21556 (81042803)
3809913.0	62.84447 (81032305)	68.06399 (81092503)	73.98913 (81122909)	80.69724 (81092504)	88.26157 (81062706)
3809663.0	58.91333 (81120419)	63.25112 (81082424)	68.03502 (81052403)	73.27413 (81043022)	78.96191 (81072703)
3809413.0	55.24395 (81072401)	58.83354 (81041501)	62.69930 (81032303)	66.82261 (81020102)	71.14560 (81062024)
3809163.0	51.83611 (81050705)	54.80821 (81022723)	57.95994 (81120121)	61.23137 (81080901)	64.56627 (81081705)

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PITOPS , FINES , ROCKPLT , STOCKPIL,

*** NETWORK ID: CART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF NOX IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 374884.00	375134.00	375384.00	375634.00	375884.00
3813913.0	66.90173 (81092205)	68.28905 (81101922)	69.10080 (81122804)	69.31734 (81031507)	68.97857 (81101705)
3813663.0	74.38407 (81121019)	76.32859 (81082102)	77.50707 (81061002)	77.91293 (81101801)	77.55567 (81101705)
3813413.0	83.56177 (81030121)	86.37150 (81121001)	88.15991 (81032004)	88.90200 (81102207)	88.61575 (81070423)
3813163.0	94.93541 (81081503)	99.20527 (81120421)	102.05066 (81112003)	103.42728 (81071923)	103.39904 (81122606)
3812913.0	109.16502 (81051801)	115.98518 (81072322)	120.80465 (81101120)	123.49937 (81111208)	124.09644 (81060702)
3812663.0	126.83765 (81010703)	138.36700 (81082622)	147.17918 (81090904)	152.56963 (81032404)	154.81479 (81100103)
3812413.0	148.00070 (81011402)	168.15370 (81110719)	186.05214 (81121403)	197.57854 (81020521)	204.10440 (81092524)
3812163.0	171.43962 (81022422)	205.31323 (81030801)	244.54295 (81031521)	274.41629 (81093205)	292.18863 (81122809)
3811913.0	194.36853 (81121304)	247.21249 (81040422)	320.17422 (81010407)	432.43719 (81121501)	478.06064 (81100521)
3811663.0	210.06660 (81012703)	284.26382 (81092507)	414.21115 (81050202)	648.13428 (81122819)	1001.15918 (81021321)
3811413.0	209.69467 (81091601)	288.47003 (81031823)	443.28287 (81032505)	842.69202 (81042024)	2801.40479 (81020108)
3811163.0	193.92996 (81062004)	258.43851 (81062102)	376.65472 (81102821)	632.35315 (81093503)	1105.57458 (81062401)
3810913.0	171.83629 (81121620)	218.98221 (81102602)	294.08051 (81040402)	405.33081 (81090922)	508.82135 (81030221)
3810663.0	149.23189 (81052722)	181.25050 (81062605)	223.73178 (81082303)	271.74042 (81042324)	305.07745 (81043023)
3810413.0	128.62773 (81092423)	149.44212 (81071124)	173.37938 (81062022)	196.24007 (81101608)	210.20369 (81081521)
3810163.0	111.02018 (81082407)	124.53238 (81062024)	138.52077 (81070823)	150.59435 (81062023)	157.56380 (81052122)
3809913.0	96.65997 (81032820)	105.49317 (81091524)	113.73945 (81110818)	121.08551 (81110321)	125.06143 (81111618)
3809663.0	84.96825 (81071701)	90.98627 (81061703)	96.55831 (81101608)	100.92953 (81070106)	103.48169 (81100905)
3809413.0	75.53165 (81062205)	79.78870 (81052023)	83.56361 (81031822)	86.51439 (81091304)	88.32716 (81042120)
3809163.0	67.86046 (81070523)	70.95789 (81071921)	73.66505 (81070824)	75.77835 (81100322)	77.17567 (81051603)

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PITOPS , FINES , ROCKPLT , STOCKPIL,

*** NETWORK ID: CART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF NOX IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 376134.00	376384.00	376634.00	376884.00	377134.00
3813913.0	68.10006 (81110507)	66.68134 (81011301)	64.84779 (81102005)	62.65699 (81030722)	60.16364 (81011804)
3813663.0	76.46540 (81033104)	74.65115 (81092820)	72.15022 (81022324)	69.28810 (81082602)	66.13904 (81042105)
3813413.0	87.26081 (81021602)	84.83361 (81111323)	81.49417 (81012819)	77.51257 (81011804)	73.10984 (81121503)
3813163.0	101.65847 (81102306)	98.34277 (81110416)	93.44133 (81043021)	87.74012 (81100820)	81.82483 (81052103)
3812913.0	122.05653 (81012705)	116.93746 (81121608)	109.54675 (81042905)	102.91028 (81121401)	92.30356 (81083021)
3812663.0	152.31529 (81110319)	143.92131 (81012819)	131.50354 (81060505)	117.83089 (81012102)	105.04262 (81082301)
3812413.0	200.78625 (81050924)	184.70053 (81012501)	162.16887 (81052002)	139.53928 (81091123)	120.27340 (81070101)
3812163.0	286.22290 (81082923)	249.52100 (81030524)	204.78479 (81120703)	165.88167 (81110303)	137.53258 (81111218)
3811913.0	459.62866 (81013004)	356.72195 (81110819)	261.52405 (81032402)	196.77333 (81022803)	156.35255 (81102904)
3811663.0	893.73401 (81080419)	519.29083 (81010207)	322.51340 (81081604)	226.56471 (81081722)	177.36842 (81092002)
3811413.0	1732.79187 (81102822)	640.01758 (81060924)	383.62366 (81092105)	274.67526 (81092105)	207.00861 (81060924)

3810913.0	490.69049 (81102120)	380.12903 (81061921)	368.19366 (81042701)	275.96234 (81112208)	214.76514 (81102403)
3810663.0	300.62735 (81112319)	262.80591 (81081522)	239.02682 (81122219)	222.73203 (81071906)	188.53929 (81032201)
3810413.0	208.85805 (81080524)	193.56133 (81100904)	178.21689 (81063024)	171.68448 (81081202)	158.04193 (81091602)
3810163.0	157.24620 (81100902)	150.49557 (81102120)	142.54453 (81112622)	137.88120 (81061822)	131.46368 (81111219)
3809913.0	125.23876 (81080606)	122.25352 (81082921)	118.26129 (81072523)	115.12656 (81051720)	111.19348 (81020220)
3809663.0	103.90232 (81030819)	102.68777 (81020505)	100.71429 (81010506)	98.66708 (81071704)	96.11378 (81050422)
3809413.0	88.91464 (81030306)	88.48822 (81012518)	87.50619 (81011906)	86.20473 (81072820)	84.38456 (81011224)
3809163.0	77.79665 (81072719)	77.76691 (81103001)	77.24965 (81072823)	76.41208 (81052620)	75.07662 (81082321)

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PITOPS , FINES , ROCKPLT , STOCKPIL,

*** NETWORK ID: CART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF NOX IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 377384.00	377634.00	377884.00	378134.00	378384.00
3813913.0	57.69474 (81021601)	55.11692 (81010908)	52.58998 (81072422)	50.08089 (81012020)	47.78737 (81072120)
3813663.0	62.86479 (81080419)	59.58669 (81012102)	56.50533 (81011623)	53.53284 (81072120)	50.67847 (81011107)
3813413.0	68.91618 (81072522)	64.77636 (81110401)	60.89818 (81052121)	57.29408 (81102519)	53.99480 (81040819)
3813163.0	75.86806 (81110819)	70.65220 (81052121)	65.81367 (81103007)	61.31530 (81110303)	57.49567 (81110219)
3812913.0	84.26887 (81052121)	77.34433 (81031901)	71.24265 (81122522)	65.72125 (81102003)	61.23417 (81081520)
3812663.0	94.06660 (81021407)	84.91647 (81032402)	77.31094 (81060806)	70.86409 (81020104)	65.09626 (81080219)
3812413.0	105.05721 (81040321)	93.12636 (81033124)	83.77884 (81102023)	75.90700 (81092224)	69.51332 (81102024)
3812163.0	117.27180 (81102023)	102.43108 (81092224)	90.99470 (81010620)	81.66508 (81022419)	73.75085 (81102907)
3811913.0	130.64485 (81012304)	112.12315 (81121824)	98.56548 (81103004)	87.34827 (81101906)	78.05209 (81031620)
3811663.0	146.17151 (81032823)	123.47871 (81011720)	106.21126 (81111018)	92.78853 (81102404)	82.03777 (81102421)
3811413.0	163.35341 (81111906)	133.79216 (81111906)	112.86482 (81080305)	97.25945 (81111418)	85.21617 (81111418)
3811163.0	173.67752 (81050519)	139.95926 (81122919)	116.67182 (81120720)	99.90034 (81061024)	87.06970 (81122519)
3810913.0	170.53059 (81072223)	139.23984 (81122319)	116.77985 (81021308)	100.10979 (81082419)	87.32754 (81091606)
3810663.0	157.52306 (81010317)	132.49742 (81061902)	113.01013 (81031008)	97.84531 (81031324)	85.88444 (81010704)
3810413.0	139.60867 (81062705)	121.74627 (81102523)	106.20705 (81010317)	93.20948 (81012706)	83.00807 (81112318)
3810163.0	121.28255 (81062104)	109.50591 (81122408)	98.11195 (81032201)	87.90092 (81042106)	79.04208 (81101619)
3809913.0	105.26670 (81010508)	97.63651 (81122705)	89.51246 (81022203)	81.66320 (81062521)	74.47750 (81091223)
3809663.0	92.23731 (81062224)	87.13184 (81010505)	81.31683 (81060922)	75.27779 (81011722)	69.67377 (81020219)
3809413.0	81.48246 (81051724)	78.08818 (81021203)	73.81908 (81010505)	69.43877 (81060724)	64.93153 (81032803)
3809163.0	73.10723 (81090123)	70.53902 (81100702)	67.42780 (81021307)	63.92004 (81080505)	60.43575 (81080504)

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PITOPS , FINES , ROCKPLT STOCKPIL,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF NOX IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
375707.00	3810561.00	244.62425	(81112308)	374756.00	3810927.00	155.30254	(81071201)
376707.00	3811134.00	414.47568	(81012401)	376710.00	3811038.00	365.37799	(81040303)
376712.00	3810939.00	341.13477	(81022002)	376717.00	3810843.00	308.10345	(81051820)
376700.00	3811250.00	454.02634	(81021504)	376697.00	3811346.00	399.42566	(81091905)
376693.00	3811450.00	335.13187	(81102822)	376690.00	3811546.00	314.22238	(81080320)
376685.00	3811645.00	300.36884	(81081603)	376683.00	3811744.00	282.03748	(81092224)
376678.00	3811840.00	263.57379	(81011905)	376676.00	3811936.00	243.52850	(81101118)
376671.00	3812035.00	223.76321	(81110122)	376666.00	3812134.00	204.98241	(81080503)
376663.00	3812230.00	187.91238	(81080805)	376659.00	3812329.00	172.13275	(81073120)
376654.00	3812426.00	158.46103	(81020206)	376561.00	3812442.00	164.39735	(81121503)
376464.00	3812452.00	170.94592	(81091907)	376367.00	3812464.00	175.95486	(81043021)
376270.00	3812474.00	180.30516	(81102401)	376248.00	3812399.00	198.06960	(81062220)
376253.00	3812303.00	223.04408	(81013004)	376258.00	3812206.00	254.11063	(81030722)
376260.00	3812110.00	293.02884	(81012501)	376217.00	3812057.00	328.32983	(81043021)
376122.00	3812069.00	337.59305	(81110418)	376025.00	3812081.00	339.34546	(81021602)
375928.00	3812093.00	332.21362	(81121821)	375828.00	3812105.00	318.18393	(81042903)
375728.00	3812117.00	302.27469	(81120905)	375631.00	3812129.00	288.99191	(81112104)
375532.00	3812141.00	273.79257	(81120901)	375461.00	3812124.00	269.44614	(81011420)
375464.00	3812028.00	305.51218	(81061906)	375464.00	3811924.00	345.65460	(81122204)
375466.00	3811828.00	387.90533	(81052123)	375469.00	3811732.00	441.20129	(81122303)
375374.00	3811746.00	377.96533	(81012204)	375277.00	3811756.00	327.74481	(81012619)
375180.00	3811770.00	286.41492	(81063001)	375077.00	3811785.00	251.17334	(81071404)
375077.00	3811686.00	261.67361	(81011704)	375075.00	3811589.00	267.38873	(81021323)
375075.00	3811492.00	268.47458	(81050406)	375075.00	3811394.00	264.27600	(81041001)
375073.00	3811298.00	255.30115	(81011520)	375070.00	3811202.00	243.42082	(81062004)
375070.00	3811105.00	230.96492	(81031607)	375068.00	3811009.00	217.39334	(81021624)
375145.00	3810970.00	231.02803	(81112923)	375240.00	3810956.00	255.61507	(81080824)
375340.00	3810941.00	286.10138	(81032024)	375437.00	3810927.00	320.09900	(81072702)
375534.00	3810912.00	356.42819	(81040306)	375631.00	3810898.00	393.47766	(81020608)
375728.00	3810881.00	422.84512	(81040404)	375826.00	3810867.00	443.32645	(81090624)
375923.00	3810852.00	446.32306	(81062202)	376020.00	3810835.00	430.75812	(81072424)
376119.00	3810821.00	405.07516	(81062703)	376217.00	3810806.00	371.02246	(81080119)
376299.00	3810794.00	340.63022	(81020121)	376353.00	3810795.00	320.30188	(81082222)
376450.00	3810768.00	289.56073	(81020220)	376547.00	3810753.00	275.77457	(81122219)
376644.00	3810739.00	269.56671	(81011724)	376719.00	3810744.00	267.17612	(81122705)

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE SUMMARY OF HIGHEST 1-HR RESULTS ***

** CONC OF NOX IN MICROGRAMS/M**3 **

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                                                                  DATE                                                                    NETWORK
GROUP ID                                   AVERAGE CONC      (YYMMDDHH)             RECEPTOR  (XR, YR, ZELEV, ZFLAG)         OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

ALL      HIGH  1ST HIGH VALUE IS    2801.40479  ON 81020108: AT (  375884.00,  3811413.00,        0.00,       0.00)  GC    CART1

 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
                      BD = BOUNDARY
1 *** ISCST3 - VERSION 99155 ***    ***  NOx, Phase 1, Hourly Average Concentration                              ***          11/13/99
                                    ***  TMC Soledad                                                             ***          16:25:26
**MODELOPTs:                                                                                                                  PAGE  15
CONC                          URBAN  FLAT                                      NOCALM

*** Message Summary : ISCST3 Model Execution ***

 --------- Summary of Total Messages --------

A Total of           0 Fatal Error Message(s)
A Total of           0 Warning Message(s)
A Total of        1085 Informational Message(s)

A Total of        1085 Calm Hours Identified

   ******** FATAL ERROR MESSAGES *******
              ***  NONE  ***

   ********   WARNING MESSAGES    ********
              ***  NONE  ***

   ************************************
   *** ISCST3 Finishes Successfully ***
   ************************************
```

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          ISCST3X  PC (32 BIT) VERSION  3.3.0
         (C) COPYRIGHT 1991-1999, TRINITY CONSULTANTS

Run Began on 11/13/1999 at 16:24:53

** BREEZE ISC SUITE v3.2.2 - G:\Clients\tr110 - TMC Sole\Air-28\Modeling\NOx_Models\11-4-99\nx2ac.dat
** Trinity Consultants, Dallas, TX

CO STARTING
CO TITLEONE  NOx, Phase 2, Annual Average
CO TITLETWO  TMC Soledad
CO MODELOPT  CONC  URBAN  NOCALM
CO AVERTIME  1  ANNUAL
CO POLLUTID  NOX
CO TERRHGTS  FLAT
CO RUNORNOT  RUN
CO FINISHED

SO STARTING
SO ELEVUNIT  METERS
SO LOCATION  PITOPS  VOLUME  375974.0  3811400.0  0
SO LOCATION  FINES  VOLUME  375741.0  3811744.0  0
** SRCDESCR  Fines
SO LOCATION  STOCKPIL  VOLUME  376343.8  3811301.3  0
** SRCDESCR  Stockpile
SO LOCATION  ROCKPLT  VOLUME  376359.2  3811119.0  0
** SRCDESCR  Rock Plant
SO SRCPARAM  PITOPS  2.610000E+00  3.5  25  7
SO SRCPARAM  FINES  6.470000E-02  3.5  25  7
SO SRCPARAM  STOCKPIL  5.450000E-01  3.5  25  7
SO SRCPARAM  ROCKPLT  2.730000E-01  3.5  25  7
SO SRCGROUP  ALL
SO FINISHED

RE STARTING
RE GRIDCART CART1 STA
RE GRIDCART CART1 XYINC  373634  20  250  3809163  20  250
RE GRIDCART CART1 END
RE DISCCART  375707.0  3810561.0
** RCPDESCR  Nearest Dwelling
RE DISCCART  374756.0  3810927.0
** RCPDESCR  Trailer Park
** BOUNDARY
RE DISCCART  376707.0  3811134.0
RE DISCCART  376710.0  3811038.0
RE DISCCART  376712.0  3810939.0
RE DISCCART  376717.0  3810843.0
RE DISCCART  376700.0  3811250.0
RE DISCCART  376697.0  3811346.0
RE DISCCART  376693.0  3811450.0
RE DISCCART  376690.0  3811546.0
RE DISCCART  376685.0  3811645.0
RE DISCCART  376683.0  3811744.0
RE DISCCART  376678.0  3811840.0
RE DISCCART  376676.0  3811936.0
RE DISCCART  376671.0  3812035.0
RE DISCCART  376666.0  3812134.0
RE DISCCART  376663.0  3812230.0
RE DISCCART  376659.0  3812329.0
RE DISCCART  376654.0  3812426.0
RE DISCCART  376561.0  3812442.0
RE DISCCART  376464.0  3812452.0
RE DISCCART  376367.0  3812464.0
RE DISCCART  376270.0  3812474.0
RE DISCCART  376248.0  3812399.0
RE DISCCART  376253.0  3812303.0
RE DISCCART  376258.0  3812206.0
RE DISCCART  376260.0  3812110.0
RE DISCCART  376217.0  3812057.0
RE DISCCART  376122.0  3812069.0
RE DISCCART  376025.0  3812081.0
RE DISCCART  375928.0  3812093.0
RE DISCCART  375828.0  3812105.0
RE DISCCART  375728.0  3812117.0
RE DISCCART  375631.0  3812129.0
RE DISCCART  375532.0  3812141.0
RE DISCCART  375461.0  3812124.0
RE DISCCART  375464.0  3812028.0
RE DISCCART  375464.0  3811924.0
RE DISCCART  375466.0  3811828.0
RE DISCCART  375469.0  3811732.0
RE DISCCART  375374.0  3811746.0
RE DISCCART  375277.0  3811756.0
RE DISCCART  375180.0  3811770.0
RE DISCCART  375077.0  3811785.0
RE DISCCART  375077.0  3811688.0
RE DISCCART  375075.0  3811589.0
RE DISCCART  375075.0  3811493.0
RE DISCCART  375075.0  3811394.0
RE DISCCART  375073.0  3811298.0
RE DISCCART  375070.0  3811202.0
RE DISCCART  375070.0  3811105.0
RE DISCCART  375068.0  3811009.0
RE DISCCART  375145.0  3810970.0
RE DISCCART  375240.0  3810956.0
RE DISCCART  375340.0  3810941.0
RE DISCCART  375437.0  3810927.0
RE DISCCART  375534.0  3810912.0
RE DISCCART  375631.0  3810898.0
RE DISCCART  375728.0  3810881.0
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 RE DISCCART  375923.0  3810852.0
 RE DISCCART  376020.0  3810835.0
 RE DISCCART  376119.0  3810821.0
 RE DISCCART  376217.0  3810806.0
 RE DISCCART  376299.0  3810794.0
 RE DISCCART  376353.0  3810785.0
 RE DISCCART  376450.0  3810768.0
 RE DISCCART  376547.0  3810753.0
 RE DISCCART  376644.0  3810739.0
 RE DISCCART  376719.0  3810744.0
 RE FINISHED

 ME STARTING
 ME INPUTFIL  C:\TRINITY\ISC32\NEWHALL.ASC
 ME ANEMHGHT  10  METERS
 ME SURFDATA  51115  1981
 ME UAIRDATA  99999  1981
 ME STARTEND  1981  01  01  1  1981  12  31  24
 ME FINISHED

 OU STARTING
 OU RECTABLE  1  FIRST
 OU FINISHED

 ** PROJECTN  0 104 7 -177 0 0.9996 500000 0
 ** OUTFILE  G:\Clients\TR110--1\Air-28\Modeling\NOX_MO~1\11-4-99\NX2AC.LST
 ** RAWFILE  G:\Clients\TR110--1\Air-28\Modeling\NOX_MO~1\11-4-99\NX2AC.RAW
 ** RAWFMT  2

 ** POLLUTNT IDN  01  NOX  X
 ** POLLUTNT NAM  01
 ** POLLUTNT EMS  PITOPS 2.610000E+00
 ** POLLUTNT EMS  FINES 6.470000E-02
 ** POLLUTNT EMS  STOCKPIL 5.450000E-01
 ** POLLUTNT EMS  ROCKPLT 2.730000E-01


 **********************************
 *** SETUP Finishes Successfully ***
 **********************************

1 *** ISCST3 - VERSION 99155 ***     ***  NOx, Phase 2, Annual Average                    ***       11/13/99
                                     ***  TMC Soledad                                     ***       16:24:53
 **MODELOPTs:                                                                                      PAGE   1
 CONC                      URBAN  FLAT                                 NOCALM

                                        ***     MODEL SETUP OPTIONS SUMMARY       ***
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

 **Intermediate Terrain Processing is Selected

 **Model Is Setup For Calculation of Average CONCentration Values.

   --  SCAVENGING/DEPOSITION LOGIC --
 **Model Uses NO DRY DEPLETION.  DDPLETE =  F
 **Model Uses NO WET DEPLETION.  WDPLETE =  F
 **NO WET SCAVENGING Data Provided.
 **NO GAS DRY DEPOSITION Data Provided.
 **Model Does NOT Use GRIDDED TERRAIN Data for Depletion Calculations

 **Model Uses URBAN Dispersion.

 **Model Uses User-Specified Options:
          1. Final Plume Rise.
          2. Stack-tip Downwash.
          3. Buoyancy-induced Dispersion.
          4. Not Use Calms Processing Routine.
          5. Not Use Missing Data Processing Routine.
          6. Default Wind Profile Exponents.
          7. Default Vertical Potential Temperature Gradients.

 **Model Assumes Receptors on FLAT Terrain.

 **Model Assumes No FLAGPOLE Receptor Heights.

 **Model Calculates  1 Short Term Average(s) of:   1-HR
    and Calculates ANNUAL Averages

 **This Run Includes:     4 Source(s);      1 Source Group(s); and     470 Receptor(s)

 **The Model Assumes A Pollutant Type of:  NOX

 **Model Set To Continue RUNning After the Setup Testing.

 **Output Options Selected:
         Model Outputs Tables of ANNUAL Averages by Receptor
         Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)

 **Misc. Inputs:  Anem. Hgt. (m) =    10.00 ;    Decay Coef. =      0.0000 ;   Rot. Angle =     0.0
                  Emission Units = GRAMS/SEC                         ;  Emission Rate Unit Factor =   0.10000E+07
                  Output Units   = MICROGRAMS/M**3

 **Approximate Storage Requirements of Model =     1.2 MB of RAM.

 **Input Runstream File:          G:\CLIENTS\TR110--1\AIR-28\MODELING\NOX_MODELS\FINALRUNS\NX2AC.DAT
 **Output Print File:             G:\CLIENTS\TR110--1\AIR-28\MODELING\NOX_MODELS\FINALRUNS\NX2AC.LST
1 *** ISCST3 - VERSION 99155 ***     ***  NOx, Phase 2, Annual Average                    ***       11/13/99
                                     ***  TMC Soledad                                     ***       16:24:53
 **MODELOPTs:                                                                                      PAGE   2
 CONC                      URBAN  FLAT                                 NOCALM
```

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	EMISSION RATE SCALAR VARY BY
PITOPS	0	0.26100E+01	375974.0	3811400.0	0.0	3.50	25.00	7.00	
FINES	0	0.64700E-01	375741.0	3811744.0	0.0	3.50	25.00	7.00	
STOCKPIL	0	0.54500E+00	376343.8	3811301.2	0.0	3.50	25.00	7.00	
ROCKPLT	0	0.27300E+00	376359.2	3811119.0	0.0	3.50	25.00	7.00	

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	PITOPS , FINES , STOCKPIL, ROCKPLT ,

*** GRIDDED RECEPTOR NETWORK SUMMARY ***

*** NETWORK ID: CART1 ; NETWORK TYPE: GRIDCART ***

*** X-COORDINATES OF GRID ***
(METERS)

373634.0, 373884.0, 374134.0, 374384.0, 374634.0, 374884.0, 375134.0, 375384.0, 375634.0, 375884.0,
376134.0, 376384.0, 376634.0, 376884.0, 377134.0, 377384.0, 377634.0, 377884.0, 378134.0, 378384.0,

*** Y-COORDINATES OF GRID ***
(METERS)

3809163.0, 3809413.0, 3809663.0, 3809913.0, 3810163.0, 3810413.0, 3810663.0, 3810913.0, 3811163.0, 3811413.0,
3811663.0, 3811913.0, 3812163.0, 3812413.0, 3812663.0, 3812913.0, 3813163.0, 3813413.0, 3813663.0, 3813913.0,

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZFLAG)
(METERS)

(375707.0,	3810561.0,	0.0,	0.0);	(374756.0,	3810927.0,	0.0,	0.0);	□□□□□□□□□□□□□□□□□□□□□□
(376707.0,	3811134.0,	0.0,	0.0);	(376710.0,	3811038.0,	0.0,	0.0);	
(376712.0,	3810939.0,	0.0,	0.0);	(376717.0,	3810843.0,	0.0,	0.0);	
(376700.0,	3811250.0,	0.0,	0.0);	(376697.0,	3811346.0,	0.0,	0.0);	
(376693.0,	3811450.0,	0.0,	0.0);	(376690.0,	3811546.0,	0.0,	0.0);	
(376685.0,	3811645.0,	0.0,	0.0);	(376683.0,	3811744.0,	0.0,	0.0);	
(376678.0,	3811840.0,	0.0,	0.0);	(376676.0,	3811936.0,	0.0,	0.0);	
(376671.0,	3812035.0,	0.0,	0.0);	(376666.0,	3812134.0,	0.0,	0.0);	
(376663.0,	3812230.0,	0.0,	0.0);	(376659.0,	3812329.0,	0.0,	0.0);	
(376654.0,	3812426.0,	0.0,	0.0);	(376561.0,	3812442.0,	0.0,	0.0);	
(376464.0,	3812452.0,	0.0,	0.0);	(376367.0,	3812464.0,	0.0,	0.0);	
(376270.0,	3812474.0,	0.0,	0.0);	(376248.0,	3812399.0,	0.0,	0.0);	
(376253.0,	3812303.0,	0.0,	0.0);	(376258.0,	3812206.0,	0.0,	0.0);	
(376260.0,	3812110.0,	0.0,	0.0);	(376217.0,	3812057.0,	0.0,	0.0);	
(376122.0,	3812069.0,	0.0,	0.0);	(376025.0,	3812081.0,	0.0,	0.0);	
(375928.0,	3812093.0,	0.0,	0.0);	(375828.0,	3812105.0,	0.0,	0.0);	
(375728.0,	3812117.0,	0.0,	0.0);	(375631.0,	3812129.0,	0.0,	0.0);	
(375532.0,	3812141.0,	0.0,	0.0);	(375461.0,	3812124.0,	0.0,	0.0);	
(375464.0,	3812028.0,	0.0,	0.0);	(375464.0,	3811924.0,	0.0,	0.0);	
(375466.0,	3811828.0,	0.0,	0.0);	(375469.0,	3811732.0,	0.0,	0.0);	
(375374.0,	3811746.0,	0.0,	0.0);	(375277.0,	3811756.0,	0.0,	0.0);	
(375180.0,	3811770.0,	0.0,	0.0);	(375077.0,	3811785.0,	0.0,	0.0);	
(375077.0,	3811688.0,	0.0,	0.0);	(375075.0,	3811589.0,	0.0,	0.0);	
(375075.0,	3811493.0,	0.0,	0.0);	(375075.0,	3811394.0,	0.0,	0.0);	
(375073.0,	3811298.0,	0.0,	0.0);	(375070.0,	3811202.0,	0.0,	0.0);	
(375070.0,	3811105.0,	0.0,	0.0);	(375068.0,	3811009.0,	0.0,	0.0);	
(375145.0,	3810970.0,	0.0,	0.0);	(375240.0,	3810956.0,	0.0,	0.0);	
(375340.0,	3810941.0,	0.0,	0.0);	(375437.0,	3810927.0,	0.0,	0.0);	
(375534.0,	3810912.0,	0.0,	0.0);	(375631.0,	3810898.0,	0.0,	0.0);	
(375728.0,	3810881.0,	0.0,	0.0);	(375826.0,	3810867.0,	0.0,	0.0);	
(375923.0,	3810852.0,	0.0,	0.0);	(376020.0,	3810835.0,	0.0,	0.0);	
(376119.0,	3810821.0,	0.0,	0.0);	(376217.0,	3810806.0,	0.0,	0.0);	
(376299.0,	3810794.0,	0.0,	0.0);	(376353.0,	3810785.0,	0.0,	0.0);	
(376450.0,	3810768.0,	0.0,	0.0);	(376547.0,	3810753.0,	0.0,	0.0);	
(376644.0,	3810739.0,	0.0,	0.0);	(376719.0,	3810744.0,	0.0,	0.0);	

* SOURCE-RECEPTOR COMBINATIONS FOR WHICH CALCULATIONS MAY NOT BE PERFORMED *
LESS THAN 1.0 METER OR 3*ZLB IN DISTANCE, OR WITHIN OPEN PIT SOURCE

ID	XR (METERS)	YR (METERS)	(METERS)
ROCKPLT	376384.0	3811163.0	-3.24

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
(1=YES; 0=NO)

```
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1
```

METEOROLOGICAL DATA PROCESSED BETWEEN START DATE: 1981 1 1 1
AND END DATE: 1981 12 31 24

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** WIND PROFILE EXPONENTS ***

STABILITY CATEGORY	WIND SPEED CATEGORY 1	2	3	4	5	6
A	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00
B	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00
C	.20000E+00	.20000E+00	.20000E+00	.20000E+00	.20000E+00	.20000E+00
D	.25000E+00	.25000E+00	.25000E+00	.25000E+00	.25000E+00	.25000E+00
E	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00
F	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00

*** VERTICAL POTENTIAL TEMPERATURE GRADIENTS ***
(DEGREES KELVIN PER METER)

STABILITY CATEGORY	WIND SPEED CATEGORY 1	2	3	4	5	6
A	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
B	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
C	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
D	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
E	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01
F	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

FILE: C:\TRINITY\ISC32\NEWHALL.ASC
FORMAT: (4I2,2F9.4,F6.1,I2,2F7.1,f9.4,f10.1,f8.4,i4,f7.2)
SURFACE STATION NO.: 51115 UPPER AIR STATION NO.: 99999
NAME: UNKNOWN NAME: UNKNOWN
YEAR: 1981 YEAR: 1981

YR	MN	DY	HR	FLOW VECTOR	SPEED (M/S)	TEMP (K)	STAB CLASS	MIXING HEIGHT (M) RURAL	MIXING HEIGHT (M) URBAN	USTAR (M/S)	M-O LENGTH (M)	Z-0 (M)	IPCODE	PRATE (mm/HR)
81	01	01	01	314.8	1.00	285.9	7	522.6	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	02	304.9	0.00	284.8	7	507.0	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	03	310.0	0.00	284.8	7	491.4	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	04	346.0	1.00	284.8	7	475.8	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	05	309.0	1.00	285.4	7	460.3	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	06	342.0	1.00	284.3	7	444.7	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	07	342.0	0.00	284.3	7	429.1	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	08	337.1	0.00	284.3	6	43.0	190.2	0.0000	0.0	0.0000	0	0.00
81	01	01	09	6.5	1.00	287.6	5	89.2	211.8	0.0000	0.0	0.0000	0	0.00
81	01	01	10	9.1	0.00	291.5	4	135.3	233.4	0.0000	0.0	0.0000	0	0.00
81	01	01	11	291.6	1.00	297.0	3	181.5	255.1	0.0000	0.0	0.0000	0	0.00
81	01	01	12	80.6	1.00	298.7	3	227.7	276.7	0.0000	0.0	0.0000	0	0.00
81	01	01	13	87.2	0.00	299.3	2	273.8	298.4	0.0000	0.0	0.0000	0	0.00
81	01	01	14	326.7	2.24	299.3	3	320.0	320.0	0.0000	0.0	0.0000	0	0.00
81	01	01	15	337.3	2.24	298.7	3	320.0	320.0	0.0000	0.0	0.0000	0	0.00
81	01	01	16	345.7	2.24	297.6	4	320.0	320.0	0.0000	0.0	0.0000	0	0.00
81	01	01	17	20.1	1.34	294.8	5	325.5	318.6	0.0000	0.0	0.0000	0	0.00
81	01	01	18	97.6	1.00	293.1	6	357.1	310.3	0.0000	0.0	0.0000	0	0.00
81	01	01	19	178.0	1.00	290.9	7	388.7	302.1	0.0000	0.0	0.0000	0	0.00
81	01	01	20	303.2	1.00	289.8	7	420.3	293.9	0.0000	0.0	0.0000	0	0.00
81	01	01	21	358.6	1.00	289.3	7	451.9	285.7	0.0000	0.0	0.0000	0	0.00
81	01	01	22	272.0	1.00	287.6	7	483.5	277.4	0.0000	0.0	0.0000	0	0.00
81	01	01	23	0.7	1.00	287.6	7	515.1	269.2	0.0000	0.0	0.0000	0	0.00
81	01	01	24	337.2	1.00	287.6	7	546.7	261.0	0.0000	0.0	0.0000	0	0.00

*** NOTES: STABILITY CLASS 1=A, 2=B, 3=C, 4=D, 5=E AND 6=F.
FLOW VECTOR IS DIRECTION TOWARD WHICH WIND IS BLOWING.

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE ANNUAL (1 YRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PITOPS , FINES , STOCKPIL, ROCKPLT ,

*** NETWORK ID: CART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF NOX IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 373634.00	373884.00	374134.00	374384.00	374634.00	374884.00	375134.00	375384.00	375634.00
3813913.00	2.05502	2.13915	2.07426	1.81793	1.52919	1.39319	1.40291	1.39123	1.27495
3813663.00	2.20554	2.41559	2.50595	2.36539	2.00388	1.71168	1.64724	1.65618	1.52849
3813413.00	2.24719	2.61466	2.89638	2.98228	2.71175	2.24200	2.00673	2.00366	1.87327
3813163.00	2.08626	2.64388	3.16931	3.56134	3.61373	3.13220	2.60232	2.48756	2.36158
3812913.00	1.69249	2.36079	3.16267	3.95353	4.52516	4.46949	3.68655	3.23898	3.09188
3812663.00	1.31878	1.82223	2.67368	3.85611	5.12558	6.01205	5.66227	4.58980	4.27286
3812413.00	1.19482	1.47101	1.99275	3.03084	4.80412	7.01721	8.51324	7.44196	6.39846
3812163.00	1.23877	1.44771	1.75357	2.29294	3.47965	6.13254	10.43361	13.30143	10.88918
3811913.00	1.30881	1.54378	1.85073	2.27415	2.93199	4.26846	8.09879	17.85474	25.32284
3811663.00	1.27403	1.52845	1.87509	2.36517	3.09143	4.24132	6.30518	11.77360	40.59399
3811413.00	1.20634	1.43809	1.75369	2.20241	2.87798	3.97939	6.00303	10.52998	25.09800
3811163.00	1.11900	1.30094	1.53197	1.82961	2.22071	2.75585	3.55324	5.05932	10.68012
3810913.00	0.84187	0.91969	1.01534	1.14811	1.35140	1.68312	2.38005	4.13763	7.33510
3810663.00	0.58094	0.64626	0.73655	0.86099	1.07126	1.51218	2.27502	3.40204	4.57311
3810413.00	0.47803	0.53873	0.63038	0.80081	1.09385	1.49197	2.02914	2.60798	3.35472
3810163.00	0.42555	0.50751	0.64608	0.84105	1.07645	1.37914	1.73240	1.96787	2.63388
3809913.00	0.43068	0.53941	0.67310	0.82530	1.01358	1.23874	1.39815	1.58163	2.11322
3809663.00	0.46016	0.55515	0.65935	0.78424	0.93420	1.06408	1.13229	1.33103	1.73681
3809413.00	0.46837	0.54253	0.62940	0.73374	0.83713	0.89245	0.95226	1.14398	1.46641
3809163.00	0.45644	0.51926	0.59470	0.67536	0.73135	0.75298	0.82714	1.00089	1.26425

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE ANNUAL (1 YRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PITOPS , FINES , STOCKPIL, ROCKPLT ,

*** NETWORK ID: CART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF NOX IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 375884.00	376134.00	376384.00	376634.00	376884.00	377134.00	377384.00	377634.00	377884.00
3813913.00	1.23578	1.21159	1.01869	0.71446	0.49986	0.39766	0.34874	0.32160	0.29845
3813663.00	1.46762	1.41622	1.13620	0.76835	0.54780	0.44174	0.39120	0.35967	0.32878
3813413.00	1.78004	1.68398	1.27315	0.84100	0.61220	0.49765	0.44495	0.40269	0.36548
3813163.00	2.21589	2.04484	1.43623	0.94760	0.69513	0.57298	0.50932	0.45482	0.41368
3812913.00	2.85227	2.54897	1.64252	1.10706	0.80500	0.67312	0.58806	0.52483	0.47192
3812663.00	3.84424	3.28390	1.94063	1.33656	0.96224	0.80221	0.69648	0.60833	0.52085
3812413.00	5.56423	4.40797	2.45749	1.66113	1.18983	0.98668	0.82208	0.66709	0.53996
3812163.00	9.15690	6.22949	3.46587	2.13859	1.54880	1.18892	0.89980	0.70427	0.57521
3811913.00	18.88410	9.57540	5.56728	2.96385	1.91968	1.35549	1.04336	0.85477	0.73352
3811663.00	57.50447	20.31778	10.39190	4.16915	2.72527	1.93808	1.47252	1.17200	0.96165
3811413.00	223.49051	67.98070	32.57173	7.99227	4.23627	2.69425	1.90605	1.43787	1.13294
3811163.00	33.57349	32.65075	26.42912	9.50997	4.76085	3.04982	2.15683	1.61917	1.26812
3810913.00	13.61374	13.42489	15.42311	7.13840	3.76777	2.39360	1.75889	1.39838	1.15906
3810663.00	7.90328	7.66985	6.91143	4.68190	3.30274	2.17675	1.51956	1.16321	0.94893
3810413.00	5.12486	5.09476	4.24235	3.17199	2.57562	2.01646	1.49045	1.10889	0.87337
3810163.00	3.60210	3.69221	3.04905	2.29159	1.94629	1.69299	1.39613	1.10946	0.86801
3809913.00	2.71892	2.81935	2.36386	1.79256	1.49628	1.37433	1.22028	1.04153	0.86929
3809663.00	2.15617	2.23580	1.91372	1.48521	1.20178	1.10597	1.04076	0.93331	0.81660
3809413.00	1.76680	1.82526	1.59490	1.26891	1.01513	0.90588	0.87146	0.82338	0.74420
3809163.00	1.48240	1.52468	1.35739	1.10397	0.88980	0.76761	0.72938	0.71247	0.67225

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE ANNUAL (1 YRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PITOPS , FINES , STOCKPIL, ROCKPLT ,

*** NETWORK ID: CART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF NOX IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 378134.00	378384.00
3813913.00	0.27518	0.25527
3813663.00	0.30213	0.28133
3813413.00	0.33692	0.31299
3813163.00	0.37916	0.34595
3812913.00	0.41962	0.36572
3812663.00	0.43799	0.36791
3812413.00	0.44515	0.37711
3812163.00	0.49156	0.43783
3811913.00	0.64688	0.57796
3811663.00	0.80591	0.68656

3811163.00	1.02560	0.85067
3810913.00	0.98224	0.84361
3810663.00	0.80830	0.71008
3810413.00	0.72441	0.62058
3810163.00	0.69854	0.58802
3809913.00	0.70919	0.58186
3809663.00	0.70557	0.59590
3809413.00	0.66341	0.58786
3809163.00	0.61202	0.55354

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE ANNUAL (1 YRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PITOPS , FINES , STOCKPIL, ROCKPLT ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF NOX IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
375707.00	3810561.00	4.56664	374756.00	3810927.00	1.51986
376707.00	3811134.00	7.22887	376710.00	3811038.00	6.60850
376712.00	3810939.00	5.90849	376717.00	3810843.00	5.31653
376700.00	3811250.00	8.09356	376697.00	3811346.00	7.64652
376693.00	3811450.00	6.17345	376690.00	3811546.00	5.06931
376685.00	3811645.00	3.94799	376683.00	3811744.00	3.24225
376678.00	3811840.00	2.94402	376676.00	3811936.00	2.65798
376671.00	3812035.00	2.35119	376666.00	3812134.00	2.08671
376663.00	3812230.00	1.88336	376659.00	3812329.00	1.71842
376654.00	3812426.00	1.58417	376561.00	3812442.00	1.83958
376464.00	3812452.00	2.11109	376367.00	3812464.00	2.38515
376270.00	3812474.00	2.88251	376248.00	3812399.00	3.27540
376253.00	3812303.00	3.57289	376258.00	3812206.00	3.96850
376260.00	3812110.00	4.54337	376217.00	3812057.00	5.51505
376122.00	3812069.00	7.55017	376025.00	3812081.00	9.70872
375928.00	3812093.00	10.49019	375828.00	3812105.00	11.22178
375728.00	3812117.00	11.71898	375631.00	3812129.00	11.93713
375532.00	3812141.00	12.72089	375461.00	3812124.00	14.24418
375464.00	3812028.00	18.08309	375464.00	3811924.00	21.54149
375466.00	3811828.00	22.43185	375469.00	3811732.00	19.94183
375374.00	3811746.00	13.50037	375277.00	3811756.00	9.55557
375180.00	3811770.00	7.27138	375077.00	3811785.00	5.75179
375077.00	3811688.00	5.67173	375075.00	3811589.00	5.73102
375075.00	3811493.00	5.61229	375075.00	3811394.00	5.32120
375073.00	3811298.00	4.71173	375070.00	3811202.00	3.70674
375070.00	3811105.00	2.83825	375068.00	3811009.00	2.35708
375145.00	3810970.00	2.51376	375240.00	3810956.00	2.98125
375340.00	3810941.00	3.74943	375437.00	3810927.00	4.75686
375534.00	3810912.00	5.93789	375631.00	3810898.00	7.06936
375728.00	3810881.00	7.95763	375826.00	3810867.00	10.08802
375923.00	3810852.00	12.81034	376020.00	3810835.00	12.89049
376119.00	3810821.00	10.95777	376217.00	3810806.00	9.79413
376299.00	3810794.00	10.04655	376353.00	3810785.00	9.92568
376450.00	3810768.00	8.12982	376547.00	3810753.00	6.35718
376644.00	3810739.00	5.25785	376719.00	3810744.00	4.70081

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PITOPS , FINES , STOCKPIL, ROCKPLT ,

*** NETWORK ID: CART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF NOX IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 373634.00	373884.00	374134.00	374384.00	374634.00
3813913.0	36.27923 (81112206)	38.18489 (81021208)	40.05441 (81030820)	41.81285 (81091601)	43.37331 (81122706)
3813663.0	38.79935 (81041405)	41.15829 (81050920)	43.53180 (81012508)	45.82177 (81101521)	47.90253 (81111407)
3813413.0	41.49314 (81090804)	44.41574 (81031221)	47.44815 (81042824)	50.46976 (81082524)	53.31446 (81082622)
3813163.0	44.30883 (81121324)	47.92241 (81020105)	51.79839 (81010701)	55.82709 (81022622)	59.78701 (81061701)
3812913.0	47.14749 (81031520)	51.58298 (81050601)	56.51796 (81082206)	61.88610 (81010806)	67.47536 (81082122)
3812663.0	49.90844 (81102007)	55.23724 (81042223)	61.42511 (81021821)	68.51257 (81060902)	76.39619 (81021406)
3812413.0	52.39593 (81022703)	58.65567 (81032008)	66.21169 (81033103)	75.33344 (81120924)	86.21392 (81091823)
3812163.0	54.40693 (81012603)	61.52621 (81040902)	70.42738 (81041201)	81.71486 (81112901)	96.11260 (81121205)
3811913.0	55.73197 (81021807)	63.51122 (81012408)	73.50822 (81111921)	86.72076 (81011704)	104.67754 (81041704)
3811663.0	56.22890 (81092403)	64.31235 (81011523)	74.88621 (81041122)	89.22514 (81082903)	109.57962 (81031701)
3811413.0	55.80946 (81012421)	63.78550 (81080723)	74.22774 (81080723)	88.41782 (81080723)	108.79077 (81010919)
3811163.0	54.53442 (81081506)	62.01878 (81010224)	71.68157 (81050805)	84.63489 (81061802)	102.70823 (81092201)
3810913.0	52.57005 (81071306)	59.28651 (81112703)	67.80421 (81050505)	78.86420 (81082523)	93.71589 (81082707)
3810663.0	50.09966 (81091707)	55.98627 (81100623)	63.20644 (81092622)	72.27482 (81072905)	83.97890 (81071421)
3810413.0	47.44781 (81041204)	52.43865 (81092502)	58.38198 (81071101)	65.67404 (81012223)	74.63696 (81032024)
3810163.0	44.67330 (81112923)	48.77722 (81102602)	53.74118 (81020208)	59.38953 (81071803)	66.22321 (81042803)
3809913.0	41.94202 (81032305)	45.42667 (81092503)	49.38237 (81122909)	53.86115 (81092504)	58.91172 (81062706)
3809663.0	39.31877 (81120419)	42.21465 (81082424)	45.40841 (81052403)	48.90630 (81043022)	52.70417 (81072703)
3809413.0	36.86977 (81072401)	39.26621 (81041501)	41.84718 (81032303)	44.60011 (81020102)	47.48651 (81062024)
3809163.0	34.59538 (81050705)	36.57972 (81020723)	38.68382 (81120121)	40.86799 (81080901)	43.09455 (81081705)

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PITOPS , FINES , STOCKPIL, ROCKPLT ,

** CONC OF NOX IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 374884.00	375134.00	375384.00	375634.00	375884.00
3813913.0	44.65006 (81092205)	45.57690 (81101922)	46.11955 (81122804)	46.26507 (81031507)	46.03934 (81101705)
3813663.0	49.64390 (81121019)	50.94299 (81082102)	51.73083 (81061002)	52.00283 (81101801)	51.76535 (81101705)
3813413.0	55.76940 (81030121)	57.64644 (81121001)	58.84165 (81032004)	59.33860 (81102207)	59.14861 (81070423)
3813163.0	63.36028 (81081503)	66.21230 (81120421)	68.11396 (81112003)	69.03465 (81071923)	69.01743 (81122606)
3812913.0	72.85724 (81051801)	77.41198 (81072322)	80.63216 (81101120)	82.43375 (81111208)	82.83418 (81060702)
3812663.0	84.65161 (81010703)	92.35023 (81082622)	98.23662 (81090904)	101.83905 (81032404)	103.34016 (81100103)
3812413.0	98.77494 (81011402)	112.22976 (81110719)	124.18242 (81121403)	131.88332 (81020521)	136.24269 (81092524)
3812163.0	114.41630 (81022422)	137.02888 (81030801)	163.22087 (81031521)	183.17186 (81092205)	195.04121 (81122809)
3811913.0	129.71642 (81121304)	164.98929 (81040422)	213.69853 (81010407)	288.63852 (81121501)	319.11462 (81100521)
3811663.0	140.19109 (81012703)	189.71133 (81092507)	276.44684 (81050202)	432.61618 (81122819)	668.29285 (81021321)
3811413.0	139.94638 (81091601)	192.52422 (81031823)	295.85593 (81032505)	562.45392 (81042024)	1869.86560 (81020108)
3811163.0	129.43410 (81062004)	172.49744 (81062102)	251.41785 (81102821)	422.10760 (81092503)	737.99213 (81062401)
3810913.0	114.69425 (81121620)	146.16942 (81102602)	196.30331 (81040402)	270.56607 (81090922)	339.64792 (81030221)
3810663.0	99.60941 (81052722)	120.98565 (81062605)	149.34454 (81082303)	181.39186 (81042324)	203.64490 (81043023)
3810413.0	85.85726 (81092423)	99.75342 (81071124)	115.73328 (81062022)	130.99368 (81101608)	140.31461 (81081521)
3810163.0	74.10481 (81082407)	83.12552 (81062024)	92.46410 (81070823)	100.52383 (81062023)	105.17608 (81052122)
3809913.0	64.51884 (81032820)	70.41642 (81091524)	75.92117 (81110818)	80.82551 (81110321)	83.47948 (81111618)
3809663.0	56.71415 (81071701)	60.73204 (81061703)	64.45214 (81101608)	67.37029 (81070106)	69.07381 (81100905)
3809413.0	50.41503 (81062205)	53.25713 (81052023)	55.77741 (81031822)	57.74715 (81091304)	58.95706 (81042120)
3809163.0	45.29395 (81070523)	47.36203 (81071921)	49.16920 (81070824)	50.58011 (81100322)	51.51251 (81051603)

1 *** ISCST3 - VERSION 99155 *** *** NOx, Phase 2,-Annual Average *** 11/13/99
*** TMC Soledad *** 16:24:53
**MODELOPTs: PAGE 15
CONC URBAN FLAT - NOCALM

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PITOPS , FINES , STOCKPIL, ROCKPLT ,

*** NETWORK ID: CART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF NOX IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 376134.00	376384.00	376634.00	376884.00	377134.00
3813913.0	45.45356 (81020320)	44.50702 (81011301)	43.28287 (81102005)	41.82039 (81030722)	40.15558 (81011804)
3813663.0	51.03807 (81033104)	49.82742 (81092820)	48.15772 (81022324)	46.24755 (81082602)	44.14502 (81042105)
3813413.0	58.24490 (81021602)	56.62510 (81111323)	54.39594 (81012819)	51.73788 (81011804)	48.79806 (81121503)
3813163.0	67.85658 (81102306)	65.64336 (81110418)	62.37175 (81043021)	58.56529 (81100820)	54.61631 (81052103)
3812913.0	81.47337 (81012705)	78.05644 (81121608)	73.12299 (81042905)	67.35732 (81121401)	61.61131 (81083021)
3812663.0	101.67250 (81110319)	96.06950 (81012819)	87.78023 (81060505)	78.65273 (81012102)	70.11514 (81082301)
3812413.0	134.02840 (81050924)	123.29089 (81012501)	108.25038 (81052002)	93.14399 (81091123)	80.28221 (81070101)
3812163.0	191.05925 (81082923)	166.56001 (81030524)	136.69763 (81120703)	110.72856 (81110303)	91.80270 (81111218)
3811913.0	306.81094 (81013004)	238.11874 (81110819)	174.57224 (81032402)	131.34862 (81022803)	104.36267 (81102904)
3811663.0	596.58459 (81080419)	346.63657 (81010207)	215.28358 (81081604)	151.22986 (81081722)	118.37941 (81092002)
3811413.0	1156.67175 (81102822)	427.22400 (81060924)	256.03625 (81092105)	183.29543 (81092105)	138.13333 (81060924)
3811163.0	653.07318 (81010507)	366.22678 (81080719)	324.92538 (81031008)	212.96913 (81112919)	151.19965 (81091606)
3810913.0	327.54361 (81102120)	253.74081 (81061921)	245.75063 (81042701)	184.14894 (81112208)	143.30133 (81102403)
3810663.0	200.67352 (81112319)	175.42586 (81081522)	159.54547 (81122219)	148.64954 (81071906)	125.81469 (81032201)
3810413.0	139.41583 (81080524)	129.20393 (81100904)	118.95743 (81063024)	114.58653 (81081202)	105.47056 (81091602)
3810163.0	104.96359 (81100902)	100.45638 (81102120)	95.14549 (81112622)	92.02673 (81061822)	87.73730 (81111219)
3809913.0	83.59741 (81080606)	81.60356 (81082921)	78.93639 (81072523)	76.83956 (81051720)	74.20884 (81020220)
3809663.0	69.35395 (81030819)	68.54215 (81020505)	67.22287 (81010506)	65.85363 (81071704)	64.14600 (81050422)
3809413.0	59.34877 (81030306)	59.06291 (81012518)	58.40578 (81011906)	57.53495 (81072820)	56.31794 (81011224)
3809163.0	51.92661 (81072719)	51.90568 (81103001)	51.55894 (81072823)	50.99878 (81052620)	50.10587 (81082321)

1 *** ISCST3 - VERSION 99155 *** *** NOx, Phase 2, Annual Average *** 11/13/99
*** TMC Soledad *** 16:24:53
**MODELOPTs: PAGE 16
CONC URBAN FLAT NOCALM

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PITOPS , FINES , STOCKPIL, ROCKPLT ,

*** NETWORK ID: CART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF NOX IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 377384.00	377634.00	377884.00	378134.00	378384.00
3813913.0	38.50772 (81021601)	36.78665 (81010908)	35.09930 (81072422)	33.42450 (81012020)	31.88286 (81072120)
3813663.0	41.95889 (81080419)	39.76987 (81012102)	37.71278 (81011623)	35.72830 (81072120)	33.82191 (81011107)
3813413.0	45.99848 (81072522)	43.23440 (81110401)	40.64488 (81052121)	38.23866 (81102519)	36.03563 (81040819)
3813163.0	50.63967 (81110819)	47.15670 (81052121)	43.92580 (81103007)	40.92281 (81110303)	38.37180 (81110219)
3812913.0	56.24734 (81052121)	51.62362 (81031901)	47.54947 (81122522)	43.86337 (81102003)	40.86693 (81081520)
3812663.0	62.78698 (81021407)	56.67738 (81032402)	51.59889 (81060806)	47.29420 (81020104)	43.44426 (81080219)
3812413.0	70.12255 (81040321)	62.15698 (81033124)	55.91387 (81102023)	50.65973 (81092224)	46.39019 (81102024)
3812163.0	78.27436 (81102023)	68.36430 (81092224)	60.72851 (81010620)	54.49998 (81022419)	49.21619 (81102907)
3811913.0	87.19620 (81012304)	74.83095 (81121824)	65.77779 (81103004)	58.29041 (81101906)	52.08499 (81031620)
3811663.0	97.55023 (81032823)	82.40067 (81011720)	70.87640 (81111019)	61.91801 (81102404)	54.74413 (81102421)
3811413.0	109.00169 (81111906)	89.27553 (81111906)	75.31225 (81060305)	64.99920 (81111418)	56.86305 (81111418)
3811163.0	115.88265 (81050519)	93.38744 (81122919)	77.84989 (81120720)	66.66012 (81061024)	58.09915 (81122519)
3810913.0	113.78560 (81072223)	92.90768 (81122319)	77.92229 (81021308)	66.79980 (81082419)	58.27114 (81091606)
3810663.0	105.11343 (81010317)	88.41219 (81061902)	75.40851 (81031008)	65.28954 (81031324)	57.30856 (81010704)
3810413.0	93.16407 (81062705)	81.24154 (81102523)	70.87036 (81010317)	62.19670 (81012706)	55.38996 (81112318)
3810163.0	80.93735 (81062104)	73.07573 (81122408)	65.47066 (81032201)	58.65602 (81042106)	52.74437 (81101619)
3809913.0	70.25124 (81010508)	65.15667 (81122705)	59.73351 (81022203)	54.49465 (81062521)	49.69904 (81091223)
3809663.0	61.55598 (81062224)	58.14707 (81010505)	54.26497 (81060922)	50.23377 (81011722)	46.49405 (81020219)
3809413.0	54.38003 (81051724)	52.11189 (81021203)	49.26162 (81010505)	46.33823 (81060724)	43.33001 (81032803)
3809163.0	48.78944 (81090123)	47.07478 (81100702)	44.99746 (81021307)	42.65625 (81080505)	40.33011 (81080504)

1 *** ISCST3 - VERSION 99155 *** *** NOx, Phase 2, Annual Average *** 11/13/99
*** TMC Soledad *** 16:24:53
**MODELOPTs: PAGE 17

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PITOPS , FINES , STOCKPIL, ROCKPLT ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF NOX IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
375707.00	3810561.00	163.29124	(81112308)	374756.00	3810927.00	103.65570	(81071201)
376707.00	3811134.00	276.51306	(81012401)	376710.00	3811038.00	243.80566	(81040303)
376712.00	3810939.00	227.67091	(81022002)	376717.00	3810843.00	205.63611	(81051820)
376700.00	3811250.00	302.88147	(81021504)	376697.00	3811346.00	266.50513	(81091905)
376693.00	3811450.00	223.68063	(81102822)	376690.00	3811546.00	209.74518	(81080320)
376685.00	3811645.00	200.50110	(81081603)	376683.00	3811744.00	188.26518	(81092224)
376678.00	3811840.00	175.94034	(81011905)	376676.00	3811936.00	162.55978	(81101118)
376671.00	3812035.00	149.36606	(81110122)	376666.00	3812134.00	136.82950	(81080503)
376663.00	3812230.00	125.43487	(81080805)	376659.00	3812329.00	114.90157	(81073120)
376654.00	3812426.00	105.77526	(81020206)	376561.00	3812442.00	109.73798	(81121503)
376464.00	3812452.00	114.10935	(81091907)	376367.00	3812464.00	117.45297	(81043021)
376270.00	3812474.00	120.35685	(81102401)	376248.00	3812399.00	132.21506	(81062220)
376253.00	3812303.00	148.88612	(81013004)	376258.00	3812206.00	169.62367	(81030722)
376260.00	3812110.00	195.60234	(81012501)	376217.00	3812057.00	219.16646	(81043021)
376122.00	3812069.00	225.34981	(81110418)	376025.00	3812081.00	226.51956	(81021602)
375928.00	3812093.00	221.75888	(81121821)	375828.00	3812105.00	212.39336	(81042903)
375728.00	3812117.00	201.77151	(81120905)	375631.00	3812129.00	192.90048	(81112104)
375532.00	3812141.00	182.75012	(81120901)	375461.00	3812124.00	179.84538	(81011420)
375464.00	3812028.00	203.91687	(81061906)	375464.00	3811924.00	230.71013	(81122204)
375466.00	3811828.00	258.91022	(81052123)	375469.00	3811732.00	294.47592	(81122303)
375374.00	3811746.00	252.26151	(81012204)	375277.00	3811756.00	218.73784	(81012619)
375180.00	3811770.00	191.15057	(81063001)	375077.00	3811785.00	167.62837	(81071404)
375077.00	3811688.00	174.63443	(81011704)	375075.00	3811589.00	178.44827	(81021323)
375075.00	3811493.00	179.17485	(81050406)	375075.00	3811394.00	176.37704	(81041001)
375073.00	3811298.00	170.39282	(81011520)	375070.00	3811202.00	162.46936	(81062004)
375070.00	3811105.00	154.16078	(81031607)	375068.00	3811009.00	145.10454	(81021624)
375145.00	3810970.00	154.20964	(81112923)	375240.00	3810956.00	170.62402	(81080824)
375340.00	3810941.00	190.97639	(81032024)	375437.00	3810927.00	213.67152	(81072702)
375534.00	3810912.00	237.92242	(81040306)	375631.00	3810898.00	262.65384	(81020608)
375728.00	3810881.00	282.25723	(81040404)	375826.00	3810867.00	295.92886	(81090624)
375923.00	3810852.00	297.92908	(81062202)	376020.00	3810835.00	287.53885	(81072424)
376119.00	3810821.00	270.39426	(81062703)	376217.00	3810806.00	247.66270	(81080119)
376299.00	3810794.00	227.37498	(81020121)	376353.00	3810785.00	213.80537	(81082222)
376450.00	3810768.00	193.28448	(81020220)	376547.00	3810753.00	184.07893	(81122219)
376644.00	3810739.00	179.92819	(81011724)	376719.00	3810744.00	178.32513	(81122705)

1 *** ISCST3 - VERSION 99155 *** *** NOx, Phase 2, Annual Average *** 11/13/99
*** TMC Soledad *** 16:24:53
**MODELOPTs: PAGE 18
CONC URBAN FLAT NOCALM

*** THE SUMMARY OF MAXIMUM ANNUAL (1 YRS) RESULTS ***

** CONC OF NOX IN MICROGRAMS/M**3 **

GROUP ID	AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS 223.49051 AT	(375884.00, 3811413.00, 0.00, 0.00)	GC	CART1
	2ND HIGHEST VALUE IS 67.98070 AT	(376134.00, 3811413.00, 0.00, 0.00)	GC	CART1
	3RD HIGHEST VALUE IS 57.50447 AT	(375884.00, 3811663.00, 0.00, 0.00)	GC	CART1
	4TH HIGHEST VALUE IS 40.59399 AT	(375634.00, 3811663.00, 0.00, 0.00)	GC	CART1
	5TH HIGHEST VALUE IS 33.57349 AT	(375884.00, 3811163.00, 0.00, 0.00)	GC	CART1
	6TH HIGHEST VALUE IS 32.65075 AT	(376134.00, 3811163.00, 0.00, 0.00)	GC	CART1
	7TH HIGHEST VALUE IS 32.57173 AT	(376384.00, 3811413.00, 0.00, 0.00)	GC	CART1
	8TH HIGHEST VALUE IS 26.42912 AT	(376384.00, 3811163.00, 0.00, 0.00)	GC	CART1
	9TH HIGHEST VALUE IS 25.32284 AT	(375634.00, 3811913.00, 0.00, 0.00)	GC	CART1
	10TH HIGHEST VALUE IS 25.09800 AT	(375634.00, 3811413.00, 0.00, 0.00)	GC	CART1

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

1 *** ISCST3 - VERSION 99155 *** *** NOx, Phase 2, Annual Average *** 11/13/99
*** TMC Soledad *** 16:24:53
**MODELOPTs: PAGE 19
CONC URBAN FLAT NOCALM

*** THE SUMMARY OF HIGHEST 1-HR RESULTS ***

** CONC OF NOX IN MICROGRAMS/M**3 **

GROUP ID	AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	HIGH 1ST HIGH VALUE IS 1869.86560	ON 81020108:	AT (375884.00, 3811413.00, 0.00, 0.00)	GC	CART1

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

1 *** ISCST3 - VERSION 99155 *** *** NOx, Phase 2, Annual Average *** 11/13/99
*** TMC Soledad *** 16:24:53
**MODELOPTs: PAGE 20
CONC URBAN FLAT NOCALM

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*** Message Summary : ISCST3 Model Execution ***

 --------- Summary of Total Messages --------

A Total of            0 Fatal Error Message(s)
A Total of            0 Warning Message(s)
A Total of         1085 Informational Message(s)

A Total of         1085 Calm Hours Identified


   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
              ***  NONE  ***


   ************************************
   *** ISCST3 Finishes Successfully ***
   ************************************
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              ISCST3X  PC (32 BIT) VERSION  3.3.0
             (C) COPYRIGHT 1991-1999, TRINITY CONSULTANTS

 Run Began on  5/05/2000 at 17:32:18

 ** BREEZE ISC SUITE v3.2.2 - G:\Clients\tr110 - TMC Sole\Air-28\Modeling\FEIS_Changes\new-pp2nc.dat
 ** Trinity Consultants, Dallas, TX

 CO STARTING
 CO TITLEONE  Proposed Project with Fines Conveyor and Mitigated Combustion PM-10
 CO TITLETWO  Phase 2 Annual and 24 Hour Average PM-10 Concentrations (NO CALM)
 CO MODELOPT  CONC  URBAN  NOCALM
 CO AVERTIME  24  ANNUAL
 CO POLLUTID  10-PM
 CO TERRHGTS  FLAT
 CO RUNORNOT  RUN
 CO FINISHED

 SO STARTING
 SO ELEVUNIT  METERS
 SO LOCATION  RCKPLNT  VOLUME  376359.2  3811119.0  0
 SO LOCATION  BTCHPLNT  VOLUME  376329.4  3810975.0  0
 SO LOCATION  FINES1  AREA  375691.0  3811794.0  0
 SO LOCATION  FINES2  AREA  375791.0  3811794.0  0
 SO LOCATION  FINES3  AREA  375691.0  3811694.0  0
 SO LOCATION  FINES4  AREA  375791.0  3811694.0  0
 SO LOCATION  STCKPILE  AREA  376343.8  3811301.3  0
 SO LOCATION  PITOPS  AREA  375974.0  3811400.0  0
 SO LOCATION  SRC3  AREALINE  376284.2  3811113.0  0
 SO LOCATION  SRC5  AREALINE  376267.7  3810992.4  0
 SO LOCATION  SRC6  AREALINE  376150.3  3811086.2  0
 SO LOCATION  SRC7  AREALINE  376066.7  3810858.5  0
 SO LOCATION  SRC8  AREALINE  375902.5  3810908.6  0
 SO LOCATION  SRC9  AREALINE  375892.5  3810975.7  0
 SO LOCATION  SRC11  AREALINE  375765.1  3810955.6  0
 SO LOCATION  SRC12  AREALINE  375778.5  3811116.3  0
 SO LOCATION  SRC14  AREALINE  375681.5  3811143.0  0
 SO LOCATION  SRC16  AREALINE  375497.2  3811354.0  0
 SO LOCATION  SRC18  AREALINE  375825.5  3811725.8  0
 SO LOCATION  SRC19  AREALINE  375664.7  3811786.0  0
 SO LOCATION  SRC20  AREALINE  375520.8  3811638.7  0
 SO SRCPARAM  RCKPLNT  5.970000E-01  3.5  50  7
 SO SRCPARAM  BTCHPLNT  3.250000E-02  3.5  50  7
 SO SRCPARAM  FINES1  1.040000E-06  0  100  100  0  0
 SO SRCPARAM  FINES2  1.040000E-06  0  100  100  0  0
 SO SRCPARAM  FINES3  1.040000E-06  0  100  100  0  0
 SO SRCPARAM  FINES4  1.040000E-06  0  100  100  0  0
 SO SRCPARAM  STCKPILE  1.870000E-05  0  100  100  0  0
 SO SRCPARAM  PITOPS  8.900000E-05  0  100  100  0  0
 SO SRCPARAM  SRC3  1.130000E-06  0  122  10  98  0
 SO SRCPARAM  SRC5  1.130000E-06  0  151.9  10  -140  0
 SO SRCPARAM  SRC6  1.130000E-06  0  243.8  10  110.9  0
 SO SRCPARAM  SRC7  1.130000E-06  0  169.5  10  -161.6  0
 SO SRCPARAM  SRC8  1.130000E-06  0  60.8  10  -96.4  0
 SO SRCPARAM  SRC9  1.130000E-06  0  121.8  10  172.1  0
 SO SRCPARAM  SRC11  1.130000E-06  0  151.5  10  -83.6  0
 SO SRCPARAM  SRC12  1.130000E-06  0  92  10  -164  0
 SO SRCPARAM  SRC14  1.130000E-06  0  274  10  -130.5  0
 SO SRCPARAM  SRC16  1.130000E-06  0  488.5  10  -47.8  0
 SO SRCPARAM  SRC18  1.130000E-06  0  166.8  10  -157.6  0
 SO SRCPARAM  SRC19  1.130000E-06  0  198.9  10  135.1  0
 SO SRCPARAM  SRC20  1.130000E-06  0  121.8  10  -172.1  0
 SO SRCGROUP  ALL
 SO FINISHED

 RE STARTING
 RE GRIDCART GRD1 STA
 RE GRIDCART GRD1 XYINC  373634  20  250  3809163  20  250
 RE GRIDCART GRD1 END
 RE DISCCART  375707.0  3810561.0
 ** RCPDESCR  Nearest Dwelling
 RE DISCCART  374756.0  3810927.0
 ** RCPDESCR  Trailer Park
 ** BOUNDARY
 RE DISCCART  376707.0  3811134.0
 RE DISCCART  376710.0  3811038.0
 RE DISCCART  376712.0  3810939.0
 RE DISCCART  376717.0  3810843.0
 RE DISCCART  376700.0  3811250.0
 RE DISCCART  376697.0  3811346.0
 RE DISCCART  376693.0  3811450.0
 RE DISCCART  376690.0  3811546.0
 RE DISCCART  376685.0  3811645.0
 RE DISCCART  376683.0  3811744.0
 RE DISCCART  376678.0  3811840.0
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 RE DISCCART  376671.0  3812035.0
 RE DISCCART  376666.0  3812134.0
 RE DISCCART  376663.0  3812230.0
 RE DISCCART  376659.0  3812329.0
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 RE DISCCART  376464.0  3812452.0
 RE DISCCART  376367.0  3812464.0
 RE DISCCART  376270.0  3812474.0
 RE DISCCART  376248.0  3812399.0
 RE DISCCART  376253.0  3812303.0
 RE DISCCART  376258.0  3812206.0
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RE DISCCART  376260.0  3812110.0
RE DISCCART  376217.0  3812057.0
RE DISCCART  376122.0  3812069.0
RE DISCCART  376025.0  3812081.0
RE DISCCART  375928.0  3812093.0
RE DISCCART  375828.0  3812105.0
RE DISCCART  375728.0  3812117.0
RE DISCCART  375631.0  3812129.0
RE DISCCART  375532.0  3812141.0
RE DISCCART  375461.0  3812124.0
RE DISCCART  375464.0  3812028.0
RE DISCCART  375464.0  3811924.0
RE DISCCART  375466.0  3811828.0
RE DISCCART  375469.0  3811732.0
RE DISCCART  375374.0  3811746.0
RE DISCCART  375277.0  3811756.0
RE DISCCART  375180.0  3811770.0
RE DISCCART  375077.0  3811785.0
RE DISCCART  375077.0  3811688.0
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RE DISCCART  375075.0  3811493.0
RE DISCCART  375075.0  3811394.0
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RE DISCCART  375070.0  3811202.0
RE DISCCART  375070.0  3811105.0
RE DISCCART  375068.0  3811009.0
RE DISCCART  375145.0  3810970.0
RE DISCCART  375240.0  3810956.0
RE DISCCART  375340.0  3810941.0
RE DISCCART  375437.0  3810927.0
RE DISCCART  375534.0  3810912.0
RE DISCCART  375631.0  3810898.0
RE DISCCART  375728.0  3810881.0
RE DISCCART  375826.0  3810867.0
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RE DISCCART  376020.0  3810835.0
RE DISCCART  376119.0  3810821.0
RE DISCCART  376217.0  3810806.0
RE DISCCART  376299.0  3810794.0
RE DISCCART  376353.0  3810785.0
RE DISCCART  376450.0  3810768.0
RE DISCCART  376547.0  3810753.0
RE DISCCART  376644.0  3810739.0
RE DISCCART  376719.0  3810744.0
RE FINISHED

ME STARTING
ME INPUTFIL  C:\TRINITY\ISC32\NEWHALL.ASC
ME ANEMHGHT  10  METERS
ME SURFDATA  51115  1981
ME UAIRDATA  99999  1981
ME STARTEND  1981  01  01  1  1981  12  31  24
ME FINISHED

OU STARTING
OU RECTABLE  24  FIRST  FOURTH
OU MAXTABLE  24  50
OU FINISHED

** PROJECTN  0 104 7 -177 0 0.9996 500000 0
** OUTFILE  G:\Clients\tr110 - TMC Sole\Air-28\Modeling\FEIS_Changes\new-pp2nc.LST
** RAWFILE  G:\Clients\tr110 - TMC Sole\Air-28\Modeling\FEIS_Changes\new-pp2nc.RAW
** RAWFMT  2

** POLLUTNT IDN  01  10-PM  X
** POLLUTNT NAM  01
** POLLUTNT EMS  RCKPLNT 5.970000E-01
** POLLUTNT EMS  BTCHPLNT 3.250000E-02
** POLLUTNT EMS  FINES1 1.040000E-06
** POLLUTNT EMS  FINES2 1.040000E-06
** POLLUTNT EMS  FINES3 1.040000E-06
** POLLUTNT EMS  FINES4 1.040000E-06
** POLLUTNT EMS  STCKPILE 1.870000E-05
** POLLUTNT EMS  PITOPS 8.900000E-05
** POLLUTNT EMS  SRC3 1.130000E-06
** POLLUTNT EMS  SRC5 1.130000E-06
** POLLUTNT EMS  SRC6 1.130000E-06
** POLLUTNT EMS  SRC7 1.130000E-06
** POLLUTNT EMS  SRC8 1.130000E-06
** POLLUTNT EMS  SRC9 1.130000E-06
** POLLUTNT EMS  SRC11 1.130000E-06
** POLLUTNT EMS  SRC12 1.130000E-06
** POLLUTNT EMS  SRC14 1.130000E-06
** POLLUTNT EMS  SRC16 1.130000E-06
** POLLUTNT EMS  SRC18 1.130000E-06
** POLLUTNT EMS  SRC19 1.130000E-06
** POLLUTNT EMS  SRC20 1.130000E-06


 ***********************************
 *** SETUP Finishes Successfully ***
 ***********************************
```



```
**MODELOPTs:
CONC                    URBAN  FLAT                          NOCALM

                              ***     MODEL SETUP OPTIONS SUMMARY       ***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
```

```
**Intermediate Terrain Processing is Selected

**Model Is Setup For Calculation of Average CONCentration Values.

  -- SCAVENGING/DEPOSITION LOGIC --
**Model Uses NO DRY DEPLETION.  DDPLETE =  F
**Model Uses NO WET DEPLETION.  WDPLETE =  F
**NO WET SCAVENGING Data Provided.
**NO GAS DRY DEPOSITION Data Provided.
**Model Does NOT Use GRIDDED TERRAIN Data for Depletion Calculations

**Model Uses URBAN Dispersion.

**Model Uses User-Specified Options:
          1. Final Plume Rise.
          2. Stack-tip Downwash.
          3. Buoyancy-induced Dispersion.
          4. Not Use Calms Processing Routine.
          5. Not Use Missing Data Processing Routine.
          6. Default Wind Profile Exponents.
          7. Default Vertical Potential Temperature Gradients.

**Model Assumes Receptors on FLAT Terrain.

**Model Assumes No FLAGPOLE Receptor Heights.

**Model Calculates  1 Short Term Average(s) of:  24-HR
    and Calculates ANNUAL Averages

**This Run Includes:    21 Source(s);      1 Source Group(s); and     470 Receptor(s)

**The Model Assumes A Pollutant Type of:  10-PM

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
         Model Outputs Tables of ANNUAL Averages by Receptor
         Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)
         Model Outputs Tables of Overall Maximum Short Term Values (MAXTABLE Keyword)

**Misc. Inputs:  Anem. Hgt. (m) =    10.00 ;    Decay Coef. =       0.0000 ;    Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                                  ;  Emission Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

**Approximate Storage Requirements of Model =     1.3 MB of RAM.

**Input Runstream File:          G:\CLIENTS\TR110-~1\AIR-28\MODELING\FEIS_C~1\NEW-PP2NC.DAT
**Output Print File:             G:\CLIENTS\TR110-~1\AIR-28\MODELING\FEIS_C-1\NEW-PP2NC.LST
1 *** ISCST3 - VERSION 99155 ***    ***  Proposed Project with Fines Conveyor and Mitigated Combustion PM-10 ***        05/05/00
                                    ***  Phase 2 Annual and 24 Hour Average PM-10 Concentrations (NO CALM)   ***        17:32:18
**MODELOPTs:                                                                                                            PAGE   2
CONC                        URBAN  FLAT                                    NOCALM


                                          *** VOLUME SOURCE DATA ***

            NUMBER EMISSION RATE                      BASE    RELEASE    INIT.    INIT.   EMISSION RATE
   SOURCE    PART.  (GRAMS/SEC)     X         Y      ELEV.   HEIGHT      SY       SZ      SCALAR VARY
    ID       CATS.                (METERS)  (METERS) (METERS) (METERS) (METERS) (METERS)       BY
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

  RCKPLNT      0   0.59700E+00  376359.2 3811119.0     0.0     3.50    50.00     7.00
  BTCHPLNT     0   0.32500E-01  376329.4 3810975.0     0.0     3.50    50.00     7.00
1 *** ISCST3 - VERSION 99155 ***    ***  Proposed Project with Fines Conveyor and Mitigated Combustion PM-10 ***        05/05/00
                                    ***  Phase 2 Annual and 24 Hour Average PM-10 Concentrations (NO CALM)   ***        17:32:18
**MODELOPTs:                                                                                                            PAGE   3
CONC                        URBAN  FLAT                                    NOCALM


                                          *** AREA SOURCE DATA ***

            NUMBER EMISSION RATE  COORD (SW CORNER)  BASE     RELEASE  X-DIM     Y-DIM    ORIENT.    INIT.  EMISSION RATE
   SOURCE    PART.  (GRAMS/SEC      X         Y      ELEV.   HEIGHT  OF AREA   OF AREA   OF AREA     SZ     SCALAR VARY
    ID       CATS.  /METER**2)   (METERS)  (METERS) (METERS) (METERS) (METERS)  (METERS)   (DEG.)  (METERS)      BY
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

  FINES1       0   0.10400E-05  375691.0 3811794.0     0.0     0.00   100.00   100.00      0.00     0.00
  FINES2       0   0.10400E-05  375791.0 3811794.0     0.0     0.00   100.00   100.00      0.00     0.00
  FINES3       0   0.10400E-05  375691.0 3811694.0     0.0     0.00   100.00   100.00      0.00     0.00
  FINES4       0   0.10400E-05  375791.0 3811694.0     0.0     0.00   100.00   100.00      0.00     0.00
  STCKPILE     0   0.18700E-04  376343.8 3811301.2     0.0     0.00   100.00   100.00      0.00     0.00
  PITOPS       0   0.89000E-04  375974.0 3811400.0     0.0     0.00   100.00   100.00      0.00     0.00
1 *** ISCST3 - VERSION 99155 ***    ***  Proposed Project with Fines Conveyor and Mitigated Combustion PM-10 ***        05/05/00
                                    ***  Phase 2 Annual and 24 Hour Average PM-10 Concentrations (NO CALM)   ***        17:32:18
**MODELOPTs:                                                                                                            PAGE   4
CONC                        URBAN  FLAT                                    NOCALM


                                          *** AREALINE SOURCE DATA ***

            NUMBER EMISSION RATE  COORD (SW CORNER)  BASE     RELEASE  X-DIM     Y-DIM    ORIENT.    INIT.  EMISSION RATE
   SOURCE    PART.  (GRAMS/SEC      X         Y      ELEV.   HEIGHT  OF AREA   OF AREA   OF AREA     SZ     SCALAR VARY
    ID       CATS.  /METER**2)   (METERS)  (METERS) (METERS) (METERS) (METERS)  (METERS)   (DEG.)  (METERS)      BY
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

  SRC3         0   0.11300E-05  376284.2 3811113.0     0.0     0.00   122.00    10.00     98.00     0.00
```

SRC5	0	0.11300E-05	376267.7	3810992.5	0.0	0.00	151.90	10.00	-140.00	0.00
SRC6	0	0.11300E-05	376150.3	3811086.2	0.0	0.00	243.80	10.00	110.90	0.00
SRC7	0	0.11300E-05	376066.7	3810858.5	0.0	0.00	169.50	10.00	-161.60	0.00
SRC8	0	0.11300E-05	375902.5	3810908.5	0.0	0.00	60.80	10.00	-96.40	0.00
SRC9	0	0.11300E-05	375892.5	3810975.7	0.0	0.00	121.80	10.00	172.10	0.00
SRC11	0	0.11300E-05	375765.1	3810955.5	0.0	0.00	151.50	10.00	-83.60	0.00
SRC12	0	0.11300E-05	375778.5	3811116.2	0.0	0.00	92.00	10.00	-164.00	0.00
SRC14	0	0.11300E-05	375681.5	3811143.0	0.0	0.00	274.00	10.00	-130.50	0.00
SRC16	0	0.11300E-05	375497.2	3811354.0	0.0	0.00	488.50	10.00	-47.80	0.00
SRC18	0	0.11300E-05	375825.5	3811725.7	0.0	0.00	166.80	10.00	-157.60	0.00
SRC19	0	0.11300E-05	375664.7	3811786.0	0.0	0.00	198.90	10.00	135.10	0.00
SRC20	0	0.11300E-05	375520.8	3811638.7	0.0	0.00	121.80	10.00	-172.10	0.00

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID SOURCE IDs

ALL RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE, PITOPS , SRC3 , SRC5 , SRC6 , SRC7 ,
SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 , SRC19 , SRC20 ,

*** GRIDDED RECEPTOR NETWORK SUMMARY ***

*** NETWORK ID: GRD1 ; NETWORK TYPE: GRIDCART ***

*** X-COORDINATES OF GRID ***
(METERS)

373634.0, 373884.0, 374134.0, 374384.0, 374634.0, 374884.0, 375134.0, 375384.0, 375634.0, 375884.0,
376134.0, 376384.0, 376634.0, 376884.0, 377134.0, 377384.0, 377634.0, 377884.0, 378134.0, 378384.0,

*** Y-COORDINATES OF GRID ***
(METERS)

3809163.0, 3809413.0, 3809663.0, 3809913.0, 3810163.0, 3810413.0, 3810663.0, 3810913.0, 3811163.0, 3811413.0,
3811663.0, 3811913.0, 3812163.0, 3812413.0, 3812663.0, 3812913.0, 3813163.0, 3813413.0, 3813663.0, 3813913.0,

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZFLAG)
(METERS)

(375707.0,	3810561.0,	0.0,	0.0);	(374756.0,	3810927.0,	0.0,	0.0);
(376707.0,	3811134.0,	0.0,	0.0);	(376710.0,	3811038.0,	0.0,	0.0);
(376712.0,	3810939.0,	0.0,	0.0);	(376717.0,	3810843.0,	0.0,	0.0);
(376700.0,	3811250.0,	0.0,	0.0);	(376697.0,	3811346.0,	0.0,	0.0);
(376693.0,	3811450.0,	0.0,	0.0);	(376690.0,	3811546.0,	0.0,	0.0);
(376685.0,	3811645.0,	0.0,	0.0);	(376683.0,	3811744.0,	0.0,	0.0);
(376678.0,	3811840.0,	0.0,	0.0);	(376676.0,	3811936.0,	0.0,	0.0);
(376671.0,	3812035.0,	0.0,	0.0);	(376666.0,	3812134.0,	0.0,	0.0);
(376663.0,	3812230.0,	0.0,	0.0);	(376659.0,	3812329.0,	0.0,	0.0);
(376654.0,	3812426.0,	0.0,	0.0);	(376561.0,	3812442.0,	0.0,	0.0);
(376464.0,	3812452.0,	0.0,	0.0);	(376367.0,	3812464.0,	0.0,	0.0);
(376270.0,	3812474.0,	0.0,	0.0);	(376248.0,	3812399.0,	0.0,	0.0);
(376253.0,	3812303.0,	0.0,	0.0);	(376258.0,	3812206.0,	0.0,	0.0);
(376260.0,	3812110.0,	0.0,	0.0);	(376217.0,	3812057.0,	0.0,	0.0);
(376122.0,	3812069.0,	0.0,	0.0);	(376025.0,	3812081.0,	0.0,	0.0);
(375928.0,	3812093.0,	0.0,	0.0);	(375828.0,	3812105.0,	0.0,	0.0);
(375728.0,	3812117.0,	0.0,	0.0);	(375631.0,	3812129.0,	0.0,	0.0);
(375532.0,	3812141.0,	0.0,	0.0);	(375461.0,	3812124.0,	0.0,	0.0);
(375464.0,	3812028.0,	0.0,	0.0);	(375464.0,	3811924.0,	0.0,	0.0);
(375466.0,	3811828.0,	0.0,	0.0);	(375469.0,	3811732.0,	0.0,	0.0);
(375374.0,	3811746.0,	0.0,	0.0);	(375277.0,	3811756.0,	0.0,	0.0);
(375180.0,	3811770.0,	0.0,	0.0);	(375077.0,	3811785.0,	0.0,	0.0);
(375077.0,	3811688.0,	0.0,	0.0);	(375075.0,	3811589.0,	0.0,	0.0);
(375075.0,	3811493.0,	0.0,	0.0);	(375075.0,	3811394.0,	0.0,	0.0);
(375073.0,	3811298.0,	0.0,	0.0);	(375070.0,	3811202.0,	0.0,	0.0);
(375070.0,	3811105.0,	0.0,	0.0);	(375068.0,	3811009.0,	0.0,	0.0);
(375145.0,	3810970.0,	0.0,	0.0);	(375240.0,	3810956.0,	0.0,	0.0);
(375340.0,	3810941.0,	0.0,	0.0);	(375437.0,	3810927.0,	0.0,	0.0);
(375534.0,	3810912.0,	0.0,	0.0);	(375631.0,	3810898.0,	0.0,	0.0);
(375728.0,	3810881.0,	0.0,	0.0);	(375826.0,	3810867.0,	0.0,	0.0);
(375923.0,	3810852.0,	0.0,	0.0);	(376020.0,	3810835.0,	0.0,	0.0);
(376119.0,	3810821.0,	0.0,	0.0);	(376217.0,	3810806.0,	0.0,	0.0);
(376299.0,	3810794.0,	0.0,	0.0);	(376353.0,	3810785.0,	0.0,	0.0);
(376450.0,	3810768.0,	0.0,	0.0);	(376547.0,	3810753.0,	0.0,	0.0);
(376644.0,	3810739.0,	0.0,	0.0);	(376719.0,	3810744.0,	0.0,	0.0);

* SOURCE-RECEPTOR COMBINATIONS FOR WHICH CALCULATIONS MAY NOT BE PERFORMED *
LESS THAN 1.0 METER OR 3*ZLB IN DISTANCE, OR WITHIN OPEN PIT SOURCE

SOURCE ID	- - RECEPTOR LOCATION - - XR (METERS)	YR (METERS)	DISTANCE (METERS)
RCKPLNT	376384.0	3811163.0	-56.99
BTCHPLNT	376384.0	3810913.0	-24.89

*** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
(1=YES; 0=NO)

```
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1
```

METEOROLOGICAL DATA PROCESSED BETWEEN START DATE: 1981 1 1 1
AND END DATE: 1981 12 31 24

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** WIND PROFILE EXPONENTS ***

STABILITY CATEGORY	WIND SPEED CATEGORY 1	2	3	4	5	6
A	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00
B	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00
C	.20000E+00	.20000E+00	.20000E+00	.20000E+00	.20000E+00	.20000E+00
D	.25000E+00	.25000E+00	.25000E+00	.25000E+00	.25000E+00	.25000E+00
E	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00
F	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00

*** VERTICAL POTENTIAL TEMPERATURE GRADIENTS ***
(DEGREES KELVIN PER METER)

STABILITY CATEGORY	WIND SPEED CATEGORY 1	2	3	4	5	6
A	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
B	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
C	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
D	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
E	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01
F	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01

*** THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

FILE: C:\TRINITY\ISC32\NEWHALL.ASC
FORMAT: (4I2,2F9.4,F6.1,I2,2F7.1,f9.4,f10.1,f8.4,i4,f7.2)
SURFACE STATION NO.: 51115 UPPER AIR STATION NO.: 99999
NAME: UNKNOWN NAME: UNKNOWN
YEAR: 1981 YEAR: 1981

YR	MN	DY	HR	FLOW VECTOR	SPEED (M/S)	TEMP (K)	STAB CLASS	MIXING HEIGHT (M) RURAL	URBAN	USTAR (M/S)	M-O LENGTH (M)	Z-0 (M)	IPCODE	PRATE (mm/HR)
81	01	01	01	314.8	1.00	285.9	7	522.6	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	02	304.9	0.00	284.8	7	507.0	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	03	310.0	0.00	284.8	7	491.4	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	04	346.0	1.00	284.8	7	475.8	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	05	309.0	1.00	285.4	7	460.3	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	06	342.0	1.00	284.3	7	444.7	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	07	342.0	0.00	284.3	7	429.1	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	08	337.1	0.00	284.3	6	43.0	190.2	0.0000	0.0	0.0000	0	0.00
81	01	01	09	6.5	1.00	287.6	5	89.2	211.8	0.0000	0.0	0.0000	0	0.00
81	01	01	10	9.1	0.00	291.5	4	135.3	233.4	0.0000	0.0	0.0000	0	0.00
81	01	01	11	291.6	1.00	297.0	3	181.5	255.1	0.0000	0.0	0.0000	0	0.00
81	01	01	12	80.6	1.00	298.7	2	227.7	276.7	0.0000	0.0	0.0000	0	0.00
81	01	01	13	87.2	0.00	299.3	2	273.8	298.4	0.0000	0.0	0.0000	0	0.00
81	01	01	14	326.7	2.24	299.3	3	320.0	320.0	0.0000	0.0	0.0000	0	0.00
81	01	01	15	337.3	2.24	298.7	3	320.0	320.0	0.0000	0.0	0.0000	0	0.00

81 01 01 16	345.7	2.24	297.6	4	320.0	320.0	0.0000	0.0	0.0000	0	0.00
81 01 01 17	20.1	1.34	294.8	5	325.5	318.6	0.0000	0.0	0.0000	0	0.00
81 01 01 18	97.6	1.00	293.1	6	357.1	310.3	0.0000	0.0	0.0000	0	0.00
81 01 01 19	178.0	1.00	290.9	7	388.7	302.1	0.0000	0.0	0.0000	0	0.00
81 01 01 20	303.2	1.00	289.8	7	420.3	293.9	0.0000	0.0	0.0000	0	0.00
81 01 01 21	358.6	1.00	289.3	7	451.9	285.7	0.0000	0.0	0.0000	0	0.00
81 01 01 22	272.0	1.00	287.6	7	483.5	277.4	0.0000	0.0	0.0000	0	0.00
81 01 01 23	0.7	1.00	287.6	7	515.1	269.2	0.0000	0.0	0.0000	0	0.00
81 01 01 24	337.2	1.00	287.6	7	546.7	261.0	0.0000	0.0	0.0000	0	0.00

*** NOTES: STABILITY CLASS 1=A, 2=B, 3=C, 4=D, 5=E AND 6=F.
FLOW VECTOR IS DIRECTION TOWARD WHICH WIND IS BLOWING.

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE ANNUAL (1 YRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,
PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

*** NETWORK ID: GRD1 ; NETWORK TYPE: GRIDCART ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 373634.00	373884.00	374134.00	374384.00	374634.00	374884.00	375134.00	375384.00	375634.00
3813913.00	1.01253	1.07044	1.06983	0.97081	0.81443	0.71435	0.69928	0.71087	0.66895
3813663.00	1.07072	1.18768	1.25868	1.23609	1.07898	0.89979	0.82845	0.83815	0.80149
3813413.00	1.07084	1.26174	1.42111	1.50815	1.44094	1.20776	1.03141	1.00747	0.98003
3813163.00	0.96867	1.24465	1.51734	1.74429	1.84948	1.69453	1.38237	1.25583	1.23081
3812913.00	0.77573	1.07682	1.46373	1.87213	2.21501	2.33453	2.01635	1.67381	1.60504
3812663.00	0.62428	0.83356	1.19573	1.74158	2.38868	2.95085	3.05508	2.47846	2.22131
3812413.00	0.57917	0.70424	0.92066	1.33438	2.09501	3.18945	4.22712	4.18239	3.38688
3812163.00	0.59871	0.69884	0.84357	1.08059	1.53805	2.55428	4.54522	6.86073	6.24088
3811913.00	0.62485	0.73509	0.88046	1.08309	1.39499	1.95607	3.26643	7.22399	15.47991
3811663.00	0.61019	0.72508	0.87971	1.09688	1.42033	1.94685	2.92517	5.81656	13.58119
3811413.00	0.58319	0.69041	0.83438	1.03538	1.33121	1.80047	2.64307	4.60734	9.48491
3811163.00	0.53742	0.62160	0.72746	0.86233	1.03902	1.28832	1.69332	2.52241	6.66725
3810913.00	0.42333	0.46861	0.52734	0.61087	0.73424	0.91592	1.25365	1.99653	3.33570
3810663.00	0.31670	0.35308	0.39950	0.45848	0.55200	0.73763	1.03113	1.48149	2.05758
3810413.00	0.24966	0.27674	0.31751	0.39117	0.51168	0.67034	0.89836	1.21315	1.59941
3810163.00	0.21308	0.25010	0.30899	0.38883	0.48792	0.62620	0.81254	0.97591	1.28075
3809913.00	0.20960	0.25451	0.31034	0.37916	0.47091	0.58666	0.69217	0.80204	1.01847
3809663.00	0.21517	0.25702	0.30762	0.37111	0.44700	0.52209	0.57901	0.67362	0.82262
3809413.00	0.21881	0.25689	0.30206	0.35427	0.40878	0.45188	0.49338	0.56824	0.68809
3809163.00	0.21891	0.25183	0.28923	0.32959	0.36570	0.39049	0.42592	0.48594	0.59391

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE ANNUAL (1 YRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,
PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

*** NETWORK ID: GRD1 ; NETWORK TYPE: GRIDCART ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 375884.00	376134.00	376384.00	376634.00	376884.00	377134.00	377384.00	377634.00	377884.00
3813913.00	0.62846	0.61478	0.55635	0.42898	0.30413	0.22329	0.18423	0.16811	0.15594
3813663.00	0.74986	0.72399	0.63296	0.47036	0.33071	0.24378	0.20610	0.18871	0.17246
3813413.00	0.91356	0.86999	0.72668	0.52281	0.36501	0.27051	0.23487	0.21231	0.19251
3813163.00	1.14178	1.07242	0.84326	0.59478	0.40779	0.30852	0.27040	0.24085	0.21820
3812913.00	1.47577	1.36650	0.99316	0.69880	0.46296	0.36243	0.31382	0.27856	0.24882
3812663.00	2.00366	1.81941	1.20338	0.84652	0.54408	0.43356	0.37318	0.32409	0.27786
3812413.00	2.96023	2.56719	1.55476	1.05095	0.66608	0.53715	0.44536	0.36297	0.29902
3812163.00	5.14289	3.90249	2.25079	1.34349	0.87303	0.66211	0.50482	0.40165	0.32827
3811913.00	12.73300	6.61229	3.79103	1.86648	1.11748	0.79386	0.61034	0.48797	0.40262
3811663.00	44.66250	15.94379	7.96911	2.76725	1.69644	1.14330	0.82232	0.62771	0.50468
3811413.00	41.12022	70.31365	115.14940	5.74158	2.61413	1.54897	1.06701	0.79744	0.62524
3811163.00	11.82790	24.05368	10.95703	7.66599	3.08311	1.83643	1.25588	0.92191	0.70985
3810913.00	7.61724	9.55847	15.09956	6.05738	2.79158	1.62377	1.10949	0.83287	0.66397
3810663.00	3.58710	4.78435	5.54658	3.41940	2.24212	1.41399	0.94961	0.70643	0.56425
3810413.00	2.43971	2.93582	3.06684	2.09308	1.63043	1.25166	0.90707	0.65991	0.50747
3810163.00	1.71432	2.05661	2.04754	1.47855	1.16005	1.01002	0.82486	0.64883	0.50232
3809913.00	1.29369	1.54409	1.50364	1.14380	0.87234	0.78611	0.70411	0.59654	0.49479
3809663.00	1.03473	1.21125	1.17001	0.92767	0.70473	0.61622	0.58308	0.52686	0.45795
3809413.00	0.85763	0.98109	0.94622	0.77425	0.59893	0.50357	0.47589	0.45530	0.41360
3809163.00	0.72724	0.81455	0.78653	0.66020	0.52324	0.43067	0.39444	0.38528	0.36815

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE ANNUAL (1 YRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,
PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

*** NETWORK ID: GRD1 ; NETWORK TYPE: GRIDCART ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 378134.00	378384.00
3813913.00	0.14383	0.13363
3813663.00	0.15856	0.14720
3813413.00	0.17691	0.16315
3813163.00	0.19856	0.18064
3812913.00	0.22100	0.19437
3812663.00	0.23677	0.20249
3812413.00	0.25023	0.21169
3812163.00	0.27517	0.23826
3811913.00	0.34276	0.29917
3811663.00	0.42069	0.35918
3811413.00	0.50643	0.42039
3811163.00	0.56650	0.46493
3810913.00	0.54912	0.46437
3810663.00	0.46999	0.40363
3810413.00	0.41499	0.35284
3810163.00	0.39724	0.32909
3809913.00	0.40205	0.32656
3809663.00	0.39386	0.33233
3809413.00	0.36644	0.32346
3809163.00	0.33617	0.30230

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE ANNUAL (1 YRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,
PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
375707.00	3810561.00	2.09056	374756.00	3810927.00	0.82721
376707.00	3811134.00	5.62145	376710.00	3811038.00	5.50812
376712.00	3810939.00	4.80765	376717.00	3810843.00	4.09236
376700.00	3811250.00	5.29280	376697.00	3811346.00	5.21467
376693.00	3811450.00	4.11778	376690.00	3811546.00	3.33362
376685.00	3811645.00	2.58710	376683.00	3811744.00	2.03179
376678.00	3811840.00	1.81440	376676.00	3811936.00	1.62909
376671.00	3812035.00	1.43658	376666.00	3812134.00	1.28007
376663.00	3812230.00	1.16398	376659.00	3812329.00	1.07039
376654.00	3812426.00	0.99296	376561.00	3812442.00	1.18948
376464.00	3812452.00	1.35781	376367.00	3812464.00	1.49662
376270.00	3812474.00	1.77075	376248.00	3812399.00	2.02694
376253.00	3812303.00	2.24706	376258.00	3812206.00	2.52843
376260.00	3812110.00	2.92825	376217.00	3812057.00	3.59354
376122.00	3812069.00	4.85737	376025.00	3812081.00	5.59878
375928.00	3812093.00	5.88686	375828.00	3812105.00	6.43432
375728.00	3812117.00	6.59973	375631.00	3812129.00	7.00241
375532.00	3812141.00	7.44180	375461.00	3812124.00	7.76326
375464.00	3812028.00	9.04638	375464.00	3811924.00	9.52457
375466.00	3811828.00	8.70492	375469.00	3811732.00	7.30044
375374.00	3811746.00	5.32884	375277.00	3811756.00	4.03053
375180.00	3811770.00	3.22530	375077.00	3811785.00	2.64445
375077.00	3811688.00	2.64335	375075.00	3811589.00	2.57371
375075.00	3811493.00	2.46811	375075.00	3811394.00	2.36096
375073.00	3811298.00	2.08049	375070.00	3811202.00	1.68863
375070.00	3811105.00	1.43112	375068.00	3811009.00	1.26455
375145.00	3810970.00	1.34294	375240.00	3810956.00	1.55889
375340.00	3810941.00	1.88208	375437.00	3810927.00	2.26423
375534.00	3810912.00	2.70453	375631.00	3810898.00	3.20016
375728.00	3810881.00	3.60294	375826.00	3810867.00	4.33455
375923.00	3810852.00	5.88220	376020.00	3810835.00	7.24904
376119.00	3810821.00	7.20043	376217.00	3810806.00	7.64601
376299.00	3810794.00	8.66741	376353.00	3810785.00	8.74144
376450.00	3810768.00	7.06438	376547.00	3810753.00	5.17305
376644.00	3810739.00	3.98911	376719.00	3810744.00	3.44562

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE 1ST HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,
PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

*** NETWORK ID: GRD1 ; NETWORK TYPE: GRIDCART ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 373634.00	373884.00	374134.00	374384.00	374634.00
3813913.0	4.32499 (81121824)	4.70200 (81120624)	4.83112 (81120624)	4.03679 (81050924)	4.01578 (81110824)
3813663.0	4.73756 (81112024)	5.03727 (81121824)	5.54234 (81120624)	5.36485 (81120624)	4.25518 (81050924)
3813413.0	4.70179 (81112224)	5.50293 (81112224)	5.97153 (81121824)	6.62469 (81120624)	5.91716 (81050924)

3813163.0	4.54933 (81011824)	5.43164 (81112224)	6.59242 (81112224)	7.24128 (81121824)	8.03884 (81120624)
3812913.0	3.28278 (81011824)	4.99777 (81011824)	6.32779 (81112224)	8.09526 (81112224)	9.05098 (81121824)
3812663.0	3.32089 (81120324)	3.60239 (81120324)	5.27508 (81011824)	7.57079 (81011824)	10.26628 (81112224)
3812413.0	3.72386 (81122624)	4.21571 (81122624)	4.64211 (81120324)	5.40523 (81011824)	9.13027 (81011824)
3812163.0	4.02499 (81120324)	4.61679 (81120324)	5.23730 (81120324)	6.05715 (81120324)	7.20812 (81120324)
3811913.0	3.14935 (81121424)	3.88173 (81120324)	5.12137 (81120324)	6.69642 (81120324)	8.52555 (81120324)
3811663.0	3.09656 (81030324)	3.62960 (81030324)	4.31596 (81030324)	5.21846 (81030324)	6.54053 (81122624)
3811413.0	3.49993 (81080424)	3.98086 (81080424)	4.60813 (81080424)	5.45579 (81080424)	6.67474 (81080424)
3811163.0	2.72732 (81080424)	2.89347 (81080424)	3.37137 (81040124)	3.98186 (81040124)	4.76968 (81040124)
3810913.0	2.36724 (81081524)	2.45148 (81081524)	2.85688 (81040124)	3.46196 (81040124)	4.24169 (81040124)
3810663.0	2.02108 (81041624)	2.32757 (81041624)	2.59550 (81041624)	2.86082 (81091724)	3.74113 (81091724)
3810413.0	1.92992 (81041624)	1.99753 (81091724)	2.43079 (81091724)	2.61207 (81091724)	3.25094 (81082424)
3810163.0	1.67994 (81091724)	1.84948 (81091724)	1.93487 (81082424)	2.72238 (81082424)	2.98015 (81082424)
3809913.0	1.43026 (81091724)	1.85668 (81082424)	2.34819 (81082424)	2.53951 (81082424)	2.80858 (81073124)
3809663.0	1.74783 (81082424)	2.06380 (81082424)	2.18894 (81082424)	2.31742 (81073124)	2.54407 (81073124)
3809413.0	1.82849 (81082424)	1.88956 (81082424)	1.93933 (81073124)	2.04319 (81073124)	2.47796 (81062324)
3809163.0	1.63292 (81082424)	1.70917 (81043024)	1.68276 (81073124)	2.02898 (81062324)	2.25882 (81062324)

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE 1ST HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,
PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

*** NETWORK ID: GRD1 ; NETWORK TYPE: GRIDCART ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 374884.00	375134.00	375384.00	375634.00	375884.00
3813913.0	3.83089 (81022324)	3.95897 (81022324)	6.09550 (81102324)	5.17210 (81102324)	2.84064 (81111124)
3813663.0	4.76687 (81110824)	4.75646 (81022324)	6.42881 (81102324)	6.34595 (81102324)	3.60417 (81102324)
3813413.0	5.16653 (81110824)	5.23252 (81022324)	6.33447 (81102324)	7.76012 (81102324)	4.74859 (81102324)
3813163.0	6.77770 (81050924)	6.61454 (81110824)	6.51488 (81022324)	9.46710 (81102324)	6.22105 (81102324)
3812913.0	9.90020 (81120624)	7.44290 (81050924)	7.83411 (81022324)	11.32189 (81102324)	8.09092 (81102324)
3812663.0	11.80714 (81121824)	12.32415 (81120624)	10.39914 (81110824)	12.40768 (81102324)	10.67612 (81102324)
3812413.0	13.57105 (81112224)	16.42575 (81121824)	15.58269 (81050924)	13.83877 (81022324)	15.40969 (81102324)
3812163.0	10.65674 (81011824)	18.90710 (81112224)	25.41805 (81121824)	22.01713 (81110824)	26.88702 (81102324)
3811913.0	10.59849 (81120324)	13.55133 (81120324)	28.18620 (81112224)	53.70006 (81120624)	55.39299 (81102324)
3811663.0	8.75949 (81122624)	14.37805 (81120324)	28.86494 (81120324)	49.29422 (81011824)	143.95860 (81120624)
3811413.0	8.56955 (81080424)	11.96696 (81080424)	18.37943 (81080424)	33.49444 (81050824)	151.83061 (81040124)
3811163.0	5.97248 (81040124)	8.58374 (81041624)	11.31204 (81041624)	23.19516 (81082424)	43.64200 (81080324)
3810913.0	4.80573 (81040124)	6.21983 (81091724)	8.95028 (81073124)	14.21633 (81011624)	26.88759 (81072524)
3810663.0	3.95151 (81071724)	5.37151 (81073124)	7.51144 (81011624)	8.70814 (81111524)	13.39167 (81072524)
3810413.0	3.65182 (81082424)	4.51385 (81011624)	6.32150 (81073124)	6.19975 (81101224)	9.55845 (81042424)
3810163.0	3.47809 (81073124)	4.44951 (81073124)	4.45363 (81073124)	5.08883 (81101224)	7.34522 (81042424)
3809913.0	3.28149 (81073124)	3.62744 (81073124)	3.79415 (81090124)	4.70796 (81072524)	5.74188 (81042424)
3809663.0	3.02742 (81062324)	2.72271 (81062324)	3.21140 (81090124)	4.28196 (81072524)	4.83021 (81042424)
3809413.0	2.52113 (81062324)	2.65097 (81080324)	2.88519 (81080324)	3.92749 (81072524)	4.25499 (81070624)
3809163.0	2.10698 (81111524)	2.45622 (81080324)	2.77946 (81080324)	3.65948 (81072524)	3.88563 (81070624)

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE 1ST HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,
PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

*** NETWORK ID: GRD1 ; NETWORK TYPE: GRIDCART ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 376134.00	376384.00	376634.00	376884.00	377134.00
3813913.0	3.10855 (81110324)	3.72919 (81110324)	3.38049 (81110324)	2.37409 (81110324)	1.46037 (81102424)
3813663.0	3.58396 (81110324)	4.37049 (81110324)	3.63406 (81110324)	2.33964 (81110324)	1.75996 (81100824)
3813413.0	4.21657 (81110324)	5.15515 (81110324)	3.82003 (81110324)	2.28230 (81110324)	2.07352 (81100824)
3813163.0	5.09416 (81110324)	6.08020 (81110324)	3.92593 (81110324)	2.45455 (81100824)	3.04416 (81052024)
3812913.0	6.39005 (81110324)	7.06985 (81110324)	4.03425 (81110324)	3.31697 (81052024)	3.88169 (81052024)
3812663.0	8.50322 (81110324)	7.86339 (81110324)	4.42636 (81110324)	4.94442 (81052024)	3.66675 (81052024)
3812413.0	12.55094 (81102324)	8.12367 (81110324)	7.21540 (81052024)	4.60089 (81083024)	3.76003 (81052024)
3812163.0	20.66397 (81110324)	10.81694 (81052024)	8.03076 (81083024)	5.81648 (81121524)	3.88940 (81052024)
3811913.0	35.59962 (81110324)	23.51787 (81052024)	9.67188 (81121524)	6.74227 (81052024)	4.24927 (81102024)
3811663.0	65.26557 (81052024)	30.36615 (81102024)	15.12838 (81052024)	7.93254 (81032024)	6.21492 (81032024)
3811413.0	321.04935 (81111924)	281.71323 (81110324)	29.20946 (81122524)	16.64541 (81122524)	10.86463 (81111924)
3811163.0	56.16553 (81072824)	46.27539 (81022224)	37.48030 (81111924)	22.20011 (81111924)	13.42872 (81111924)
3810913.0	34.72825 (81100924)	65.88515 (81100924)	43.21663 (81010524)	14.61331 (81022224)	11.29696 (81111924)
3810663.0	19.70312 (81070924)	31.10814 (81100924)	25.28184 (81010524)	21.97010 (81010524)	11.60265 (81022224)
3810413.0	14.09151 (81100924)	18.69277 (81100924)	10.65034 (81010524)	15.05868 (81010524)	13.89467 (81010524)
3810163.0	11.12284 (81100924)	13.27048 (81100924)	7.64750 (81103024)	7.74762 (81010524)	10.47219 (81010524)
3809913.0	9.11028 (81100924)	10.61473 (81100924)	6.36568 (81100924)	4.94639 (81080724)	6.11037 (81010524)
3809663.0	7.64909 (81100924)	8.97438 (81100924)	5.55821 (81100924)	4.15102 (81103024)	3.84679 (81010524)
3809413.0	6.54083 (81100924)	7.75135 (81100924)	4.95702 (81100924)	3.60118 (81072824)	3.30382 (81080724)
3809163.0	5.67251 (81100924)	6.76101 (81100924)	4.55906 (81100924)	3.39144 (81072824)	2.93928 (81080724)

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE 1ST HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,

PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

*** NETWORK ID: GRD1 ; NETWORK TYPE: GRIDCART ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 377384.00	377634.00	377884.00	378134.00	378384.00
3813913.0	1.63142 (81100824)	2.02831 (81052024)	2.29143 (81052024)	1.97307 (81052024)	1.41970 (81052024)
3813663.0	2.05038 (81052024)	2.55108 (81052024)	2.32485 (81052024)	1.71423 (81052024)	1.26126 (81091124)
3813413.0	2.79779 (81052024)	2.74252 (81052024)	2.07921 (81052024)	1.46648 (81052124)	1.28056 (81091124)
3813163.0	3.23922 (81052024)	2.52593 (81052024)	1.75312 (81052124)	1.46945 (81091124)	1.23773 (81091124)
3812913.0	3.05631 (81052024)	2.22997 (81052024)	1.71746 (81091124)	1.45187 (81091124)	1.39764 (81121524)
3812663.0	2.91003 (81052024)	2.05341 (81091124)	1.71754 (81091124)	1.79819 (81102024)	1.86918 (81102024)
3812413.0	2.52248 (81091124)	2.26965 (81102024)	2.39047 (81102024)	2.27533 (81102024)	1.94464 (81102024)
3812163.0	3.27855 (81102024)	3.03625 (81102024)	2.55864 (81102024)	2.13789 (81081624)	1.91516 (81081624)
3811913.0	3.66517 (81032024)	3.31424 (81032024)	2.83686 (81032024)	2.42336 (81032024)	2.08398 (81032024)
3811663.0	4.74741 (81032024)	3.62997 (81032024)	3.01646 (81113024)	2.65762 (81113024)	2.34074 (81113024)
3811413.0	7.97367 (81122524)	6.38151 (81122524)	5.29293 (81122524)	4.49528 (81122524)	3.88340 (81122524)
3811163.0	9.18811 (81111924)	6.77757 (81111924)	5.27826 (81111924)	4.54758 (81122524)	4.11472 (81122524)
3810913.0	8.93303 (81111924)	6.65520 (81111924)	5.18102 (81111924)	4.21354 (81111924)	3.50357 (81111924)
3810663.0	5.71135 (81022024)	5.33584 (81111924)	4.78872 (81111924)	3.92550 (81111924)	3.20719 (81111924)
3810413.0	9.31567 (81022224)	4.63830 (81022024)	3.36781 (81022024)	3.28935 (81111924)	3.12507 (81111924)
3810163.0	9.80541 (81010524)	7.53140 (81022224)	4.33313 (81022224)	3.12702 (81022024)	2.21559 (81022024)
3809913.0	7.87580 (81010524)	7.40832 (81010524)	6.18888 (81022224)	4.01717 (81022224)	2.66937 (81022024)
3809663.0	5.05885 (81010524)	6.20804 (81010524)	5.86434 (81010524)	5.17400 (81022224)	3.67896 (81022224)
3809413.0	3.31264 (81072624)	4.29421 (81010524)	5.06053 (81010524)	4.80002 (81010524)	4.39455 (81022224)
3809163.0	2.33823 (81010524)	2.93370 (81010524)	3.69773 (81010524)	4.23380 (81010524)	4.02932 (81010524)

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE 1ST HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,
PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
375707.00	3810561.00	7.71931	(81101224)	374756.00	3810927.00	4.68657	(81040124)
376707.00	3811134.00	32.33940	(81111924)	376710.00	3811038.00	27.26377	(81111924)
376712.00	3810939.00	27.78335	(81022224)	376717.00	3810843.00	32.73524	(81010524)
376700.00	3811250.00	31.21901	(81111924)	376697.00	3811346.00	28.02087	(81111924)
376693.00	3811450.00	21.67841	(81122524)	376690.00	3811546.00	13.49092	(81102424)
376685.00	3811645.00	12.52533	(81052024)	376683.00	3811744.00	11.60144	(81052024)
376678.00	3811840.00	10.59624	(81121524)	376676.00	3811936.00	9.59195	(81121524)
376671.00	3812035.00	7.10485	(81040824)	376666.00	3812134.00	7.63085	(81083024)
376663.00	3812230.00	7.44678	(81052024)	376659.00	3812329.00	7.95563	(81052024)
376654.00	3812426.00	7.05210	(81052024)	376561.00	3812442.00	6.13729	(81052024)
376464.00	3812452.00	6.50766	(81110324)	376367.00	3812464.00	8.55668	(81110324)
376270.00	3812474.00	10.83757	(81110324)	376248.00	3812399.00	11.93751	(81110324)
376253.00	3812303.00	12.71199	(81110324)	376258.00	3812206.00	12.95399	(81110324)
376260.00	3812110.00	12.54595	(81110324)	376217.00	3812057.00	17.13139	(81110324)
376122.00	3812069.00	26.09547	(81110324)	376025.00	3812081.00	23.47775	(81110324)
375928.00	3812093.00	25.90174	(81102324)	375828.00	3812105.00	31.96569	(81102324)
375728.00	3812117.00	22.95811	(81022324)	375631.00	3812129.00	23.77571	(81120624)
375532.00	3812141.00	27.59363	(81120624)	375461.00	3812124.00	29.34037	(81120624)
375464.00	3812028.00	32.88464	(81112224)	375464.00	3811924.00	37.71633	(81112224)
375466.00	3811828.00	33.18762	(81011824)	375469.00	3811732.00	27.55958	(81011824)
375374.00	3811746.00	23.07763	(81120324)	375277.00	3811756.00	19.66206	(81120324)
375180.00	3811770.00	16.88538	(81120324)	375077.00	3811785.00	14.54010	(81120324)
375077.00	3811688.00	13.59843	(81120324)	375075.00	3811589.00	11.46079	(81122624)
375075.00	3811493.00	9.90809	(81030324)	375075.00	3811394.00	10.55517	(81080424)
375073.00	3811298.00	8.32083	(81040124)	375070.00	3811202.00	7.59522	(81040124)
375070.00	3811105.00	7.39529	(81041624)	375068.00	3811009.00	6.38175	(81040124)
375145.00	3810970.00	6.52804	(81091724)	375240.00	3810956.00	6.94362	(81091724)
375340.00	3810941.00	8.78571	(81082424)	375437.00	3810927.00	9.91625	(81073124)
375534.00	3810912.00	13.73668	(81011624)	375631.00	3810898.00	13.29064	(81011624)
375728.00	3810881.00	13.87964	(81111524)	375826.00	3810867.00	14.85620	(81072524)
375923.00	3810852.00	21.49673	(81072524)	376020.00	3810835.00	35.96954	(81100924)
376119.00	3810821.00	30.51340	(81100924)	376217.00	3810806.00	29.14029	(81072824)
376299.00	3810794.00	30.53805	(81100924)	376353.00	3810785.00	41.13652	(81100924)
376450.00	3810768.00	34.39521	(81100924)	376547.00	3810753.00	32.87551	(81010524)
376644.00	3810739.00	33.71550	(81010524)	376719.00	3810744.00	32.12266	(81010524)

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE 4TH HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,
PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

*** NETWORK ID: GRD1 ; NETWORK TYPE: GRIDCART ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 373634.00	373884.00	374134.00	374384.00	374634.00

3813913.0	4.02089 (81112024)	4.52593 (81010924)	4.34028 (81050924)	3.65687 (81120624)	2.80568 (81123024)
3813663.0	4.02623 (81121824)	4.62757 (81112024)	5.13410 (81010924)	4.89883 (81031524)	3.84004 (81051724)
3813413.0	4.19377 (81121324)	4.64169 (81121824)	5.42079 (81112024)	5.87881 (81010924)	5.40876 (81061724)
3813163.0	3.79509 (81021824)	4.73466 (81112024)	5.43140 (81010924)	6.52433 (81120624)	6.97712 (81111024)
3812913.0	2.93275 (81112224)	4.02283 (81030824)	5.54265 (81021824)	6.65012 (81031724)	8.28604 (81120624)
3812663.0	2.97406 (81122624)	3.33087 (81011324)	4.34122 (81021724)	6.37165 (81030824)	8.51926 (81031724)
3812413.0	3.18083 (81042124)	3.66592 (81111524)	4.02970 (81122624)	4.94140 (81021724)	7.44952 (81021824)
3812163.0	2.93659 (81112324)	3.52999 (81111524)	4.48279 (81042124)	5.31292 (81111524)	6.19087 (81122824)
3811913.0	2.87053 (81122724)	3.61000 (81122724)	4.21927 (81122424)	4.90110 (81042124)	6.32164 (81111524)
3811663.0	2.67666 (81092424)	3.07906 (81092424)	3.57378 (81092424)	4.24774 (81052224)	5.21907 (81121424)
3811413.0	2.55224 (81050524)	2.97291 (81050524)	3.51605 (81071824)	4.27314 (81030324)	5.35523 (81121224)
3811163.0	2.48159 (81040124)	2.77428 (81050824)	3.07258 (81050824)	3.37675 (81050824)	4.12845 (81011624)
3810913.0	1.88772 (81052124)	2.12559 (81052124)	2.44713 (81081524)	2.69859 (81091724)	3.15033 (81091724)
3810663.0	1.70656 (81091724)	1.88577 (81091724)	2.20177 (81091724)	2.59387 (81040124)	2.61395 (81121624)
3810413.0	1.56177 (81100624)	1.66805 (81040124)	1.69358 (81121624)	1.98122 (81111224)	2.71142 (81073124)
3810163.0	1.23200 (81121624)	1.37153 (81041624)	1.71573 (81071724)	2.07102 (81092524)	2.52251 (81043024)
3809913.0	1.20081 (81082424)	1.43162 (81032024)	1.68453 (81092524)	2.01047 (81092524)	2.29435 (81092524)
3809663.0	1.31328 (81071724)	1.40180 (81032024)	1.64179 (81092524)	1.87551 (81072724)	2.18555 (81072724)
3809413.0	1.24090 (81071324)	1.37891 (81092524)	1.63052 (81072724)	1.79154 (81043024)	1.86334 (81062924)
3809163.0	1.22174 (81072724)	1.43783 (81072724)	1.54113 (81062324)	1.57182 (81072724)	1.60575 (81062924)

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE 4TH HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,
PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

*** NETWORK ID: GRD1 ; NETWORK TYPE: GRIDCART ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 374884.00	375134.00	375384.00	375634.00	375884.00
3813913.0	3.47792 (81051724)	3.13243 (81102224)	3.25265 (81102224)	2.50406 (81010124)	2.51841 (81090324)
3813663.0	3.53893 (81022324)	3.76279 (81121024)	3.74041 (81102224)	3.27907 (81010124)	2.87450 (81090324)
3813413.0	4.17545 (81061624)	4.70800 (81121024)	4.34404 (81102224)	4.26488 (81110924)	3.37409 (81102224)
3813163.0	5.97205 (81111024)	4.87594 (81022324)	5.09301 (81102224)	5.23742 (81110924)	4.38400 (81010124)
3812913.0	8.62384 (81031524)	6.99557 (81051724)	6.78048 (81121024)	6.56554 (81022324)	5.65423 (81122924)
3812663.0	11.02040 (81112224)	10.70928 (81031524)	7.97833 (81121024)	8.76242 (81102224)	7.42240 (81122924)
3812413.0	11.34978 (81011824)	15.17340 (81112224)	13.60687 (81072024)	11.67021 (81010124)	10.36959 (81122924)
3812163.0	8.46742 (81021724)	16.16183 (81121324)	23.49948 (81020324)	18.64542 (81050924)	15.98481 (81110924)
3811913.0	8.86883 (81111524)	12.37066 (81042124)	23.27585 (81112024)	48.25312 (81030924)	37.72828 (81110924)
3811663.0	7.82662 (81030324)	11.99290 (81121424)	22.31146 (81011824)	41.87553 (81122824)	112.43610 (81051724)
3811413.0	7.15543 (81050524)	10.19143 (81050824)	17.24539 (81121224)	32.01054 (81031824)	132.15839 (81050824)
3811163.0	5.19050 (81052124)	6.85826 (81091724)	10.02730 (81011624)	20.24174 (81041024)	35.39804 (81071524)
3810913.0	4.30601 (81041624)	4.86211 (81031824)	7.55187 (81071724)	12.03535 (81073124)	19.49652 (81071524)
3810663.0	3.81073 (81061824)	4.42822 (81043024)	6.07721 (81062324)	6.84997 (81111224)	11.46595 (81062224)
3810413.0	3.20725 (81043024)	3.95739 (81082424)	5.16865 (81062324)	5.60462 (81062924)	8.61933 (81062324)
3810163.0	2.94508 (81092524)	3.36242 (81081724)	3.90295 (81111524)	4.81460 (81072524)	5.90465 (81120124)
3809913.0	2.58186 (81072724)	2.97507 (81111524)	3.36275 (81062924)	4.22799 (81062224)	5.00656 (81072524)
3809663.0	2.25211 (81101224)	2.58641 (81080324)	2.74947 (81071524)	3.46318 (81070224)	4.27516 (81062224)
3809413.0	2.15607 (81111524)	2.25906 (81081424)	2.46628 (81071524)	2.92613 (81070624)	3.68707 (81062224)
3809163.0	1.90195 (81062324)	1.94440 (81070224)	2.14300 (81062224)	2.49942 (81070124)	3.19385 (81062224)

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE 4TH HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,
PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

*** NETWORK ID: GRD1 ; NETWORK TYPE: GRIDCART ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 376134.00	376384.00	376634.00	376884.00	377134.00
3813913.0	2.58033 (81060624)	2.45978 (81021524)	1.92285 (81040124)	1.79207 (81013024)	1.39596 (81040124)
3813663.0	2.95500 (81060624)	2.61326 (81101124)	2.13865 (81013024)	1.79852 (81102024)	1.44033 (81102424)
3813413.0	3.49959 (81021524)	2.91664 (81101124)	2.42197 (81013024)	1.97041 (81100824)	1.55105 (81083024)
3813163.0	4.23595 (81021524)	3.39714 (81102024)	2.54758 (81102024)	2.19473 (81040124)	1.73821 (81030524)
3812913.0	5.42481 (81110524)	3.94894 (81040724)	3.17099 (81100824)	2.34003 (81040124)	2.16506 (81110624)
3812663.0	7.17307 (81110524)	4.57556 (81040724)	3.79979 (81101124)	2.80784 (81110624)	2.54894 (81091124)
3812413.0	9.88023 (81010124)	5.92931 (81040724)	4.80887 (81100824)	3.42126 (81091124)	2.84418 (81033124)
3812163.0	14.56359 (81110924)	8.64712 (81111124)	5.66579 (81110924)	4.21083 (81052124)	3.29829 (81102024)
3811913.0	22.90113 (81102324)	13.59850 (81021524)	8.62444 (81110324)	5.33653 (81101824)	3.61370 (81102924)
3811663.0	51.27568 (81083024)	24.43745 (81022424)	9.91042 (81032024)	6.34054 (81103024)	4.60445 (81121724)
3811413.0	190.69276 (81121724)	245.01711 (81102224)	19.25668 (81113024)	10.71814 (81052224)	6.77010 (81113024)
3811163.0	49.95313 (81052324)	36.11610 (81100924)	24.10588 (81022224)	10.90432 (81110224)	8.11380 (81121724)
3810913.0	29.13458 (81072824)	46.23215 (81080624)	23.34201 (81030524)	11.52770 (81010524)	5.58952 (81102524)
3810663.0	16.48902 (81062924)	20.47876 (81042424)	13.42577 (81011224)	10.41714 (81011724)	7.08774 (81110124)
3810413.0	10.56883 (81072824)	12.19598 (81080624)	8.51605 (81103024)	8.18135 (81013124)	6.57698 (81011724)
3810163.0	7.66302 (81080624)	8.74883 (81080624)	6.98968 (81052624)	5.38411 (81042724)	5.63021 (81050424)
3809913.0	6.40936 (81070624)	6.72444 (81072824)	6.03880 (81070924)	4.42144 (81090124)	4.14312 (81063024)
3809663.0	5.34434 (81060824)	5.24143 (81052724)	5.01144 (81052624)	3.74196 (81072724)	3.19335 (81080724)
3809413.0	4.41552 (81070624)	4.32177 (81052724)	4.07843 (81122124)	3.16885 (81011224)	2.68482 (81011224)
3809163.0	3.85307 (81032724)	3.62563 (81052724)	3.57305 (81122124)	2.79365 (81070124)	2.46769 (81011224)

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE 4TH HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,
PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

*** NETWORK ID: GRD1 ; NETWORK TYPE: GRIDCART ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 377384.00	377634.00	377884.00	378134.00	378384.00
3813913.0	1.21733 (81091924)	1.17039 (81121524)	1.06643 (81030524)	0.90233 (81091124)	1.06520 (81083024)
3813663.0	1.37508 (81030524)	1.25903 (81030524)	0.98314 (81091124)	1.21408 (81083024)	1.06405 (81040824)
3813413.0	1.46205 (81030524)	1.27893 (81052124)	1.41222 (81083024)	1.21395 (81040824)	0.98190 (81110424)
3813163.0	1.59968 (81100724)	1.66560 (81091124)	1.41179 (81040824)	1.11726 (81110424)	1.09010 (81103024)
3812913.0	2.01440 (81091124)	1.68554 (81040824)	1.29302 (81080824)	1.30788 (81103024)	1.25640 (81022424)
3812663.0	2.09302 (81040824)	1.69966 (81121524)	1.59480 (81102024)	1.46709 (81033124)	1.29442 (81022424)
3812413.0	2.40346 (81121524)	2.03741 (81091124)	1.64370 (81022424)	1.42830 (81121524)	1.42260 (81102924)
3812163.0	2.44296 (81091124)	2.10001 (81081624)	2.12748 (81032024)	1.84073 (81102924)	1.52262 (81101824)
3811913.0	3.33621 (81022424)	2.57764 (81101824)	2.14354 (81101924)	1.90626 (81101824)	1.75307 (81121724)
3811663.0	3.89040 (81121724)	3.28670 (81121724)	2.84932 (81032024)	2.44234 (81121724)	2.14242 (81121724)
3811413.0	5.18456 (81113024)	4.17377 (81052224)	3.50392 (81052224)	2.98559 (81052224)	2.57481 (81052224)
3811163.0	6.25627 (81122524)	5.42854 (81111824)	4.25347 (81111824)	3.36876 (81111824)	2.70963 (81111824)
3810913.0	4.64350 (81031324)	3.57885 (81021324)	3.13167 (81112924)	2.78710 (81112924)	2.51619 (81110224)
3810663.0	4.38014 (81102524)	3.08003 (81010724)	2.99124 (81031324)	2.65407 (81031324)	2.20315 (81021324)
3810413.0	5.07582 (81011124)	3.40978 (81042724)	2.18638 (81022224)	2.04917 (81102524)	2.04617 (81031324)
3810163.0	4.61232 (81011724)	4.12298 (81011724)	2.90620 (81011124)	2.08532 (81042724)	1.54607 (81101624)
3809913.0	4.38992 (81022224)	3.53016 (81080524)	3.39811 (81011724)	2.51445 (81011124)	1.87734 (81010524)
3809663.0	3.19801 (81013124)	3.46535 (81013124)	2.84149 (81080524)	2.82222 (81011724)	2.15316 (81011124)
3809413.0	2.74592 (81050424)	2.84807 (81013124)	2.77137 (81013124)	2.36111 (81080524)	2.36851 (81011724)
3809163.0	2.24350 (81063024)	2.41026 (81063024)	2.49111 (81013124)	2.26780 (81013124)	2.01019 (81080524)

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE 4TH HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,
PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
375707.00	3810561.00	6.85046	(81072824)	374756.00	3810927.00	3.56365	(81091724)
376707.00	3811134.00	19.00471	(81121724)	376710.00	3811038.00	18.43118	(81121724)
376712.00	3810939.00	18.53872	(81110124)	376717.00	3810843.00	16.96030	(81030524)
376700.00	3811250.00	16.51187	(81010724)	376697.00	3811346.00	21.90181	(81111824)
376693.00	3811450.00	14.21347	(81052224)	376690.00	3811546.00	11.47630	(81122524)
376685.00	3811645.00	9.04690	(81052124)	376683.00	3811744.00	8.76529	(81081624)
376678.00	3811840.00	7.79304	(81033124)	376676.00	3811936.00	7.13368	(81033124)
376671.00	3812035.00	6.24681	(81101124)	376666.00	3812134.00	5.59197	(81040824)
376663.00	3812230.00	4.91101	(81110924)	376659.00	3812329.00	4.50246	(81071024)
376654.00	3812426.00	4.54749	(81100824)	376561.00	3812442.00	5.19602	(81101124)
376464.00	3812452.00	5.73312	(81040724)	376367.00	3812464.00	5.64422	(81010124)
376270.00	3812474.00	6.44338	(81101124)	376248.00	3812399.00	7.33555	(81101124)
376253.00	3812303.00	7.94330	(81101124)	376258.00	3812206.00	9.03770	(81101124)
376260.00	3812110.00	10.84311	(81101124)	376217.00	3812057.00	12.85717	(81110924)
376122.00	3812069.00	17.64795	(81102024)	376025.00	3812081.00	18.91649	(81051924)
375928.00	3812093.00	18.04431	(81111124)	375828.00	3812105.00	20.40829	(81022324)
375728.00	3812117.00	21.25516	(81120624)	375631.00	3812129.00	22.15552	(81050924)
375532.00	3812141.00	22.65662	(81031524)	375461.00	3812124.00	26.49870	(81050924)
375464.00	3812028.00	30.45930	(81120624)	375464.00	3811924.00	31.85945	(81011824)
375466.00	3811828.00	26.15335	(81122324)	375469.00	3811732.00	25.19121	(81122824)
375374.00	3811746.00	20.44584	(81020724)	375277.00	3811756.00	16.93089	(81042124)
375180.00	3811770.00	14.00859	(81011824)	375077.00	3811785.00	11.43814	(81011824)
375077.00	3811688.00	10.99409	(81122724)	375075.00	3811589.00	8.96351	(81121224)
375075.00	3811493.00	9.10206	(81031824)	375075.00	3811394.00	9.30920	(81050824)
375073.00	3811298.00	7.63749	(81081524)	375070.00	3811202.00	6.60378	(81052124)
375070.00	3811105.00	5.72364	(81091724)	375068.00	3811009.00	5.51463	(81091724)
375145.00	3810970.00	5.55193	(81040124)	375240.00	3810956.00	6.36926	(81061824)
375340.00	3810941.00	7.98457	(81031424)	375437.00	3810927.00	8.60719	(81043024)
375534.00	3810912.00	10.57114	(81073124)	375631.00	3810898.00	11.70962	(81041224)
375728.00	3810881.00	11.53916	(81073124)	375826.00	3810867.00	12.49109	(81062424)
375923.00	3810852.00	18.08808	(81062224)	376020.00	3810835.00	23.87566	(81043024)
376119.00	3810821.00	24.66265	(81062324)	376217.00	3810806.00	23.53197	(81062924)
376299.00	3810794.00	28.42418	(81072824)	376353.00	3810785.00	30.17100	(81100124)
376450.00	3810768.00	25.59978	(81080624)	376547.00	3810753.00	17.90772	(81122224)
376644.00	3810739.00	16.61740	(81112524)	376719.00	3810744.00	15.02897	(81112524)

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE MAXIMUM 50 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,
PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

** CONC OF 10-PM IN MICROGRAMS/M**3 **

RANK	CONC	(YYMMDDHH)	AT RECEPTOR (XR,YR)	OF TYPE	RANK	CONC	(YYMMDDHH)	AT RECEPTOR (XR,YR)	OF TYPE
1.	321.04935	(81111924)	AT (376134.00, 3811413.00)	GC	26.	195.71529	(81022224)	AT (376134.00, 3811413.00)	GC

2.	281.71323	(81110324)	AT	(376384.00,	3811413.00)	GC	27.	191.51414	(81110224)	AT	(376384.00,	3811413.00)	GC
3.	271.31723	(81010124)	AT	(376384.00,	3811413.00)	GC	28.	190.69276	(81121724)	AT	(376134.00,	3811413.00)	GC
4.	246.62762	(81102324)	AT	(376384.00,	3811413.00)	GC	29.	189.62450	(81121524)	AT	(376384.00,	3811413.00)	GC
5.	245.85878	(81122524)	AT	(376134.00,	3811413.00)	GC	30.	188.76715	(81110824)	AT	(376384.00,	3811413.00)	GC
6.	245.01711	(81102224)	AT	(376384.00,	3811413.00)	GC	31.	187.60979	(81112224)	AT	(376384.00,	3811413.00)	GC
7.	240.58308	(81101124)	AT	(376384.00,	3811413.00)	GC	32.	186.53593	(81010824)	AT	(376384.00,	3811413.00)	GC
8.	240.25359	(81111124)	AT	(376384.00,	3811413.00)	GC	33.	185.64618	(81010924)	AT	(376384.00,	3811413.00)	GC
9.	237.84869	(81110924)	AT	(376384.00,	3811413.00)	GC	34.	185.46326	(81101424)	AT	(376384.00,	3811413.00)	GC
10.	235.42653	(81120624)	AT	(376384.00,	3811413.00)	GC	35.	185.34215	(81110724)	AT	(376384.00,	3811413.00)	GC
11.	234.85704	(81101524)	AT	(376384.00,	3811413.00)	GC	36.	184.85286	(81111824)	AT	(376134.00,	3811413.00)	GC
12.	234.24290	(81111024)	AT	(376384.00,	3811413.00)	GC	37.	184.82225	(81110524)	AT	(376384.00,	3811413.00)	GC
13.	222.55713	(81120924)	AT	(376384.00,	3811413.00)	GC	38.	183.70329	(81120524)	AT	(376384.00,	3811413.00)	GC
14.	214.56049	(81120724)	AT	(376384.00,	3811413.00)	GC	39.	183.59334	(81021524)	AT	(376384.00,	3811413.00)	GC
15.	209.19814	(81092924)	AT	(376384.00,	3811413.00)	GC	40.	182.99748	(81112924)	AT	(376384.00,	3811413.00)	GC
16.	207.61687	(81122924)	AT	(376384.00,	3811413.00)	GC	41.	181.91486	(81112124)	AT	(376384.00,	3811413.00)	GC
17.	207.51198	(81102024)	AT	(376384.00,	3811413.00)	GC	42.	180.73576	(81121924)	AT	(376384.00,	3811413.00)	GC
18.	205.66023	(81011324)	AT	(376384.00,	3811413.00)	GC	43.	180.64552	(81020424)	AT	(376384.00,	3811413.00)	GC
19.	205.08076	(81122824)	AT	(376384.00,	3811413.00)	GC	44.	178.87575	(81110224)	AT	(376134.00,	3811413.00)	GC
20.	203.27693	(81112024)	AT	(376384.00,	3811413.00)	GC	45.	178.80870	(81010724)	AT	(376384.00,	3811413.00)	GC
21.	201.12550	(81050924)	AT	(376384.00,	3811413.00)	GC	46.	177.58705	(81022724)	AT	(376384.00,	3811413.00)	GC
22.	199.00203	(81022324)	AT	(376384.00,	3811413.00)	GC	47.	177.23090	(81113024)	AT	(376134.00,	3811413.00)	GC
23.	198.65788	(81121824)	AT	(376384.00,	3811413.00)	GC	48.	176.96254	(81022424)	AT	(376384.00,	3811413.00)	GC
24.	198.59639	(81120424)	AT	(376384.00,	3811413.00)	GC	49.	176.06262	(81082824)	AT	(376384.00,	3811413.00)	GC
25.	196.82300	(81051924)	AT	(376384.00,	3811413.00)	GC	50.	175.37349	(81011524)	AT	(376384.00,	3811413.00)	GC

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE SUMMARY OF MAXIMUM ANNUAL (1 YRS) RESULTS ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZFLAG)				OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS	115.14940 AT (	376384.00,	3811413.00,	0.00,	0.00)	GC	GRD1
	2ND HIGHEST VALUE IS	70.31365 AT (	376134.00,	3811413.00,	0.00,	0.00)	GC	GRD1
	3RD HIGHEST VALUE IS	44.66250 AT (	375884.00,	3811663.00,	0.00,	0.00)	GC	GRD1
	4TH HIGHEST VALUE IS	41.12022 AT (	375884.00,	3811413.00,	0.00,	0.00)	GC	GRD1
	5TH HIGHEST VALUE IS	24.05368 AT (	376134.00,	3811163.00,	0.00,	0.00)	GC	GRD1
	6TH HIGHEST VALUE IS	15.94379 AT (	376134.00,	3811663.00,	0.00,	0.00)	GC	GRD1
	7TH HIGHEST VALUE IS	15.47991 AT (	375634.00,	3811913.00,	0.00,	0.00)	GC	GRD1
	8TH HIGHEST VALUE IS	15.09956 AT (	376384.00,	3810913.00,	0.00,	0.00)	GC	GRD1
	9TH HIGHEST VALUE IS	13.58119 AT (	375634.00,	3811663.00,	0.00,	0.00)	GC	GRD1
	10TH HIGHEST VALUE IS	12.73300 AT (	375884.00,	3811913.00,	0.00,	0.00)	GC	GRD1

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE SUMMARY OF HIGHEST 24-HR RESULTS ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)				OF TYPE	NETWORK GRID-ID
ALL	HIGH 1ST HIGH VALUE IS	321.04935	ON 81111924: AT (	376134.00,	3811413.00,	0.00,	0.00)	GC	GRD1
	HIGH 4TH HIGH VALUE IS	245.01711	ON 81102224: AT (	376384.00,	3811413.00,	0.00,	0.00)	GC	GRD1

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** Message Summary : ISCST3 Model Execution ***

--------- Summary of Total Messages --------

A Total of 0 Fatal Error Message(s)
A Total of 0 Warning Message(s)
A Total of 1085 Informational Message(s)

A Total of 1085 Calm Hours Identified

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******** FATAL ERROR MESSAGES ********
           ***  NONE  ***

********   WARNING MESSAGES   ********
           ***  NONE  ***

************************************
*** ISCST3 Finishes Successfully ***
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ISCST3X  PC (32 BIT) VERSION  3.3.0
(C) COPYRIGHT 1991-1999, TRINITY CONSULTANTS

Run Began on 11/15/1999 at 14:54:49

** BREEZE ISC SUITE v3.2.2 - G:\Clients\tr110 - TMC Sole\Air-28\Modeling\NOx_Models\wildlife_preserve\nx2ac.dat
** Trinity Consultants, Dallas, TX

CO STARTING
CO TITLEONE  NOx, Phase 2, Annual Average
CO TITLETWO  TMC Soledad
CO MODELOPT  CONC  URBAN  NOCALM
CO AVERTIME  1  ANNUAL
CO POLLUTID  NOX
CO TERRHGTS  FLAT
CO RUNORNOT  RUN
CO FINISHED

SO STARTING
SO ELEVUNIT  METERS
SO LOCATION  PITOPS  VOLUME  375974.0  3811400.0  0
SO LOCATION  FINES  VOLUME  375741.0  3811744.0  0
** SRCDESCR  Fines
SO LOCATION  STOCKPIL  VOLUME  376343.8  3811301.3  0
** SRCDESCR  Stockpile
SO LOCATION  ROCKPLT  VOLUME  376359.2  3811119.0  0
** SRCDESCR  Rock Plant
SO SRCPARAM  PITOPS  2.610000E+00  3.5  25  7
SO SRCPARAM  FINES  6.470000E-02  3.5  25  7
SO SRCPARAM  STOCKPIL  5.450000E-01  3.5  25  7
SO SRCPARAM  ROCKPLT  2.730000E-01  3.5  25  7
SO SRCGROUP  ALL
SO FINISHED

RE STARTING
RE DISCCART  407696.0  3798431.0
** RCPDESCR  San Gabriel Wilderness
** BOUNDARY
RE DISCCART  376707.0  3811134.0
RE DISCCART  376710.0  3811038.0
RE DISCCART  376712.0  3810939.0
RE DISCCART  376717.0  3810843.0
RE DISCCART  376700.0  3811250.0
RE DISCCART  376697.0  3811346.0
RE DISCCART  376693.0  3811450.0
RE DISCCART  376690.0  3811546.0
RE DISCCART  376685.0  3811645.0
RE DISCCART  376683.0  3811744.0
RE DISCCART  376678.0  3811840.0
RE DISCCART  376676.0  3811936.0
RE DISCCART  376671.0  3812035.0
RE DISCCART  376666.0  3812134.0
RE DISCCART  376663.0  3812230.0
RE DISCCART  376659.0  3812329.0
RE DISCCART  376654.0  3812426.0
RE DISCCART  376561.0  3812442.0
RE DISCCART  376464.0  3812452.0
RE DISCCART  376367.0  3812464.0
RE DISCCART  376270.0  3812474.0
RE DISCCART  376248.0  3812399.0
RE DISCCART  376253.0  3812303.0
RE DISCCART  376258.0  3812206.0
RE DISCCART  376260.0  3812110.0
RE DISCCART  376217.0  3812057.0
RE DISCCART  376122.0  3812069.0
RE DISCCART  376025.0  3812081.0
RE DISCCART  375928.0  3812093.0
RE DISCCART  375828.0  3812105.0
RE DISCCART  375728.0  3812117.0
RE DISCCART  375631.0  3812129.0
RE DISCCART  375532.0  3812141.0
RE DISCCART  375461.0  3812124.0
RE DISCCART  375464.0  3812028.0
RE DISCCART  375464.0  3811924.0
RE DISCCART  375466.0  3811828.0
RE DISCCART  375469.0  3811732.0
RE DISCCART  375374.0  3811746.0
RE DISCCART  375277.0  3811756.0
RE DISCCART  375180.0  3811770.0
RE DISCCART  375077.0  3811785.0
RE DISCCART  375077.0  3811688.0
RE DISCCART  375075.0  3811589.0
RE DISCCART  375075.0  3811493.0
RE DISCCART  375075.0  3811394.0
RE DISCCART  375073.0  3811298.0
RE DISCCART  375070.0  3811202.0
RE DISCCART  375070.0  3811105.0
RE DISCCART  375068.0  3811009.0
RE DISCCART  375145.0  3810970.0
RE DISCCART  375240.0  3810956.0
RE DISCCART  375340.0  3810941.0
RE DISCCART  375437.0  3810927.0
RE DISCCART  375534.0  3810912.0
RE DISCCART  375631.0  3810896.0
RE DISCCART  375728.0  3810881.0
RE DISCCART  375826.0  3810867.0
RE DISCCART  375923.0  3810852.0
RE DISCCART  376020.0  3810835.0
RE DISCCART  376119.0  3810821.0
RE DISCCART  376217.0  3810806.0
```

```
RE DISCCART  376353.0  3810785.0
RE DISCCART  376450.0  3810768.0
RE DISCCART  376547.0  3810753.0
RE DISCCART  376644.0  3810739.0
RE DISCCART  376719.0  3810744.0
RE FINISHED

ME STARTING
ME INPUTFIL  C:\TRINITY\ISC32\NEWHALL.ASC
ME ANEMHGHT  10  METERS
ME SURFDATA  51115  1981
ME UAIRDATA  99999  1981
ME STARTEND  1981  01  01  1  1981  12  31  24
ME FINISHED

OU STARTING
OU RECTABLE  1  FIRST
OU FINISHED

** PROJECTN  0 104 7 -177 0 0.9996 500000 0
** OUTFILE  G:\Clients\TR110--1\Air-28\Modeling\NOX_MO~1\WILDLI~1\NX2AC.LST
** RAWFILE  G:\Clients\TR110--1\Air-28\Modeling\NOX_MO~1\WILDLI~1\NX2AC.RAW
** RAWFMT  2

** POLLUTNT IDN  01  NOX  X
** POLLUTNT NAM  01
** POLLUTNT EMS  PITOPS 2.610000E+00
** POLLUTNT EMS  FINES 6.470000E-02
** POLLUTNT EMS  STOCKPIL 5.450000E-01
** POLLUTNT EMS  ROCKPLT 2.730000E-01


***********************************
*** SETUP Finishes Successfully ***
***********************************

1 *** ISCST3 - VERSION 99155 ***    ***  NOx, Phase 2, Annual Average                                    ***        11/15/99
                                    ***  TMC Soledad                                                     ***        14:54:49
**MODELOPTs:                                                                                                        PAGE   1
CONC                        URBAN  FLAT                                    NOCALM

                                          ***     MODEL SETUP OPTIONS SUMMARY       ***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

**Intermediate Terrain Processing is Selected

**Model Is Setup For Calculation of Average CONCentration Values.

  --  SCAVENGING/DEPOSITION LOGIC --
**Model Uses NO DRY DEPLETION.  DDPLETE =  F
**Model Uses NO WET DEPLETION.  WDPLETE =  F
**NO WET SCAVENGING Data Provided.
**NO GAS DRY DEPOSITION Data Provided.
**Model Does NOT Use GRIDDED TERRAIN Data for Depletion Calculations

**Model Uses URBAN Dispersion.

**Model Uses User-Specified Options:
          1. Final Plume Rise.
          2. Stack-tip Downwash.
          3. Buoyancy-induced Dispersion.
          4. Not Use Calms Processing Routine.
          5. Not Use Missing Data Processing Routine.
          6. Default Wind Profile Exponents.
          7. Default Vertical Potential Temperature Gradients.

**Model Assumes Receptors on FLAT Terrain.

**Model Assumes No FLAGPOLE Receptor Heights.

**Model Calculates  1 Short Term Average(s) of:   1-HR
    and Calculates ANNUAL Averages

**This Run Includes:     4 Source(s);      1 Source Group(s); and      69 Receptor(s)

**The Model Assumes A Pollutant Type of:  NOX

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
        Model Outputs Tables of ANNUAL Averages by Receptor
        Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)

**Misc. Inputs:  Anem. Hgt. (m) =    10.00 ;    Decay Coef. =       0.0000 ;    Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                                  ;  Emission Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

**Approximate Storage Requirements of Model =     1.2 MB of RAM.

**Input Runstream File:          G:\CLIENTS\TR110--1\AIR-28\MODELING\NOX_MODELS\WILDLIFE_PRESERVE\NX2AC.DAT
**Output Print File:             G:\CLIENTS\TR110--1\AIR-28\MODELING\NOX_MODELS\WILDLIFE_PRESERVE\NX2AC.LST
1 *** ISCST3 - VERSION 99155 ***    ***  NOx, Phase 2, Annual Average                                    ***        11/15/99
                                    ***  TMC Soledad                                                     ***        14:54:49
**MODELOPTs:                                                                                                        PAGE   2
CONC                        URBAN  FLAT                                    NOCALM


                                                  *** VOLUME SOURCE DATA ***

              NUMBER EMISSION RATE                    BASE    RELEASE    INIT.    INIT.   EMISSION RATE
```

PITOPS	0	0.26100E+01	375974.0	3811400.0	0.0	3.50	25.00	7.00
FINES	0	0.64700E-01	375741.0	3811744.0	0.0	3.50	25.00	7.00
STOCKPIL	0	0.54500E+00	376343.8	3811301.2	0.0	3.50	25.00	7.00
ROCKPLT	0	0.27300E+00	376359.2	3811119.0	0.0	3.50	25.00	7.00

**MODELOPTs:
CONC   URBAN FLAT   NOCALM

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID   SOURCE IDs

ALL   PITOPS , FINES , STOCKPIL, ROCKPLT ,

**MODELOPTs:
CONC   URBAN FLAT   NOCALM

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZFLAG)
(METERS)

(407896.0,	3798431.0,	0.0,	0.0);	(376707.0,	3811134.0,	0.0,	0.0);
(376710.0,	3811038.0,	0.0,	0.0);	(376712.0,	3810939.0,	0.0,	0.0);
(376717.0,	3810843.0,	0.0,	0.0);	(376700.0,	3811250.0,	0.0,	0.0);
(376697.0,	3811346.0,	0.0,	0.0);	(376693.0,	3811450.0,	0.0,	0.0);
(376690.0,	3811546.0,	0.0,	0.0);	(376685.0,	3811645.0,	0.0,	0.0);
(376683.0,	3811744.0,	0.0,	0.0);	(376678.0,	3811840.0,	0.0,	0.0);
(376676.0,	3811936.0,	0.0,	0.0);	(376671.0,	3812035.0,	0.0,	0.0);
(376666.0,	3812134.0,	0.0,	0.0);	(376663.0,	3812230.0,	0.0,	0.0);
(376659.0,	3812329.0,	0.0,	0.0);	(376654.0,	3812426.0,	0.0,	0.0);
(376561.0,	3812442.0,	0.0,	0.0);	(376464.0,	3812452.0,	0.0,	0.0);
(376367.0,	3812464.0,	0.0,	0.0);	(376270.0,	3812474.0,	0.0,	0.0);
(376248.0,	3812399.0,	0.0,	0.0);	(376253.0,	3812303.0,	0.0,	0.0);
(376258.0,	3812206.0,	0.0,	0.0);	(376260.0,	3812110.0,	0.0,	0.0);
(376217.0,	3812057.0,	0.0,	0.0);	(376122.0,	3812069.0,	0.0,	0.0);
(376025.0,	3812081.0,	0.0,	0.0);	(375928.0,	3812093.0,	0.0,	0.0);
(375828.0,	3812105.0,	0.0,	0.0);	(375728.0,	3812117.0,	0.0,	0.0);
(375631.0,	3812129.0,	0.0,	0.0);	(375532.0,	3812141.0,	0.0,	0.0);
(375461.0,	3812124.0,	0.0,	0.0);	(375464.0,	3812028.0,	0.0,	0.0);
(375464.0,	3811924.0,	0.0,	0.0);	(375466.0,	3811828.0,	0.0,	0.0);
(375469.0,	3811732.0,	0.0,	0.0);	(375374.0,	3811746.0,	0.0,	0.0);
(375277.0,	3811756.0,	0.0,	0.0);	(375180.0,	3811770.0,	0.0,	0.0);
(375077.0,	3811785.0,	0.0,	0.0);	(375077.0,	3811688.0,	0.0,	0.0);
(375075.0,	3811589.0,	0.0,	0.0);	(375075.0,	3811493.0,	0.0,	0.0);
(375075.0,	3811394.0,	0.0,	0.0);	(375073.0,	3811298.0,	0.0,	0.0);
(375070.0,	3811202.0,	0.0,	0.0);	(375070.0,	3811105.0,	0.0,	0.0);
(375068.0,	3811009.0,	0.0,	0.0);	(375145.0,	3810970.0,	0.0,	0.0);
(375240.0,	3810956.0,	0.0,	0.0);	(375340.0,	3810941.0,	0.0,	0.0);
(375437.0,	3810927.0,	0.0,	0.0);	(375534.0,	3810912.0,	0.0,	0.0);
(375631.0,	3810898.0,	0.0,	0.0);	(375728.0,	3810881.0,	0.0,	0.0);
(375826.0,	3810867.0,	0.0,	0.0);	(375923.0,	3810852.0,	0.0,	0.0);
(376020.0,	3810835.0,	0.0,	0.0);	(376119.0,	3810821.0,	0.0,	0.0);
(376217.0,	3810806.0,	0.0,	0.0);	(376299.0,	3810794.0,	0.0,	0.0);
(376353.0,	3810785.0,	0.0,	0.0);	(376450.0,	3810768.0,	0.0,	0.0);
(376547.0,	3810753.0,	0.0,	0.0);	(376644.0,	3810739.0,	0.0,	0.0);
(376719.0,	3810744.0,	0.0,	0.0);				

**MODELOPTs:
CONC   URBAN FLAT   NOCALM

*** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
(1=YES; 0=NO)

```
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1
```

METEOROLOGICAL DATA PROCESSED BETWEEN START DATE: 1981 1 1 1
AND END DATE: 1981 12 31 24

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** WIND PROFILE EXPONENTS ***

STABILITY	WIND SPEED CATEGORY					
CATEGORY	1	2	3	4	5	6
A	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00

C	.20000E+00	.20000E+00	.20000E+00	.20000E+00	.20000E+00	.20000E+00
D	.25000E+00	.25000E+00	.25000E+00	.25000E+00	.25000E+00	.25000E+00
E	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00
F	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00

*** VERTICAL POTENTIAL TEMPERATURE GRADIENTS ***
(DEGREES KELVIN PER METER)

STABILITY CATEGORY	WIND SPEED CATEGORY 1	2	3	4	5	6
A	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
B	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
C	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
D	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
E	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01
F	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

FILE: C:\TRINITY\ISC32\NEWHALL.ASC
FORMAT: (4I2,2F9.4,F6.1,I2,2F7.1,f9.4,f10.1,f8.4,i4,f7.2)
SURFACE STATION NO.: 51115 UPPER AIR STATION NO.: 99999
NAME: UNKNOWN NAME: UNKNOWN
YEAR: 1981 YEAR: 1981

YR	MN	DY	HR	FLOW VECTOR	SPEED (M/S)	TEMP (K)	STAB CLASS	MIXING HEIGHT (M) RURAL	MIXING HEIGHT (M) URBAN	USTAR (M/S)	M-O LENGTH (M)	Z-0 (M)	IPCODE	PRATE (mm/HR)
81	01	01	01	314.8	1.00	285.9	7	522.6	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	02	304.9	0.00	284.8	7	507.0	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	03	310.0	0.00	284.8	7	491.4	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	04	346.0	1.00	284.8	7	475.8	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	05	309.0	1.00	285.4	7	460.3	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	06	342.0	1.00	284.3	7	444.7	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	07	342.0	0.00	284.3	7	429.1	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	08	337.1	0.00	284.3	6	43.0	190.2	0.0000	0.0	0.0000	0	0.00
81	01	01	09	6.5	1.00	287.6	5	89.2	211.8	0.0000	0.0	0.0000	0	0.00
81	01	01	10	9.1	0.00	291.5	4	135.3	233.4	0.0000	0.0	0.0000	0	0.00
81	01	01	11	291.6	1.00	297.0	3	181.5	255.1	0.0000	0.0	0.0000	0	0.00
81	01	01	12	80.6	1.00	298.7	2	227.7	276.7	0.0000	0.0	0.0000	0	0.00
81	01	01	13	87.2	0.00	299.3	2	273.8	298.4	0.0000	0.0	0.0000	0	0.00
81	01	01	14	326.7	2.24	299.3	3	320.0	320.0	0.0000	0.0	0.0000	0	0.00
81	01	01	15	337.3	2.24	298.7	3	320.0	320.0	0.0000	0.0	0.0000	0	0.00
81	01	01	16	345.7	2.24	297.6	4	320.0	320.0	0.0000	0.0	0.0000	0	0.00
81	01	01	17	20.1	1.34	294.8	5	325.5	318.6	0.0000	0.0	0.0000	0	0.00
81	01	01	18	97.6	1.00	293.1	6	357.1	310.3	0.0000	0.0	0.0000	0	0.00
81	01	01	19	178.0	1.00	290.9	7	388.7	302.1	0.0000	0.0	0.0000	0	0.00
81	01	01	20	303.2	1.00	289.8	7	420.3	293.9	0.0000	0.0	0.0000	0	0.00
81	01	01	21	358.6	1.00	289.3	7	451.9	285.7	0.0000	0.0	0.0000	0	0.00
81	01	01	22	272.0	1.00	287.6	7	483.5	277.4	0.0000	0.0	0.0000	0	0.00
81	01	01	23	0.7	1.00	287.6	7	515.1	269.2	0.0000	0.0	0.0000	0	0.00
81	01	01	24	337.2	1.00	287.6	7	546.7	261.0	0.0000	0.0	0.0000	0	0.00

*** NOTES: STABILITY CLASS 1=A, 2=B, 3=C, 4=D, 5=E AND 6=F.
FLOW VECTOR IS DIRECTION TOWARD WHICH WIND IS BLOWING.

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE ANNUAL (1 YRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PITOPS , FINES , STOCKPIL, ROCKPLT ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF NOX IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
407896.00	3798431.00	0.01757	376707.00	3811134.00	7.22887
376710.00	3811038.00	6.60850	376712.00	3810939.00	5.90849
376717.00	3810843.00	5.31653	376700.00	3811250.00	8.09356
376697.00	3811346.00	7.64652	376693.00	3811450.00	6.17345
376690.00	3811546.00	5.06931	376685.00	3811645.00	3.94799
376683.00	3811744.00	3.24225	376678.00	3811840.00	2.94402
376676.00	3811936.00	2.65798	376671.00	3812035.00	2.35119
376666.00	3812134.00	2.08671	376663.00	3812230.00	1.88336
376659.00	3812329.00	1.71842	376654.00	3812426.00	1.58417
376561.00	3812442.00	1.83958	376464.00	3812452.00	2.11109
376367.00	3812464.00	2.38515	376270.00	3812474.00	2.88251
376248.00	3812399.00	3.27540	376253.00	3812303.00	3.57289
376258.00	3812206.00	3.96850	376260.00	3812110.00	4.54337
376217.00	3812057.00	5.51505	376122.00	3812069.00	7.55017
376025.00	3812081.00	9.70872	375928.00	3812093.00	10.49019
375828.00	3812105.00	11.22178	375728.00	3812117.00	11.71898
375631.00	3812129.00	11.93713	375532.00	3812141.00	12.72089
375461.00	3812124.00	14.24418	375464.00	3812028.00	18.08309
375464.00	3811924.00	21.54149	375466.00	3811828.00	22.43185
375469.00	3811732.00	19.94183	375374.00	3811746.00	13.50037
375277.00	3811756.00	9.55557	375180.00	3811770.00	7.27138
375077.00	3811785.00	5.75179	375077.00	3811688.00	5.67173

375070.00	3811202.00	3.70674	375070.00	3811105.00	2.83825
375068.00	3811009.00	2.35708	375145.00	3810970.00	2.51376
375240.00	3810956.00	2.98125	375340.00	3810941.00	3.74943
375437.00	3810927.00	4.75686	375534.00	3810912.00	5.93789
375631.00	3810898.00	7.06936	375728.00	3810881.00	7.95763
375826.00	3810867.00	10.08802	375923.00	3810852.00	12.81034
376020.00	3810835.00	12.89049	376119.00	3810821.00	10.95777
376217.00	3810806.00	9.79413	376299.00	3810794.00	10.04655
376353.00	3810785.00	9.92568	376450.00	3810768.00	8.12982
376547.00	3810753.00	6.35718	376644.00	3810739.00	5.25785
376719.00	3810744.00	4.70081			

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PITOPS , FINES , STOCKPIL, ROCKPLT ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF NOX IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
407896.00	3798431.00	2.95872	(81061521)	376707.00	3811134.00	276.51306	(81012401)
376710.00	3811038.00	243.80566	(81040303)	376712.00	3810939.00	227.67091	(81022002)
376717.00	3810843.00	205.63611	(81051820)	376700.00	3811250.00	302.88147	(81021504)
376697.00	3811346.00	266.50513	(81091905)	376693.00	3811450.00	223.68063	(81102822)
376690.00	3811546.00	209.74518	(81080320)	376685.00	3811645.00	200.50110	(81081603)
376683.00	3811744.00	188.26518	(81092224)	376678.00	3811840.00	175.94034	(81011905)
376676.00	3811936.00	162.55978	(81101118)	376671.00	3812035.00	149.36606	(81110122)
376666.00	3812134.00	136.82950	(81080503)	376663.00	3812230.00	125.43487	(81080805)
376659.00	3812329.00	114.90157	(81073120)	376654.00	3812426.00	105.77526	(81020206)
376561.00	3812442.00	109.73798	(81121503)	376464.00	3812452.00	114.10935	(81091907)
376367.00	3812464.00	117.45297	(81043021)	376270.00	3812474.00	120.35685	(81102401)
376248.00	3812399.00	132.21506	(81062220)	376253.00	3812303.00	148.88612	(81013004)
376258.00	3812206.00	169.62367	(81030722)	376260.00	3812110.00	195.60234	(81012501)
376217.00	3812057.00	219.16646	(81043021)	376122.00	3812069.00	225.34981	(81110418)
376025.00	3812081.00	226.51956	(81021602)	375928.00	3812093.00	221.75888	(81121821)
375828.00	3812105.00	212.39336	(81042903)	375728.00	3812117.00	201.77151	(81120905)
375631.00	3812129.00	192.90048	(81112104)	375532.00	3812141.00	182.75012	(81120901)
375461.00	3812124.00	179.84538	(81011420)	375464.00	3812028.00	203.91687	(81061906)
375464.00	3811924.00	230.71013	(81122204)	375466.00	3811828.00	258.91022	(81052123)
375469.00	3811732.00	294.47592	(81122303)	375374.00	3811746.00	252.26151	(81012204)
375277.00	3811756.00	218.73784	(81012619)	375180.00	3811770.00	191.15057	(81063001)
375077.00	3811785.00	167.62837	(81071404)	375077.00	3811688.00	174.63443	(81011704)
375075.00	3811589.00	178.44827	(81021323)	375075.00	3811493.00	179.17485	(81050406)
375075.00	3811394.00	176.37704	(81041001)	375073.00	3811298.00	170.39282	(81011520)
375070.00	3811202.00	162.46936	(81062004)	375070.00	3811105.00	154.16078	(81031607)
375068.00	3811009.00	145.10454	(81021624)	375145.00	3810970.00	154.20964	(81112923)
375240.00	3810956.00	170.62402	(81080824)	375340.00	3810941.00	190.97639	(81032024)
375437.00	3810927.00	213.67152	(81072702)	375534.00	3810912.00	237.92242	(81040306)
375631.00	3810898.00	262.65384	(81020608)	375728.00	3810881.00	282.25723	(81040404)
375826.00	3810867.00	295.92886	(81090624)	375923.00	3810852.00	297.92908	(81062202)
376020.00	3810835.00	287.53885	(81072424)	376119.00	3810821.00	270.39426	(81062703)
376217.00	3810806.00	247.66270	(81080119)	376299.00	3810794.00	227.37498	(81020121)
376353.00	3810785.00	213.80537	(81082222)	376450.00	3810768.00	193.28448	(81020220)
376547.00	3810753.00	184.07893	(81122219)	376644.00	3810739.00	179.92819	(81011724)
376719.00	3810744.00	178.32513	(81122705)				

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE SUMMARY OF MAXIMUM ANNUAL (1 YRS) RESULTS ***

** CONC OF NOX IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS	22.43185 AT	(375466.00, 3811828.00, 0.00, 0.00)	DC	NA
	2ND HIGHEST VALUE IS	21.54149 AT	(375464.00, 3811924.00, 0.00, 0.00)	DC	NA
	3RD HIGHEST VALUE IS	19.94183 AT	(375469.00, 3811732.00, 0.00, 0.00)	DC	NA
	4TH HIGHEST VALUE IS	18.08309 AT	(375464.00, 3812028.00, 0.00, 0.00)	DC	NA
	5TH HIGHEST VALUE IS	14.24418 AT	(375461.00, 3812124.00, 0.00, 0.00)	DC	NA
	6TH HIGHEST VALUE IS	13.50037 AT	(375374.00, 3811746.00, 0.00, 0.00)	DC	NA
	7TH HIGHEST VALUE IS	12.89049 AT	(376020.00, 3810835.00, 0.00, 0.00)	DC	NA
	8TH HIGHEST VALUE IS	12.81034 AT	(375923.00, 3810852.00, 0.00, 0.00)	DC	NA
	9TH HIGHEST VALUE IS	12.72089 AT	(375532.00, 3812141.00, 0.00, 0.00)	DC	NA
	10TH HIGHEST VALUE IS	11.93713 AT	(375631.00, 3812129.00, 0.00, 0.00)	DC	NA

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE SUMMARY OF HIGHEST 1-HR RESULTS ***

** CONC OF NOX IN MICROGRAMS/M**3 **

DATE NETWORK

```
ALL      HIGH  1ST HIGH VALUE IS      302.88147  ON 81021504: AT (  376700.00,  3811250.00,        0.00,        0.00)  DC      NA

 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
                      BD = BOUNDARY
1 *** ISCST3 - VERSION 99155 ***     ***  NOx, Phase 2, Annual Average                                  ***        11/15/99
                                     ***  TMC Soledad                                                   ***        14:54:49
                                                                                                                   PAGE  11
**MODELOPTs:
CONC                        URBAN  FLAT                                    NOCALM


*** Message Summary : ISCST3 Model Execution ***

 --------- Summary of Total Messages --------

A Total of             0 Fatal Error Message(s)
A Total of             0 Warning Message(s)
A Total of          1085 Informational Message(s)

A Total of          1085 Calm Hours Identified

   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***

   ********   WARNING MESSAGES   ********
              ***  NONE  ***

   ************************************
   *** ISCST3 Finishes Successfully ***
   ************************************
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              ISCST3X  PC (32 BIT) VERSION  3.3.0
             (C) COPYRIGHT 1991-1999, TRINITY CONSULTANTS

Run Began on 11/15/1999 at 14:48:00

** BREEZE ISC SUITE v3.2.2 - G:\Clients\tr110 - TMC Sole\Air-28\Modeling\PM_Models\wildlife_preserve\pm-new-pp2nc.dat
** Trinity Consultants, Dallas, TX

CO STARTING
CO TITLEONE  Proposed Project with Fines Conveyor and Combustion PM-10 - Lancast
CO TITLETWO  Phase 2 Annual and 24 Hour Average PM-10 Concentrations (NO CALMS)
CO MODELOPT  CONC  URBAN  NOCALM
CO AVERTIME  24  ANNUAL
CO POLLUTID  10-PM
CO TERRHGTS  FLAT
CO RUNORNOT  RUN
CO FINISHED

SO STARTING
SO ELEVUNIT  METERS
SO LOCATION  RCKPLNT  VOLUME  376359.2  3811119.0  0
SO LOCATION  BTCHPLNT  VOLUME  376329.4  3810975.0  0
SO LOCATION  FINES1  AREA  375691.0  3811794.0  0
SO LOCATION  FINES2  AREA  375791.0  3811794.0  0
SO LOCATION  FINES3  AREA  375691.0  3811694.0  0
SO LOCATION  FINES4  AREA  375791.0  3811694.0  0
SO LOCATION  STCKPILE  AREA  376343.8  3811301.3  0
SO LOCATION  PITOPS  AREA  375974.0  3811400.0  0
SO LOCATION  SRC3  AREALINE  376284.2  3811113.0  0
SO LOCATION  SRC5  AREALINE  376267.7  3810992.4  0
SO LOCATION  SRC6  AREALINE  376150.3  3811086.2  0
SO LOCATION  SRC7  AREALINE  376066.7  3810858.5  0
SO LOCATION  SRC8  AREALINE  375902.5  3810908.6  0
SO LOCATION  SRC9  AREALINE  375892.5  3810975.7  0
SO LOCATION  SRC11  AREALINE  375765.1  3810955.6  0
SO LOCATION  SRC12  AREALINE  375778.5  3811116.3  0
SO LOCATION  SRC14  AREALINE  375681.5  3811143.0  0
SO LOCATION  SRC16  AREALINE  375497.2  3811354.0  0
SO LOCATION  SRC18  AREALINE  375825.5  3811725.8  0
SO LOCATION  SRC19  AREALINE  375664.7  3811786.0  0
SO LOCATION  SRC20  AREALINE  375520.8  3811638.7  0
SO SRCPARAM  RCKPLNT  5.970000E-01  3.5  50  7
SO SRCPARAM  BTCHPLNT  3.250000E-02  3.5  50  7
SO SRCPARAM  FINES1  1.400000E-06  0  100  100  0  0
SO SRCPARAM  FINES2  1.400000E-06  0  100  100  0  0
SO SRCPARAM  FINES3  1.400000E-06  0  100  100  0  0
SO SRCPARAM  FINES4  1.400000E-06  0  100  100  0  0
SO SRCPARAM  STCKPILE  1.870000E-05  0  100  100  0  0
SO SRCPARAM  PITOPS  9.690000E-05  0  100  100  0  0
SO SRCPARAM  SRC3  1.130000E-06  0  122  10  98  0
SO SRCPARAM  SRC5  1.130000E-06  0  151.9  10  -140  0
SO SRCPARAM  SRC6  1.130000E-06  0  243.8  10  110.9  0
SO SRCPARAM  SRC7  1.130000E-06  0  169.5  10  -161.6  0
SO SRCPARAM  SRC8  1.130000E-06  0  60.8  10  -96.4  0
SO SRCPARAM  SRC9  1.130000E-06  0  121.8  10  172.1  0
SO SRCPARAM  SRC11  1.130000E-06  0  151.5  10  -83.6  0
SO SRCPARAM  SRC12  1.130000E-06  0  92  10  -164  0
SO SRCPARAM  SRC14  1.130000E-06  0  274  10  -130.5  0
SO SRCPARAM  SRC16  1.130000E-06  0  488.5  10  -47.8  0
SO SRCPARAM  SRC18  1.130000E-06  0  166.8  10  -157.6  0
SO SRCPARAM  SRC19  1.130000E-06  0  198.9  10  135.1  0
SO SRCPARAM  SRC20  1.130000E-06  0  121.8  10  -172.1  0
SO SRCGROUP  ALL
SO FINISHED

RE STARTING
RE DISCCART  407896.0  3798431.0
** RCPDESCR  San Gabriel Wilderness Preserve
** BOUNDARY
RE DISCCART  376707.0  3811134.0
RE DISCCART  376710.0  3811038.0
RE DISCCART  376712.0  3810939.0
RE DISCCART  376717.0  3810843.0
RE DISCCART  376700.0  3811250.0
RE DISCCART  376697.0  3811346.0
RE DISCCART  376693.0  3811450.0
RE DISCCART  376690.0  3811546.0
RE DISCCART  376685.0  3811645.0
RE DISCCART  376683.0  3811744.0
RE DISCCART  376678.0  3811840.0
RE DISCCART  376676.0  3811936.0
RE DISCCART  376671.0  3812035.0
RE DISCCART  376666.0  3812134.0
RE DISCCART  376663.0  3812230.0
RE DISCCART  376659.0  3812329.0
RE DISCCART  376654.0  3812426.0
RE DISCCART  376561.0  3812442.0
RE DISCCART  376464.0  3812452.0
RE DISCCART  376367.0  3812464.0
RE DISCCART  376270.0  3812474.0
RE DISCCART  376248.0  3812399.0
RE DISCCART  376253.0  3812303.0
RE DISCCART  376258.0  3812206.0
RE DISCCART  376260.0  3812110.0
RE DISCCART  376217.0  3812057.0
RE DISCCART  376122.0  3812069.0
RE DISCCART  376025.0  3812081.0
RE DISCCART  375928.0  3812093.0
RE DISCCART  375828.0  3812105.0
RE DISCCART  375728.0  3812117.0
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RE DISCCART  375532.0  3812141.0
RE DISCCART  375461.0  3812124.0
RE DISCCART  375464.0  3812028.0
RE DISCCART  375464.0  3811924.0
RE DISCCART  375466.0  3811828.0
RE DISCCART  375469.0  3811732.0
RE DISCCART  375374.0  3811746.0
RE DISCCART  375277.0  3811756.0
RE DISCCART  375180.0  3811770.0
RE DISCCART  375077.0  3811785.0
RE DISCCART  375077.0  3811688.0
RE DISCCART  375075.0  3811589.0
RE DISCCART  375075.0  3811493.0
RE DISCCART  375075.0  3811394.0
RE DISCCART  375073.0  3811298.0
RE DISCCART  375070.0  3811202.0
RE DISCCART  375070.0  3811105.0
RE DISCCART  375068.0  3811009.0
RE DISCCART  375145.0  3810970.0
RE DISCCART  375240.0  3810956.0
RE DISCCART  375340.0  3810941.0
RE DISCCART  375437.0  3810927.0
RE DISCCART  375534.0  3810912.0
RE DISCCART  375631.0  3810898.0
RE DISCCART  375728.0  3810881.0
RE DISCCART  375826.0  3810867.0
RE DISCCART  375923.0  3810852.0
RE DISCCART  376020.0  3810835.0
RE DISCCART  376119.0  3810821.0
RE DISCCART  376217.0  3810806.0
RE DISCCART  376299.0  3810794.0
RE DISCCART  376353.0  3810785.0
RE DISCCART  376450.0  3810768.0
RE DISCCART  376547.0  3810753.0
RE DISCCART  376644.0  3810739.0
RE DISCCART  376719.0  3810744.0
RE FINISHED

ME STARTING
ME INPUTFIL  C:\TRINITY\ISC32\NEWHALL.ASC
ME ANEMHGHT  10  METERS
ME SURFDATA  51115  1981
ME UAIRDATA  99999  1981
ME STARTEND  1981  01  01  1  1981  12  31  24
ME FINISHED

OU STARTING
OU RECTABLE  24  FIRST  FOURTH
OU MAXTABLE  24  50
OU FINISHED

** PROJECTN  0 104 7 -177 0 0.9996 500000 0
** OUTFILE  G:\Clients\TR110--1\Air-28\Modeling\PM_MOD-1\WILDLI-1\PM-NEW-1.LST
** RAWFILE  G:\Clients\TR110--1\Air-28\Modeling\PM_MOD-1\WILDLI-1\PM-NEW-1.RAW
** RAWFMT  2

** POLLUTNT IDN  01  10-PM  X
** POLLUTNT NAM  01
** POLLUTNT EMS  RCKPLNT 5.970000E-01
** POLLUTNT EMS  BTCHPLNT 3.250000E-02
** POLLUTNT EMS  FINES1 1.400000E-06
** POLLUTNT EMS  FINES2 1.400000E-06
** POLLUTNT EMS  FINES3 1.400000E-06
** POLLUTNT EMS  FINES4 1.400000E-06
** POLLUTNT EMS  STCKPILE 1.870000E-05
** POLLUTNT EMS  PITOPS 9.690000E-05
** POLLUTNT EMS  SRC3 1.130000E-06
** POLLUTNT EMS  SRC5 1.130000E-06
** POLLUTNT EMS  SRC6 1.130000E-06
** POLLUTNT EMS  SRC7 1.130000E-06
** POLLUTNT EMS  SRC8 1.130000E-06
** POLLUTNT EMS  SRC9 1.130000E-06
** POLLUTNT EMS  SRC11 1.130000E-06
** POLLUTNT EMS  SRC12 1.130000E-06
** POLLUTNT EMS  SRC14 1.130000E-06
** POLLUTNT EMS  SRC16 1.130000E-06
** POLLUTNT EMS  SRC18 1.130000E-06
** POLLUTNT EMS  SRC19 1.130000E-06
** POLLUTNT EMS  SRC20 1.130000E-06


*********************************
*** SETUP Finishes Successfully ***
*********************************

1 *** ISCST3 - VERSION 99155 ***   *** Proposed Project with Fines Conveyor and Combustion PM-10 - Lancast ***   11/15/99
                                   *** Phase 2 Annual and 24 Hour Average PM-10 Concentrations (NO CALMS)  ***   14:48:01
**MODELOPTs:                                                                                                     PAGE   1
CONC                      URBAN  FLAT                               NOCALM

                                       ***     MODEL SETUP OPTIONS SUMMARY       ***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

**Intermediate Terrain Processing is Selected

**Model Is Setup For Calculation of Average CONCentration Values.

  -- SCAVENGING/DEPOSITION LOGIC --
**Model Uses NO DRY DEPLETION.  DDPLETE =  F
**Model Uses NO WET DEPLETION.  WDPLETE =  F
**NO WET SCAVENGING Data Provided.
**NO GAS DRY DEPOSITION Data Provided.
```

**Model Uses URBAN Dispersion.

**Model Uses User-Specified Options:
1. Final Plume Rise.
2. Stack-tip Downwash.
3. Buoyancy-induced Dispersion.
4. Not Use Calms Processing Routine.
5. Not Use Missing Data Processing Routine.
6. Default Wind Profile Exponents.
7. Default Vertical Potential Temperature Gradients.

**Model Assumes Receptors on FLAT Terrain.

**Model Assumes No FLAGPOLE Receptor Heights.

**Model Calculates 1 Short Term Average(s) of: 24-HR
and Calculates ANNUAL Averages

**This Run Includes: 21 Source(s); 1 Source Group(s); and 69 Receptor(s)

**The Model Assumes A Pollutant Type of: 10-PM

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
Model Outputs Tables of ANNUAL Averages by Receptor
Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)
Model Outputs Tables of Overall Maximum Short Term Values (MAXTABLE Keyword)

**Misc. Inputs: Anem. Hgt. (m) = 10.00 ; Decay Coef. = 0.0000 ; Rot. Angle = 0.0
Emission Units = GRAMS/SEC ; Emission Rate Unit Factor = 0.10000E+07
Output Units = MICROGRAMS/M**3

**Approximate Storage Requirements of Model = 1.2 MB of RAM.

**Input Runstream File: G:\CLIENTS\TR110-~1\AIR-28\MODELING\PM_MOD~1\WILDLI~1\PM-NEW-PP2NC.DAT
**Output Print File: G:\CLIENTS\TR110-~1\AIR-28\MODELING\PM_MOD~1\WILDLI~1\PM-NEW-PP2NC.LST

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	EMISSION RATE SCALAR VARY BY
RCKPLNT	0	0.59700E+00	376359.2	3811119.0	0.0	3.50	50.00	7.00	
BTCHPLNT	0	0.32500E-01	376329.4	3810975.0	0.0	3.50	50.00	7.00	

*** AREA SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC /METER**2)	COORD (SW CORNER) X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	X-DIM OF AREA (METERS)	Y-DIM OF AREA (METERS)	ORIENT. OF AREA (DEG.)	INIT. SZ (METERS)	EMISSION RATE SCALAR VARY BY
FINES1	0	0.14000E-05	375691.0	3811794.0	0.0	0.00	100.00	100.00	0.00	0.00	
FINES2	0	0.14000E-05	375791.0	3811794.0	0.0	0.00	100.00	100.00	0.00	0.00	
FINES3	0	0.14000E-05	375691.0	3811694.0	0.0	0.00	100.00	100.00	0.00	0.00	
FINES4	0	0.14000E-05	375791.0	3811694.0	0.0	0.00	100.00	100.00	0.00	0.00	
STCKPILE	0	0.18700E-04	376343.8	3811301.2	0.0	0.00	100.00	100.00	0.00	0.00	
PITOPS	0	0.96900E-04	375974.0	3811400.0	0.0	0.00	100.00	100.00	0.00	0.00	

*** AREALINE SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC /METER**2)	COORD (SW CORNER) X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	X-DIM OF AREA (METERS)	Y-DIM OF AREA (METERS)	ORIENT. OF AREA (DEG.)	INIT. SZ (METERS)	EMISSION RATE SCALAR VARY BY
SRC3	0	0.11300E-05	376284.2	3811113.0	0.0	0.00	122.00	10.00	98.00	0.00	
SRC5	0	0.11300E-05	376267.7	3810992.5	0.0	0.00	151.90	10.00	-140.00	0.00	
SRC6	0	0.11300E-05	376150.3	3811086.2	0.0	0.00	243.80	10.00	110.90	0.00	
SRC7	0	0.11300E-05	376066.7	3810858.5	0.0	0.00	169.50	10.00	-161.60	0.00	
SRC8	0	0.11300E-05	375902.5	3810908.5	0.0	0.00	60.80	10.00	-96.40	0.00	
SRC9	0	0.11300E-05	375892.5	3810975.7	0.0	0.00	121.80	10.00	172.10	0.00	
SRC11	0	0.11300E-05	375765.1	3810955.5	0.0	0.00	151.50	10.00	-83.60	0.00	
SRC12	0	0.11300E-05	375778.5	3811116.2	0.0	0.00	92.00	10.00	-164.00	0.00	
SRC14	0	0.11300E-05	375681.5	3811143.0	0.0	0.00	274.00	10.00	-130.50	0.00	
SRC16	0	0.11300E-05	375497.2	3811354.0	0.0	0.00	488.50	10.00	-47.80	0.00	
SRC18	0	0.11300E-05	375825.5	3811725.7	0.0	0.00	166.80	10.00	-157.60	0.00	
SRC19	0	0.11300E-05	375664.7	3811786.0	0.0	0.00	193.90	10.00	135.10	0.00	
SRC20	0	0.11300E-05	375520.8	3811638.7	0.0	0.00	121.80	10.00	-172.10	0.00	

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE, PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 , SRC19 , SRC20 ,

*** DISCRETE CARTESIAN RECEPTORS ***
- (X-COORD, Y-COORD, ZELEV, ZFLAG)
(METERS)

(407896.0,	3798431.0,	0.0,	0.0);	(376707.0,	3811134.0,	0.0,	0.0);
(376710.0,	3811038.0,	0.0,	0.0);	(376712.0,	3810939.0,	0.0,	0.0);
(376717.0,	3810843.0,	0.0,	0.0);	(376700.0,	3811250.0,	0.0,	0.0);
(376697.0,	3811346.0,	0.0,	0.0);	(376693.0,	3811450.0,	0.0,	0.0);
(376690.0,	3811546.0,	0.0,	0.0);	(376685.0,	3811645.0,	0.0,	0.0);
(376683.0,	3811744.0,	0.0,	0.0);	(376678.0,	3811840.0,	0.0,	0.0);
(376676.0,	3811936.0,	0.0,	0.0);	(376671.0,	3812035.0,	0.0,	0.0);
(376666.0,	3812134.0,	0.0,	0.0);	(376663.0,	3812230.0,	0.0,	0.0);
(376659.0,	3812329.0,	0.0,	0.0);	(376654.0,	3812426.0,	0.0,	0.0);
(376561.0,	3812442.0,	0.0,	0.0);	(376464.0,	3812452.0,	0.0,	0.0);
(376367.0,	3812464.0,	0.0,	0.0);	(376270.0,	3812474.0,	0.0,	0.0);
(376248.0,	3812399.0,	0.0,	0.0);	(376253.0,	3812303.0,	0.0,	0.0);
(376258.0,	3812206.0,	0.0,	0.0);	(376260.0,	3812110.0,	0.0,	0.0);
(376217.0,	3812057.0,	0.0,	0.0);	(376122.0,	3812069.0,	0.0,	0.0);
(376025.0,	3812081.0,	0.0,	0.0);	(375928.0,	3812093.0,	0.0,	0.0);
(375828.0,	3812105.0,	0.0,	0.0);	(375728.0,	3812117.0,	0.0,	0.0);
(375631.0,	3812129.0,	0.0,	0.0);	(375532.0,	3812141.0,	0.0,	0.0);
(375461.0,	3812124.0,	0.0,	0.0);	(375464.0,	3812028.0,	0.0,	0.0);
(375464.0,	3811924.0,	0.0,	0.0);	(375466.0,	3811828.0,	0.0,	0.0);
(375469.0,	3811732.0,	0.0,	0.0);	(375374.0,	3811746.0,	0.0,	0.0);
(375277.0,	3811756.0,	0.0,	0.0);	(375180.0,	3811770.0,	0.0,	0.0);
(375077.0,	3811785.0,	0.0,	0.0);	(375077.0,	3811688.0,	0.0,	0.0);
(375075.0,	3811589.0,	0.0,	0.0);	(375075.0,	3811493.0,	0.0,	0.0);
(375075.0,	3811394.0,	0.0,	0.0);	(375073.0,	3811298.0,	0.0,	0.0);
(375070.0,	3811202.0,	0.0,	0.0);	(375070.0,	3811105.0,	0.0,	0.0);
(375068.0,	3811009.0,	0.0,	0.0);	(375145.0,	3810970.0,	0.0,	0.0);
(375240.0,	3810956.0,	0.0,	0.0);	(375340.0,	3810941.0,	0.0,	0.0);
(375437.0,	3810927.0,	0.0,	0.0);	(375534.0,	3810912.0,	0.0,	0.0);
(375631.0,	3810898.0,	0.0,	0.0);	(375728.0,	3810881.0,	0.0,	0.0);
(375826.0,	3810867.0,	0.0,	0.0);	(375923.0,	3810852.0,	0.0,	0.0);
(376020.0,	3810835.0,	0.0,	0.0);	(376119.0,	3810821.0,	0.0,	0.0);
(376217.0,	3810806.0,	0.0,	0.0);	(376299.0,	3810794.0,	0.0,	0.0);
(376353.0,	3810785.0,	0.0,	0.0);	(376450.0,	3810768.0,	0.0,	0.0);
(376547.0,	3810753.0,	0.0,	0.0);	(376644.0,	3810739.0,	0.0,	0.0);
(376719.0,	3810744.0,	0.0,	0.0);				

*** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
(1=YES; 0=NO)

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1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
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METEOROLOGICAL DATA PROCESSED BETWEEN START DATE: 1981 1 1 1
AND END DATE: 1981 12 31 24

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** WIND PROFILE EXPONENTS ***

STABILITY CATEGORY	WIND SPEED CATEGORY 1	2	3	4	5	6
A	.15000E+00	.15000E+00	.15000E+00	.15000E-00	.15000E+00	.15000E+00
B	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00
C	.20000E+00	.20000E+00	.20000E+00	.20000E+00	.20000E+00	.20000E+00
D	.25000E+00	.25000E+00	.25000E+00	.25000E+00	.25000E+00	.25000E+00
E	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00
F	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00

*** VERTICAL POTENTIAL TEMPERATURE GRADIENTS ***
(DEGREES KELVIN PER METER)

STABILITY CATEGORY	WIND SPEED CATEGORY 1	2	3	4	5	6
A	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
B	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
C	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
D	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
E	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01
F	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

FILE: C:\TRINITY\ISC32\NEWHALL.ASC
FORMAT: (4I2,2F9.4,F6.1,I2,2F7.1,f9.4,f10.1,f8.4,i4,f7.2)
SURFACE STATION NO.: 51115 UPPER AIR STATION NO.: 99999
NAME: UNKNOWN NAME: UNKNOWN
YEAR: 1981 YEAR: 1981

YR	MN	DY	HR	FLOW VECTOR	SPEED (M/S)	TEMP (K)	STAB CLASS	MIXING HEIGHT (M) RURAL	MIXING HEIGHT (M) URBAN	USTAR (M/S)	M-O LENGTH (M)	Z-0 (M)	IPCODE	PRATE (mm/HR)
81	01	01	01	314.8	1.00	285.9	7	522.6	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	02	304.9	0.00	284.8	7	507.0	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	03	310.0	0.00	284.8	7	491.4	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	04	346.0	1.00	284.8	7	475.8	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	05	309.0	1.00	285.4	7	460.3	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	06	342.0	1.00	284.3	7	444.7	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	07	342.0	0.00	284.3	7	429.1	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	08	337.1	0.00	284.3	6	43.0	190.2	0.0000	0.0	0.0000	0	0.00
81	01	01	09	6.5	1.00	287.6	5	89.2	211.8	0.0000	0.0	0.0000	0	0.00
81	01	01	10	9.1	0.00	291.5	4	135.3	233.4	0.0000	0.0	0.0000	0	0.00
81	01	01	11	291.6	1.00	297.0	3	181.5	255.1	0.0000	0.0	0.0000	0	0.00
81	01	01	12	80.6	1.00	298.7	2	227.7	276.7	0.0000	0.0	0.0000	0	0.00
81	01	01	13	87.2	0.00	299.3	2	273.8	298.4	0.0000	0.0	0.0000	0	0.00
81	01	01	14	326.7	2.24	299.3	3	320.0	320.0	0.0000	0.0	0.0000	0	0.00
81	01	01	15	337.3	2.24	298.7	3	320.0	320.0	0.0000	0.0	0.0000	0	0.00
81	01	01	16	345.7	2.24	297.6	4	320.0	320.0	0.0000	0.0	0.0000	0	0.00
81	01	01	17	20.1	1.34	294.8	5	325.5	318.6	0.0000	0.0	0.0000	0	0.00
81	01	01	18	97.6	1.00	293.1	6	357.1	310.3	0.0000	0.0	0.0000	0	0.00
81	01	01	19	178.0	1.00	290.9	7	388.7	302.1	0.0000	0.0	0.0000	0	0.00
81	01	01	20	303.2	1.00	289.8	7	420.3	293.9	0.0000	0.0	0.0000	0	0.00
81	01	01	21	358.6	1.00	289.3	7	451.9	285.7	0.0000	0.0	0.0000	0	0.00
81	01	01	22	272.0	1.00	287.6	7	483.5	277.4	0.0000	0.0	0.0000	0	0.00
81	01	01	23	0.7	1.00	287.6	7	515.1	269.2	0.0000	0.0	0.0000	0	0.00
81	01	01	24	337.2	1.00	287.6	7	546.7	261.0	0.0000	0.0	0.0000	0	0.00

*** NOTES: STABILITY CLASS 1=A, 2=B, 3=C, 4=D, 5=E AND 6=F.
FLOW VECTOR IS DIRECTION TOWARD WHICH WIND IS BLOWING.

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE ANNUAL (1 YRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,
PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
407896.00	3798431.00	0.00943	376707.00	3811134.00	5.74676
376710.00	3811038.00	5.62687	376712.00	3810939.00	4.92350
376717.00	3810843.00	4.20105	376700.00	3811250.00	5.44402
376697.00	3811346.00	5.39147	376693.00	3811450.00	4.28783
376690.00	3811546.00	3.48459	376685.00	3811645.00	2.70583
376683.00	3811744.00	2.12633	376678.00	3811840.00	1.90428
376676.00	3811936.00	1.71233	376671.00	3812035.00	1.50814
376666.00	3812134.00	1.34090	376663.00	3812230.00	1.21758
376659.00	3812329.00	1.11851	376654.00	3812426.00	1.03637
376561.00	3812442.00	1.23623	376464.00	3812452.00	1.40911
376367.00	3812464.00	1.55772	376270.00	3812474.00	1.85656
376248.00	3812399.00	2.12726	376253.00	3812303.00	2.35472
376258.00	3812206.00	2.64510	376260.00	3812110.00	3.05832
376217.00	3812057.00	3.76485	376122.00	3812069.00	5.14732
376025.00	3812081.00	5.96298	375928.00	3812093.00	6.29283
375828.00	3812105.00	6.93616	375728.00	3812117.00	7.14819
375631.00	3812129.00	7.59638	375532.00	3812141.00	8.07859
375461.00	3812124.00	8.42368	375464.00	3812028.00	9.81663
375464.00	3811924.00	10.29898	375466.00	3811828.00	9.38068
375469.00	3811732.00	7.80703	375374.00	3811746.00	5.68324
375277.00	3811756.00	4.29750	375180.00	3811770.00	3.43833
375077.00	3811785.00	2.81797	375077.00	3811688.00	2.61596
375075.00	3811589.00	2.73617	375075.00	3811493.00	2.61889
375075.00	3811394.00	2.50195	375073.00	3811298.00	2.19840
375070.00	3811202.00	1.77545	375070.00	3811105.00	1.50022
375068.00	3811009.00	1.32579	375145.00	3810970.00	1.41036
375240.00	3810956.00	1.64076	375340.00	3810941.00	1.98627

375631.00	3810898.00	3.39643	375728.00	3810881.00	3.81407
375826.00	3810867.00	4.57697	375923.00	3810852.00	6.19815
376020.00	3810835.00	7.59479	376119.00	3810821.00	7.48878
376217.00	3810806.00	7.85527	376299.00	3810794.00	8.83430
376353.00	3810785.00	8.89208	376450.00	3810768.00	7.19932
376547.00	3810753.00	5.29582	376644.00	3810739.00	4.09749
376719.00	3810744.00	3.54436			

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE 1ST HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,
PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
407896.00	3798431.00	0.09582	(81111924)	376707.00	3811134.00	33.20111	(81111924)
376710.00	3811038.00	27.67479	(81111924)	376712.00	3810939.00	28.98002	(81022224)
376717.00	3810843.00	33.93850	(81010524)	376700.00	3811250.00	32.33582	(81111924)
376697.00	3811346.00	29.24896	(81111924)	376693.00	3811450.00	23.18738	(81122524)
376690.00	3811546.00	14.45221	(81102424)	376685.00	3811645.00	12.66952	(81052024)
376683.00	3811744.00	11.69786	(81052024)	376678.00	3811840.00	11.10349	(81121524)
376676.00	3811936.00	10.10758	(81121524)	376671.00	3812035.00	7.60207	(81040824)
376666.00	3812134.00	8.01399	(81083024)	376663.00	3812230.00	8.01383	(81052024)
376659.00	3812329.00	8.58153	(81052024)	376654.00	3812426.00	7.60427	(81052024)
376561.00	3812442.00	6.56416	(81052024)	376464.00	3812452.00	6.64877	(81110324)
376367.00	3812464.00	8.92158	(81110324)	376270.00	3812474.00	11.50047	(81110324)
376248.00	3812399.00	12.70359	(81110324)	376253.00	3812303.00	13.52328	(81110324)
376258.00	3812206.00	13.75692	(81110324)	376260.00	3812110.00	13.24175	(81110324)
376217.00	3812057.00	18.21014	(81110324)	376122.00	3812069.00	27.99602	(81110324)
376025.00	3812081.00	25.14512	(81110324)	375928.00	3812093.00	27.84275	(81102324)
375828.00	3812105.00	34.98240	(81102324)	375728.00	3812117.00	25.15201	(81022324)
375631.00	3812129.00	25.68357	(81120624)	375532.00	3812141.00	29.93387	(81120624)
375461.00	3812124.00	31.80184	(81120624)	375464.00	3812028.00	35.66577	(81112224)
375464.00	3811924.00	40.61669	(81112224)	375466.00	3811828.00	35.63868	(81011824)
375469.00	3811732.00	29.28653	(81120324)	375374.00	3811746.00	24.60554	(81120324)
375277.00	3811756.00	20.91596	(81120324)	375180.00	3811770.00	17.93445	(81120324)
375077.00	3811785.00	15.42420	(81120324)	375077.00	3811688.00	14.37254	(81120324)
375075.00	3811589.00	12.09701	(81122624)	375075.00	3811493.00	10.51742	(81030324)
375075.00	3811394.00	11.35803	(81080424)	375073.00	3811298.00	8.85842	(81040124)
375070.00	3811202.00	8.01906	(81040124)	375070.00	3811105.00	7.91431	(81041624)
375068.00	3811009.00	6.67753	(81040124)	375145.00	3810970.00	6.94253	(81091724)
375240.00	3810956.00	7.36250	(81091724)	375340.00	3810941.00	9.55826	(81082424)
375437.00	3810927.00	10.72746	(81073124)	375534.00	3810912.00	14.55610	(81011624)
375631.00	3810898.00	14.01162	(81011624)	375728.00	3810881.00	14.96157	(81111524)
375826.00	3810867.00	16.08499	(81072524)	375923.00	3810852.00	23.27641	(81072524)
376020.00	3810835.00	38.52600	(81100924)	376119.00	3810821.00	32.72060	(81100924)
376217.00	3810806.00	30.42508	(81072824)	376299.00	3810794.00	31.09759	(81100924)
376353.00	3810785.00	41.58199	(81100924)	376450.00	3810768.00	34.70745	(81100924)
376547.00	3810753.00	33.97257	(81010524)	376644.00	3810739.00	34.91983	(81010524)
376719.00	3810744.00	33.31622	(81010524)				

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE 4TH HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,
PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
407896.00	3798431.00	0.06627	(81112324)	376707.00	3811134.00	19.25847	(81121724)
376710.00	3811038.00	18.94316	(81121724)	376712.00	3810939.00	19.29820	(81110124)
376717.00	3810843.00	17.56747	(81030524)	376700.00	3811250.00	17.19756	(81010724)
376697.00	3811346.00	22.93494	(81111824)	376693.00	3811450.00	15.07865	(81052224)
376690.00	3811546.00	11.80285	(81052024)	376685.00	3811645.00	9.70506	(81081624)
376683.00	3811744.00	9.40043	(81101824)	376678.00	3811840.00	8.23800	(81033124)
376676.00	3811936.00	7.61058	(81033124)	376671.00	3812035.00	6.53755	(81101124)
376666.00	3812134.00	5.96172	(81040824)	376663.00	3812230.00	5.12125	(81110924)
376659.00	3812329.00	4.69188	(81071024)	376654.00	3812426.00	4.84160	(81100824)
376561.00	3812442.00	5.41619	(81101124)	376464.00	3812452.00	5.88999	(81040724)
376367.00	3812464.00	5.82697	(81010124)	376270.00	3812474.00	6.84689	(81092924)
376248.00	3812399.00	7.84404	(81032624)	376253.00	3812303.00	8.41375	(81032624)
376258.00	3812206.00	9.46264	(81101124)	376260.00	3812110.00	11.35155	(81101124)
376217.00	3812057.00	13.41239	(81110924)	376122.00	3812069.00	18.99961	(81102024)
376025.00	3812081.00	20.43063	(81051924)	375928.00	3812093.00	19.50702	(81111124)
375828.00	3812105.00	22.00912	(81110924)	375728.00	3812117.00	22.94945	(81102224)
375631.00	3812129.00	23.86188	(81050924)	375532.00	3812141.00	24.55655	(81031524)
375461.00	3812124.00	28.72565	(81050924)	375464.00	3812028.00	32.94093	(81112024)
375464.00	3811924.00	34.51239	(81011824)	375466.00	3811828.00	28.01518	(81122324)
375469.00	3811732.00	26.87501	(81122824)	375374.00	3811746.00	21.83218	(81042124)
375277.00	3811756.00	18.00858	(81042124)	375180.00	3811770.00	14.85179	(81011824)
375077.00	3811785.00	12.12297	(81011824)	375077.00	3811688.00	11.68050	(81121424)
375075.00	3811589.00	9.52180	(81121224)	375075.00	3811493.00	9.85835	(81031824)
375075.00	3811394.00	9.95062	(81050824)	375073.00	3811298.00	8.12615	(81121224)
375070.00	3811202.00	6.97141	(81052124)	375070.00	3811105.00	6.15404	(81041224)
375068.00	3811009.00	5.86664	(81091724)	375145.00	3810970.00	5.75246	(81040124)
375240.00	3810956.00	6.77688	(81031424)	375340.00	3810941.00	8.48534	(81061824)
375437.00	3810927.00	9.13442	(81011624)	[illegible]	[illegible]	[illegible]	[illegible]

375826.00	3810867.00	13.45098	(81062424)	375923.00	3810852.00	19.55339	(81062224)
376020.00	3810835.00	25.06198	(81043024)	376119.00	3810821.00	25.50462	(81062324)
376217.00	3810806.00	24.27351	(81062924)	376299.00	3810794.00	29.19172	(81072824)
376353.00	3810785.00	30.78574	(81100124)	376450.00	3810768.00	25.90144	(81080624)
376547.00	3810753.00	18.47079	(81122224)	376644.00	3810739.00	17.21414	(81112524)
376719.00	3810744.00	15.60718	(81112524)				

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE MAXIMUM 50 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,
PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

** CONC OF 10-PM IN MICROGRAMS/M**3 **

RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE	RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE
1.	41.58199	(81100924)	AT	(376353.00, 3810785.00)	DC	26.	32.01456	(81022224)	AT	(376717.00, 3810843.00)	DC
2.	40.61669	(81112224)	AT	(375464.00, 3811924.00)	DC	27.	31.80184	(81120624)	AT	(375461.00, 3812124.00)	DC
3.	38.52600	(81100924)	AT	(376020.00, 3810835.00)	DC	28.	31.57277	(81021824)	AT	(375464.00, 3811924.00)	DC
4.	36.25920	(81112024)	AT	(375464.00, 3812028.00)	DC	29.	31.53718	(81030924)	AT	(375464.00, 3812028.00)	DC
5.	35.66577	(81112224)	AT	(375464.00, 3812028.00)	DC	30.	31.38513	(81070924)	AT	(376353.00, 3810785.00)	DC
6.	35.63868	(81011824)	AT	(375466.00, 3811828.00)	DC	31.	31.09759	(81100924)	AT	(376299.00, 3810794.00)	DC
7.	35.29418	(81010924)	AT	(375464.00, 3812028.00)	DC	32.	30.93970	(81020324)	AT	(375464.00, 3812028.00)	DC
8.	35.24749	(81121824)	AT	(375464.00, 3812028.00)	DC	33.	30.78574	(81100124)	AT	(376353.00, 3810785.00)	DC
9.	34.98240	(81102324)	AT	(375828.00, 3812105.00)	DC	34.	30.76495	(81121824)	AT	(375464.00, 3811924.00)	DC
10.	34.91983	(81010524)	AT	(376644.00, 3810739.00)	DC	35.	30.63431	(81072524)	AT	(376299.00, 3810794.00)	DC
11.	34.70745	(81100924)	AT	(376450.00, 3810768.00)	DC	36.	30.42508	(81072824)	AT	(376217.00, 3810806.00)	DC
12.	34.60130	(81121324)	AT	(375464.00, 3811924.00)	DC	37.	30.15346	(81010524)	AT	(376450.00, 3810768.00)	DC
13.	34.51239	(81011824)	AT	(375464.00, 3811924.00)	DC	38.	29.93387	(81120624)	AT	(375532.00, 3812141.00)	DC
14.	34.07310	(81112224)	AT	(375466.00, 3811828.00)	DC	39.	29.82852	(81121824)	AT	(375461.00, 3812124.00)	DC
15.	33.97257	(81010524)	AT	(376547.00, 3810753.00)	DC	40.	29.79543	(81070924)	AT	(376119.00, 3810821.00)	DC
16.	33.93850	(81010524)	AT	(376717.00, 3810843.00)	DC	41.	29.71168	(81120124)	AT	(376299.00, 3810794.00)	DC
17.	33.31622	(81010524)	AT	(376719.00, 3810744.00)	DC	42.	29.70046	(81030924)	AT	(375464.00, 3811924.00)	DC
18.	33.20111	(81111924)	AT	(376707.00, 3811134.00)	DC	43.	29.42724	(81121324)	AT	(375464.00, 3812028.00)	DC
19.	32.94093	(81112024)	AT	(375464.00, 3812028.00)	DC	44.	29.32049	(81042424)	AT	(376020.00, 3810835.00)	DC
20.	32.92587	(81120624)	AT	(375464.00, 3812028.00)	DC	45.	29.31453	(81010924)	AT	(375461.00, 3812124.00)	DC
21.	32.72060	(81100924)	AT	(376119.00, 3810821.00)	DC	46.	29.28653	(81120324)	AT	(375469.00, 3811732.00)	DC
22.	32.49717	(81010924)	AT	(375464.00, 3811924.00)	DC	47.	29.26738	(81011824)	AT	(375469.00, 3811732.00)	DC
23.	32.45676	(81042424)	AT	(376353.00, 3810785.00)	DC	48.	29.24896	(81111924)	AT	(376697.00, 3811346.00)	DC
24.	32.33582	(81111924)	AT	(376700.00, 3811250.00)	DC	49.	29.19172	(81072824)	AT	(376299.00, 3810794.00)	DC
25.	32.25892	(81031724)	AT	(375464.00, 3811924.00)	DC	50.	29.15086	(81050924)	AT	(375532.00, 3812141.00)	DC

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE SUMMARY OF MAXIMUM ANNUAL (1 YRS) RESULTS ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS	10.29898 AT	(375464.00, 3811924.00, 0.00, 0.00)	DC	NA
	2ND HIGHEST VALUE IS	9.81663 AT	(375464.00, 3812028.00, 0.00, 0.00)	DC	NA
	3RD HIGHEST VALUE IS	9.38068 AT	(375466.00, 3811828.00, 0.00, 0.00)	DC	NA
	4TH HIGHEST VALUE IS	8.89208 AT	(376353.00, 3810785.00, 0.00, 0.00)	DC	NA
	5TH HIGHEST VALUE IS	8.83430 AT	(376299.00, 3810794.00, 0.00, 0.00)	DC	NA
	6TH HIGHEST VALUE IS	8.42368 AT	(375461.00, 3812124.00, 0.00, 0.00)	DC	NA
	7TH HIGHEST VALUE IS	8.07859 AT	(375532.00, 3812141.00, 0.00, 0.00)	DC	NA
	8TH HIGHEST VALUE IS	7.85527 AT	(376217.00, 3810806.00, 0.00, 0.00)	DC	NA
	9TH HIGHEST VALUE IS	7.80703 AT	(375469.00, 3811732.00, 0.00, 0.00)	DC	NA
	10TH HIGHEST VALUE IS	7.59638 AT	(375631.00, 3812129.00, 0.00, 0.00)	DC	NA

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE SUMMARY OF HIGHEST 24-HR RESULTS ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	HIGH 1ST HIGH VALUE IS	41.58199	ON 81100924: AT	(376353.00, 3810785.00, 0.00, 0.00)	DC	NA
	HIGH 4TH HIGH VALUE IS	34.51239	ON 81011824: AT	(375464.00, 3811924.00, 0.00, 0.00)	DC	NA

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** Message Summary : ISCST3 Model Execution ***

--------- Summary of Total Messages --------

A Total of 0 Fatal Error Message(s)
A Total of 0 Warning Message(s)
A Total of 1085 Informational Message(s)

A Total of 1085 Calm Hours Identified

******** FATAL ERROR MESSAGES ********
*** NONE ***

******** WARNING MESSAGES ********
*** NONE ***

****
*** ISCST3 Finishes Successfully ***
****

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            ISCST3X  PC (32 BIT) VERSION  3.3.0
           (C) COPYRIGHT 1991-1999, TRINITY CONSULTANTS

Run Began on  5/02/2000 at 16:00:37

** BREEZE ISC SUITE v3.2.2 - G:\Clients\tr110 - TMC Sole\Air-28\Modeling\RNFSA\NOx\nx2hc.dat
** Trinity Consultants, Dallas, TX

CO STARTING
CO TITLEONE  NOx, Phase 1, Hourly Average Concentration
CO TITLETWO  TMC Soledad
CO MODELOPT  CONC  URBAN  NOCALM
CO AVERTIME  1
CO POLLUTID  NOX
CO TERRHGTS  FLAT
CO RUNORNOT  RUN
CO FINISHED

SO STARTING
SO ELEVUNIT  METERS
SO LOCATION  PITOPS  VOLUME  375974.0  3811400.0  0
** SRCDESCR  Pit Ops
SO LOCATION  FINES  VOLUME  375741.0  3811744.0  0
** SRCDESCR  Fines
SO LOCATION  ROCKPLT  VOLUME  376359.2  3811119.0  0
** SRCDESCR  Rock Plant
SO LOCATION  STOCKPIL  VOLUME  376343.8  3811301.3  0
** SRCDESCR  Stockpile
SO SRCPARAM  PITOPS  3.530000E+00  3.5  25  7
SO SRCPARAM  FINES  6.990000E-02  3.5  25  7
SO SRCPARAM  ROCKPLT  4.090000E-01  3.5  25  7
SO SRCPARAM  STOCKPIL  8.180000E-01  3.5  25  7
SO SRCGROUP  ALL
SO FINISHED

RE STARTING
RE GRIDCART CART1 STA
RE GRIDCART CART1 XYINC  373634  20  250  3809163  20  250
RE GRIDCART CART1 END
RE DISCCART  375707.0  3810561.0
** RCPDESCR  Nearest Dwelling
RE DISCCART  374756.0  3810927.0
** RCPDESCR  Trailer Park
** BOUNDARY
RE DISCCART  376707.0  3811134.0
RE DISCCART  376710.0  3811038.0
RE DISCCART  376712.0  3810939.0
RE DISCCART  376717.0  3810843.0
RE DISCCART  376700.0  3811250.0
RE DISCCART  376697.0  3811346.0
RE DISCCART  376693.0  3811450.0
RE DISCCART  376690.0  3811546.0
RE DISCCART  376685.0  3811645.0
RE DISCCART  376683.0  3811744.0
RE DISCCART  376678.0  3811840.0
RE DISCCART  376676.0  3811936.0
RE DISCCART  376671.0  3812035.0
RE DISCCART  376666.0  3812134.0
RE DISCCART  376663.0  3812230.0
RE DISCCART  376659.0  3812329.0
RE DISCCART  376654.0  3812426.0
RE DISCCART  376561.0  3812442.0
RE DISCCART  376464.0  3812452.0
RE DISCCART  376367.0  3812464.0
RE DISCCART  376270.0  3812474.0
RE DISCCART  376248.0  3812399.0
RE DISCCART  376253.0  3812303.0
RE DISCCART  376258.0  3812206.0
RE DISCCART  376260.0  3812110.0
RE DISCCART  376217.0  3812057.0
RE DISCCART  376122.0  3812069.0
RE DISCCART  376025.0  3812081.0
RE DISCCART  375928.0  3812093.0
RE DISCCART  375828.0  3812105.0
RE DISCCART  375728.0  3812117.0
RE DISCCART  375631.0  3812129.0
RE DISCCART  375532.0  3812141.0
RE DISCCART  375461.0  3812124.0
RE DISCCART  375464.0  3812028.0
RE DISCCART  375464.0  3811924.0
RE DISCCART  375466.0  3811828.0
RE DISCCART  375469.0  3811732.0
RE DISCCART  375374.0  3811746.0
RE DISCCART  375277.0  3811756.0
RE DISCCART  375180.0  3811770.0
RE DISCCART  375077.0  3811785.0
RE DISCCART  375077.0  3811688.0
RE DISCCART  375075.0  3811589.0
RE DISCCART  375075.0  3811493.0
RE DISCCART  375075.0  3811394.0
RE DISCCART  375073.0  3811298.0
RE DISCCART  375070.0  3811202.0
RE DISCCART  375070.0  3811105.0
RE DISCCART  375068.0  3811009.0
RE DISCCART  375145.0  3810970.0
RE DISCCART  375240.0  3810956.0
RE DISCCART  375340.0  3810941.0
RE DISCCART  375437.0  3810927.0
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RE DISCCART  375534.0  3810912.0
RE DISCCART  375631.0  3810898.0
RE DISCCART  375728.0  3810881.0
RE DISCCART  375826.0  3810867.0
RE DISCCART  375923.0  3810852.0
RE DISCCART  376020.0  3810835.0
RE DISCCART  376119.0  3810821.0
RE DISCCART  376217.0  3810806.0
RE DISCCART  376299.0  3810794.0
RE DISCCART  376353.0  3810785.0
RE DISCCART  376450.0  3810768.0
RE DISCCART  376547.0  3810753.0
RE DISCCART  376644.0  3810739.0
RE DISCCART  376719.0  3810744.0
RE FINISHED

ME STARTING
ME INPUTFIL  C:\TRINITY\ISC32\NEWHALL.ASC
ME ANEMHGHT  10  METERS
ME SURFDATA  51115  1981
ME UAIRDATA  99999  1981
ME STARTEND  1981  01  01  1  1981  12  31  24
ME FINISHED

OU STARTING
OU RECTABLE  1  FIRST
OU FINISHED

** PROJECTN  0 104 7 -177 0 0.9996 500000 0
** OUTFILE  G:\Clients\tr110 - TMC Sole\Air-28\Modeling\RNFSA\NOx\nx2hc.lst
** RAWFILE  G:\Clients\tr110 - TMC Sole\Air-28\Modeling\RNFSA\NOx\nx2hc.RAW
** RAWFMT  2

** POLLUTNT IDN  01  NOX  X
** POLLUTNT NAM  01
** POLLUTNT EMS  PITOPS 3.530000E+00
** POLLUTNT EMS  FINES 6.990000E-02
** POLLUTNT EMS  ROCKPLT 4.090000E-01
** POLLUTNT EMS  STOCKPIL 8.180000E-01


***********************************
*** SETUP Finishes Successfully ***
***********************************
```

```
1 *** ISCST3 - VERSION 99155 ***    ***  NOx, Phase 1, Hourly Average Concentration          ***       05/02/00
                                    ***  TMC Soledad                                         ***       16:00:37
**MODELOPTs:                                                                                           PAGE   1
CONC                        URBAN  FLAT                                  NOCALM

                                         ***     MODEL SETUP OPTIONS SUMMARY       ***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

**Intermediate Terrain Processing is Selected

**Model Is Setup For Calculation of Average CONCentration Values.

  --  SCAVENGING/DEPOSITION LOGIC --
**Model Uses NO DRY DEPLETION.  DDPLETE =  F
**Model Uses NO WET DEPLETION.  WDPLETE =  F
**NO WET SCAVENGING Data Provided.
**NO GAS DRY DEPOSITION Data Provided.
**Model Does NOT Use GRIDDED TERRAIN Data for Depletion Calculations

**Model Uses URBAN Dispersion.

**Model Uses User-Specified Options:
           1. Final Plume Rise.
           2. Stack-tip Downwash.
           3. Buoyancy-induced Dispersion.
           4. Not Use Calms Processing Routine.
           5. Not Use Missing Data Processing Routine.
           6. Default Wind Profile Exponents.
           7. Default Vertical Potential Temperature Gradients.

**Model Assumes Receptors on FLAT Terrain.

**Model Assumes No FLAGPOLE Receptor Heights.

**Model Calculates  1 Short Term Average(s) of:   1-HR

**This Run Includes:     4 Source(s);      1 Source Group(s); and     470 Receptor(s)

**The Model Assumes A Pollutant Type of:  NOX

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
        Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)

**Misc. Inputs:  Anem. Hgt. (m) =    10.00 ;    Decay Coef. =      0.0000 ;    Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                               ;  Emission Rate Unit Factor =   0.10000E+07
                 Output Units    = MICROGRAMS/M**3

**Approximate Storage Requirements of Model =     1.2 MB of RAM.

**Input Runstream File:          G:\CLIENTS\TR110--1\AIR-28\MODELING\RNFSA\NOX\NX2HC.DAT
**Output Print File:             G:\CLIENTS\TR110--1\AIR-28\MODELING\RNFSA\NOX\NX2HC.LST
1 *** ISCST3 - VERSION 99155 ***    ***  NOx, Phase 1, Hourly Average Concentration          ***       05/02/00
                                    ***  TMC Soledad                                         ***       16:00:37
```

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	EMISSION RATE SCALAR VARY BY
PITOPS	0	0.35300E+01	375974.0	3811400.0	0.0	3.50	25.00	7.00	
FINES	0	0.69900E-01	375741.0	3811744.0	0.0	3.50	25.00	7.00	
ROCKPLT	0	0.40900E+00	376359.2	3811119.0	0.0	3.50	25.00	7.00	
STOCKPIL	0	0.81800E+00	376343.8	3811301.2	0.0	3.50	25.00	7.00	

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	PITOPS , FINES , ROCKPLT , STOCKPIL,

*** GRIDDED RECEPTOR NETWORK SUMMARY ***

*** NETWORK ID: CART1 ; NETWORK TYPE: GRIDCART ***

*** X-COORDINATES OF GRID ***
(METERS)

373634.0, 373884.0, 374134.0, 374384.0, 374634.0, 374884.0, 375134.0, 375384.0, 375634.0, 375884.0,
376134.0, 376384.0, 376634.0, 376884.0, 377134.0, 377384.0, 377634.0, 377884.0, 378134.0, 378384.0,

*** Y-COORDINATES OF GRID ***
(METERS)

3809163.0, 3809413.0, 3809663.0, 3809913.0, 3810163.0, 3810413.0, 3810663.0, 3810913.0, 3811163.0, 3811413.0,
3811663.0, 3811913.0, 3812163.0, 3812413.0, 3812663.0, 3812913.0, 3813163.0, 3813413.0, 3813663.0, 3813913.0,

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZFLAG)
(METERS)

(375707.0,	3810561.0,	0.0,	0.0);	(374756.0,	3810927.0,	0.0,	0.0);
(376707.0,	3811134.0,	0.0,	0.0);	(376710.0,	3811038.0,	0.0,	0.0);
(376712.0,	3810939.0,	0.0,	0.0);	(376717.0,	3810843.0,	0.0,	0.0);
(376700.0,	3811250.0,	0.0,	0.0);	(376697.0,	3811346.0,	0.0,	0.0);
(376693.0,	3811450.0,	0.0,	0.0);	(376690.0,	3811546.0,	0.0,	0.0);
(376685.0,	3811645.0,	0.0,	0.0);	(376683.0,	3811744.0,	0.0,	0.0);
(376678.0,	3811840.0,	0.0,	0.0);	(376676.0,	3811936.0,	0.0,	0.0);
(376671.0,	3812035.0,	0.0,	0.0);	(376666.0,	3812134.0,	0.0,	0.0);
(376663.0,	3812230.0,	0.0,	0.0);	(376659.0,	3812329.0,	0.0,	0.0);
(376654.0,	3812426.0,	0.0,	0.0);	(376561.0,	3812442.0,	0.0,	0.0);
(376464.0,	3812452.0,	0.0,	0.0);	(376367.0,	3812464.0,	0.0,	0.0);
(376270.0,	3812474.0,	0.0,	0.0);	(376248.0,	3812399.0,	0.0,	0.0);
(376253.0,	3812303.0,	0.0,	0.0);	(376258.0,	3812206.0,	0.0,	0.0);
(376260.0,	3812110.0,	0.0,	0.0);	(376217.0,	3812057.0,	0.0,	0.0);
(376122.0,	3812069.0,	0.0,	0.0);	(376025.0,	3812081.0,	0.0,	0.0);
(375928.0,	3812093.0,	0.0,	0.0);	(375828.0,	3812105.0,	0.0,	0.0);
(375728.0,	3812117.0,	0.0,	0.0);	(375631.0,	3812129.0,	0.0,	0.0);
(375532.0,	3812141.0,	0.0,	0.0);	(375461.0,	3812124.0,	0.0,	0.0);
(375464.0,	3812028.0,	0.0,	0.0);	(375464.0,	3811924.0,	0.0,	0.0);
(375466.0,	3811828.0,	0.0,	0.0);	(375469.0,	3811732.0,	0.0,	0.0);
(375374.0,	3811746.0,	0.0,	0.0);	(375277.0,	3811756.0,	0.0,	0.0);
(375180.0,	3811770.0,	0.0,	0.0);	(375077.0,	3811785.0,	0.0,	0.0);
(375077.0,	3811688.0,	0.0,	0.0);	(375075.0,	3811589.0,	0.0,	0.0);
(375075.0,	3811493.0,	0.0,	0.0);	(375075.0,	3811394.0,	0.0,	0.0);
(375073.0,	3811298.0,	0.0,	0.0);	(375070.0,	3811202.0,	0.0,	0.0);
(375070.0,	3811105.0,	0.0,	0.0);	(375068.0,	3811009.0,	0.0,	0.0);
(375145.0,	3810970.0,	0.0,	0.0);	(375240.0,	3810956.0,	0.0,	0.0);
(375340.0,	3810941.0,	0.0,	0.0);	(375437.0,	3810927.0,	0.0,	0.0);
(375534.0,	3810912.0,	0.0,	0.0);	(375631.0,	3810898.0,	0.0,	0.0);
(375728.0,	3810881.0,	0.0,	0.0);	(375826.0,	3810867.0,	0.0,	0.0);
(375923.0,	3810852.0,	0.0,	0.0);	(376020.0,	3810835.0,	0.0,	0.0);
(376119.0,	3810821.0,	0.0,	0.0);	(376217.0,	3810806.0,	0.0,	0.0);
(376299.0,	3810794.0,	0.0,	0.0);	(376353.0,	3810785.0,	0.0,	0.0);
(376450.0,	3810768.0,	0.0,	0.0);	(376547.0,	3810753.0,	0.0,	0.0);
(376644.0,	3810739.0,	0.0,	0.0);	(376719.0,	3810744.0,	0.0,	0.0);

* SOURCE-RECEPTOR COMBINATIONS FOR WHICH CALCULATIONS MAY NOT BE PERFORMED *
LESS THAN 1.0 METER OR 3*ZLB IN DISTANCE, OR WITHIN OPEN PIT SOURCE

SOURCE ID	- - RECEPTOR LOCATION - - XR (METERS)	YR (METERS)	DISTANCE (METERS)
ROCKPLT	376384.0	3811163.0	-3.24

*** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
(1=YES; 0=NO)

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1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1
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METEOROLOGICAL DATA PROCESSED BETWEEN START DATE: 1981 1 1 1
AND END DATE: 1981 12 31 24

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** WIND PROFILE EXPONENTS ***

STABILITY CATEGORY	WIND SPEED CATEGORY 1	2	3	4	5	6
A	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00
B	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00
C	.20000E+00	.20000E+00	.20000E+00	.20000E+00	.20000E+00	.20000E+00
D	.25000E+00	.25000E+00	.25000E+00	.25000E+00	.25000E+00	.25000E+00
E	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00
F	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00

*** VERTICAL POTENTIAL TEMPERATURE GRADIENTS ***
(DEGREES KELVIN PER METER)

STABILITY CATEGORY	WIND SPEED CATEGORY 1	2	3	4	5	6
A	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
B	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
C	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
D	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
E	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01
F	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01

*** THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

FILE: C:\TRINITY\ISC32\NEWHALL.ASC
FORMAT: (4I2,2F9.4,F6.1,I2,2F7.1,f9.4,f10.1,f8.4,i4,f7.2)
SURFACE STATION NO.: 51115 UPPER AIR STATION NO.: 99999
NAME: UNKNOWN NAME: UNKNOWN
YEAR: 1981 YEAR: 1981

YR	MN	DY	HR	FLOW VECTOR	SPEED (M/S)	TEMP (K)	STAB CLASS	MIXING HEIGHT (M) RURAL	URBAN	USTAR (M/S)	M-O LENGTH (M)	Z-0 (M)	IPCODE	PRATE (mm/HR)
81	01	01	01	314.8	1.00	285.9	7	522.6	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	02	304.9	0.00	284.8	7	507.0	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	03	310.0	0.00	284.8	7	491.4	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	04	346.0	1.00	284.8	7	475.8	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	05	309.0	1.00	285.4	7	460.3	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	06	342.0	1.00	284.3	7	444.7	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	07	342.0	0.00	284.3	7	429.1	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	08	337.1	0.00	284.3	6	43.0	190.2	0.0000	0.0	0.0000	0	0.00
81	01	01	09	6.5	1.00	287.6	5	89.2	211.8	0.0000	0.0	0.0000	0	0.00
81	01	01	10	9.1	0.00	291.5	4	135.3	233.4	0.0000	0.0	0.0000	0	0.00
81	01	01	11	291.6	1.00	297.0	3	181.5	255.1	0.0000	0.0	0.0000	0	0.00
81	01	01	12	80.6	1.00	298.7	2	227.7	276.7	0.0000	0.0	0.0000	0	0.00
81	01	01	13	87.2	0.00	299.3	2	273.8	298.4	0.0000	0.0	0.0000	0	0.00
81	01	01	14	326.7	2.24	299.3	3	320.0	320.0	0.0000	0.0	0.0000	0	0.00

81 01 01 15	337.3	2.24	298.7	3	320.0	320.0	0.0000	0.0	0.0000	0	0.00
81 01 01 16	345.7	2.24	297.6	4	320.0	320.0	0.0000	0.0	0.0000	0	0.00
81 01 01 17	20.1	1.34	294.8	5	325.5	318.6	0.0000	0.0	0.0000	0	0.00
81 01 01 18	97.6	1.00	293.1	6	357.1	310.3	0.0000	0.0	0.0000	0	0.00
81 01 01 19	178.0	1.00	290.9	7	388.7	302.1	0.0000	0.0	0.0000	0	0.00
81 01 01 20	303.2	1.00	289.8	7	420.3	293.9	0.0000	0.0	0.0000	0	0.00
81 01 01 21	358.6	1.00	289.3	7	451.9	285.7	0.0000	0.0	0.0000	0	0.00
81 01 01 22	272.0	1.00	287.6	7	483.5	277.4	0.0000	0.0	0.0000	0	0.00
81 01 01 23	0.7	1.00	287.6	7	515.1	269.2	0.0000	0.0	0.0000	0	0.00
81 01 01 24	337.2	1.00	287.6	7	546.7	261.0	0.0000	0.0	0.0000	0	0.00

*** NOTES: STABILITY CLASS 1=A, 2=B, 3=C, 4=D, 5=E AND 6=F.
FLOW VECTOR IS DIRECTION TOWARD WHICH WIND IS BLOWING.

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PITOPS , FINES , ROCKPLT , STOCKPIL,

*** NETWORK ID: CART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF NOX IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 373634.00	373884.00	374134.00	374384.00	374634.00
3813913.0	49.87107 (81121819)	52.44678 (81121818)	54.96107 (81120623)	57.30685 (81012120)	59.36655 (81120923)
3813663.0	53.34676 (81041405)	56.53872 (81091404)	59.73324 (81021823)	62.79053 (81010405)	65.55348 (81070224)
3813413.0	57.06615 (81010407)	61.03050 (81082922)	65.11816 (81060501)	69.16667 (81112120)	72.93701 (81060404)
3813163.0	60.96319 (81010918)	65.87398 (81032503)	71.11838 (81021402)	76.52464 (81052803)	81.78825 (81082002)
3812913.0	64.90565 (81031520)	70.94776 (81050601)	77.64381 (81082206)	84.88268 (81121923)	92.34062 (81113003)
3812663.0	68.74301 (81102007)	76.02974 (81071924)	84.46046 (81011822)	94.06226 (81020706)	104.63988 (81032724)
3812413.0	72.20734 (81022703)	80.79451 (81032008)	91.13457 (81033103)	103.56786 (81120924)	118.29546 (81120404)
3812163.0	75.00454 (81010318)	84.79432 (81040902)	97.01455 (81041201)	112.48849 (81112901)	132.14761 (81121205)
3811913.0	76.83270 (81010706)	87.53999 (81010804)	101.28255 (81111921)	119.44350 (81011704)	144.09651 (81062005)
3811663.0	77.49517 (81092403)	88.60693 (81071601)	103.13531 (81082820)	122.82876 (81082903)	150.75458 (81040401)
3811413.0	76.85956 (81080723)	87.79353 (81080723)	102.07984 (81080723)	121.53531 (81010919)	149.33875 (81010919)
3811163.0	75.02589 (81042906)	85.25076 (81011520)	98.42003 (81021119)	116.02972 (81021319)	140.51358 (81072201)
3810913.0	72.23991 (81030222)	81.38851 (81112703)	92.91668 (81091603)	107.80858 (81082523)	127.80872 (81082707)
3810663.0	68.79697 (81091707)	76.69423 (81100623)	86.46491 (81092806)	98.60845 (81072905)	114.25640 (81071421)
3810413.0	65.04696 (81041204)	71.77642 (81092502)	79.78459 (81071101)	89.49914 (81012223)	101.46768 (81032024)
3810163.0	61.20072 (81010901)	66.76701 (81102602)	73.35515 (81020208)	80.92902 (81071803)	89.97618 (81031706)
3809913.0	57.42153 (81012403)	62.07341 (81022505)	67.36428 (81061804)	73.31804 (81092504)	80.05213 (81032506)
3809663.0	53.81982 (81032024)	57.68807 (81062903)	61.93822 (81052403)	66.60204 (81043022)	71.64195 (81082004)
3809413.0	50.44771 (81071303)	53.65052 (81062623)	57.08972 (81030804)	60.75336 (81022802)	64.58654 (81031306)
3809163.0	47.33929 (81041501)	49.97134 (81050405)	52.78857 (81092501)	55.69493 (81042804)	58.65813 (81031807)

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PITOPS , FINES , ROCKPLT , STOCKPIL,

*** NETWORK ID: CART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF NOX IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 374884.00	375134.00	375384.00	375634.00	375884.00
3813913.0	61.04123 (81091803)	62.22440 (81092804)	62.88478 (81010104)	63.02455 (81092206)	62.66465 (81101705)
3813663.0	67.83169 (81110820)	69.48556 (81111001)	70.44959 (81032404)	70.73226 (81052420)	70.34180 (81070423)
3813413.0	76.14925 (81091019)	78.55371 (81042202)	80.03236 (81112105)	80.57018 (81102207)	80.25505 (81070423)
3813163.0	86.47402 (81081503)	90.13223 (81110222)	92.51682 (81101922)	93.64290 (81071923)	93.52864 (81113002)
3812913.0	99.41356 (81021224)	105.28240 (81031705)	109.35352 (81122102)	111.63625 (81011008)	112.12209 (81060702)
3812663.0	115.56135 (81021023)	125.52850 (81060404)	133.02353 (81090904)	137.72995 (81032404)	139.78734 (81100103)
3812413.0	135.08102 (81021401)	152.64064 (81050605)	167.91112 (81121403)	178.12390 (81100419)	184.27414 (81092524)
3812163.0	156.95531 (81042801)	187.04402 (81050303)	220.60147 (81120608)	246.77727 (81092205)	263.80188 (81122809)
3811913.0	178.38069 (81121304)	226.40488 (81040422)	291.43069 (81010407)	385.13931 (81050502)	431.61438 (81100521)
3811663.0	192.71643 (81080804)	260.49136 (81092507)	378.81079 (81050202)	589.47241 (81031704)	903.88147 (81021321)
3811413.0	191.79964 (81120122)	263.34384 (81041205)	403.72089 (81100523)	765.40851 (81042024)	2538.90137 (81020108)
3811163.0	176.53006 (81062004)	234.51849 (81062102)	340.54523 (81102821)	570.91602 (81092503)	998.12732 (81062401)
3810913.0	155.91231 (81032205)	198.12051 (81102602)	265.58136 (81040402)	365.94003 (81090922)	459.35861 (81030221)
3810663.0	135.17802 (81052722)	163.83020 (81062605)	202.03850 (81082303)	245.32913 (81042324)	275.37500 (81043023)
3810413.0	116.45270 (81092423)	135.06880 (81032022)	156.57440 (81062022)	177.15749 (81101608)	189.68567 (81081521)
3810163.0	100.47157 (81082407)	112.58257 (81062024)	125.11613 (81080307)	135.94977 (81062023)	142.16438 (81052122)
3809913.0	87.52518 (81032820)	95.40030 (81090304)	102.80624 (81110818)	109.33656 (81110321)	112.86512 (81111618)
3809663.0	76.98750 (81071701)	82.34641 (81061703)	87.29852 (81101608)	91.19110 (81080707)	93.45982 (81021105)
3809413.0	68.46663 (81111207)	72.25731 (81052023)	75.60547 (81031822)	78.24738 (81102601)	79.87193 (81011908)
3809163.0	61.57916 (81033024)	64.33189 (81082322)	66.74389 (81070824)	68.61753 (81040924)	69.89461 (81062306)

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PITOPS , FINES , ROCKPLT , STOCKPIL,

*** NETWORK ID: CART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF NOX IN MICROGRAMS/M**3 **

Y-COORD | X-COORD (METERS)

(METERS)	376134.00	376384.00	376634.00	376884.00	377134.00
3813913.0	61.82856 (81121922)	60.54465 (81060224)	58.88425 (81102005)	56.91776 (81030722)	54.71880 (81011804)
3813663.0	69.32159 (81052020)	67.67329 (81072622)	65.44920 (81022324)	62.85710 (81012920)	60.03081 (81042105)
3813413.0	79.00447 (81101703)	76.80669 (81072102)	73.78849 (81012819)	70.22465 (81011804)	66.34105 (81121503)
3813163.0	91.89821 (81102306)	88.93902 (81110418)	84.49911 (81043021)	79.43741 (81100820)	74.13180 (81010908)
3812913.0	110.28181 (81012705)	105.67773 (81121608)	99.00690 (81042905)	91.26977 (81121401)	83.56915 (81083021)
3812663.0	137.55629 (81110319)	129.98270 (81012819)	118.78553 (81060505)	106.50190 (81012102)	95.04990 (81082301)
3812413.0	181.28828 (81050924)	166.76797 (81012501)	146.44020 (81052002)	126.06300 (81091123)	108.77979 (81070101)
3812163.0	258.40839 (81082923)	225.27275 (81030524)	184.89304 (81120703)	149.81580 (81110303)	124.42645 (81103005)
3811913.0	414.95889 (81013004)	322.05338 (81110819)	236.11273 (81032402)	177.75162 (81090704)	141.59001 (81102904)
3811663.0	806.87494 (81080419)	468.82263 (81010207)	291.18985 (81081604)	205.04070 (81081722)	161.47287 (81092002)
3811413.0	1564.38757 (81102822)	577.81622 (81060924)	349.44131 (81071603)	252.45126 (81071603)	190.72430 (81012504)
3811163.0	881.79926 (81010507)	496.06390 (81053023)	455.51068 (81031008)	297.32190 (81112919)	210.41699 (81091606)
3810913.0	442.40283 (81102120)	342.79910 (81061921)	341.61060 (81042701)	256.31268 (81112208)	199.56638 (81102403)
3810663.0	271.06125 (81112319)	236.66402 (81081522)	218.08737 (81122219)	205.98991 (81071906)	174.94495 (81032201)
3810413.0	188.28865 (81080524)	174.35802 (81100904)	161.43016 (81010218)	157.63831 (81070322)	146.10583 (81091602)
3810163.0	141.78133 (81100902)	135.67059 (81102120)	129.08614 (81112622)	126.01241 (81021306)	120.94617 (81111219)
3809913.0	112.98081 (81072404)	110.36121 (81072822)	107.14003 (81103003)	105.01938 (81112119)	102.17987 (81020220)
3809663.0	93.86479 (81030819)	92.86011 (81020505)	91.36210 (81091619)	89.99133 (81080621)	88.10840 (81081605)
3809413.0	80.43182 (81100922)	80.17386 (81012518)	79.50404 (81011906)	78.63982 (81100701)	77.30107 (81020308)
3809163.0	70.50491 (81032624)	70.58755 (81060602)	70.31567 (81072823)	69.75790 (81081701)	68.76442 (81090121)

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PITOPS , FINES , ROCKPLT , STOCKPIL,

*** NETWORK ID: CART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF NOX IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 377384.00	377634.00	377884.00	378134.00	378384.00
3813913.0	52.47784 (81052001)	50.19682 (81030521)	47.94769 (81073120)	45.74616 (81080805)	43.66896 (81072120)
3813663.0	57.12350 (81080419)	54.24513 (81012102)	51.48852 (81111217)	48.86303 (81052121)	46.35965 (81011107)
3813413.0	62.57183 (81051923)	58.90109 (81100420)	55.46059 (81052121)	52.24341 (81102519)	49.33554 (81040819)
3813163.0	68.77799 (81021505)	64.18237 (81052121)	59.91444 (81103007)	55.86876 (81110303)	52.55788 (81110219)
3812913.0	76.36574 (81082301)	70.23671 (81031901)	64.86322 (81072921)	60.03934 (81040321)	55.95366 (81081520)
3812663.0	85.25597 (81021407)	77.13605 (81032402)	70.42802 (81082219)	64.71686 (81090707)	59.60448 (81102023)
3812413.0	95.24638 (81040321)	84.68471 (81011905)	76.46257 (81102023)	69.46249 (81091502)	63.71052 (81102024)
3812163.0	106.40172 (81102023)	93.30190 (81092224)	83.13586 (81010620)	74.80421 (81022419)	67.77686 (81102907)
3811913.0	118.86044 (81012304)	102.33551 (81102907)	90.33324 (81103004)	80.21097 (81020207)	71.87286 (81031620)
3811663.0	133.73215 (81080320)	113.38251 (81011720)	97.69257 (81060301)	85.47246 (81121718)	75.60421 (81032321)
3811413.0	150.66277 (81020323)	123.53107 (81111906)	104.18383 (81080305)	89.83346 (81080305)	78.74464 (81111418)
3811163.0	161.01509 (81021520)	129.66173 (81081204)	108.06871 (81120720)	92.45355 (81061024)	80.57697 (81122519)
3810913.0	158.36093 (81072223)	129.15938 (81122319)	108.27034 (81060524)	92.76257 (81082419)	80.87669 (81091606)
3810663.0	146.18205 (81010317)	122.93588 (81061902)	104.80643 (81031008)	90.69620 (81031324)	79.56535 (81010704)
3810413.0	129.30914 (81062705)	112.83710 (81102523)	98.45192 (81010317)	86.37457 (81012706)	76.90343 (81112318)
3810163.0	112.05959 (81062606)	101.32610 (81122408)	90.84851 (81032201)	81.40708 (81042106)	73.19666 (81101619)
3809913.0	97.03337 (81111219)	90.19424 (81022202)	82.77178 (81022203)	75.55672 (81062521)	68.92483 (81091223)
3809663.0	84.88584 (81041203)	80.35966 (81013106)	75.11658 (81060922)	69.61494 (81011722)	64.43063 (81020219)
3809413.0	74.95736 (81010507)	71.97102 (81021203)	68.15464 (81010505)	64.12689 (81060724)	59.99385 (81032803)
3809163.0	67.17314 (81090123)	64.91161 (81081422)	62.15441 (81110108)	58.94146 (81080505)	55.80749 (81080706)

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PITOPS , FINES , ROCKPLT , STOCKPIL,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF NOX IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
375707.00	3810561.00	220.83279	(81112308)	374756.00	3810927.00	141.15280	(81071201)
376707.00	3811134.00	386.76590	(81031008)	376710.00	3811038.00	339.12250	(81040303)
376712.00	3810939.00	316.53815	(81022002)	376717.00	3810843.00	285.44824	(81051820)
376700.00	3811250.00	424.52655	(81021504)	376697.00	3811346.00	369.82977	(81110201)
376693.00	3811450.00	304.58936	(81102822)	376690.00	3811546.00	284.01212	(81080320)
376685.00	3811645.00	271.24188	(81081603)	376683.00	3811744.00	254.64470	(81092224)
376678.00	3811840.00	237.97264	(81011905)	376676.00	3811936.00	219.87051	(81101118)
376671.00	3812035.00	202.02829	(81110122)	376666.00	3812134.00	185.07504	(81080503)
376663.00	3812230.00	169.66861	(81080805)	376659.00	3812329.00	155.42822	(81073120)
376654.00	3812426.00	143.09883	(81020206)	376561.00	3812442.00	148.45035	(81121503)
376464.00	3812452.00	154.35442	(81091907)	376367.00	3812464.00	158.87036	(81043021)
376270.00	3812474.00	162.80147	(81102401)	376248.00	3812399.00	178.83388	(81062220)
376253.00	3812303.00	201.37378	(81013004)	376258.00	3812206.00	229.41757	(81030722)
376260.00	3812110.00	264.55121	(81012501)	376217.00	3812057.00	296.42084	(81043021)
376122.00	3812069.00	304.78409	(81110418)	376025.00	3812081.00	306.36871	(81021602)
375928.00	3812093.00	299.93912	(81121821)	375828.00	3812105.00	287.25101	(81042903)
375728.00	3812117.00	272.50699	(81120905)	375631.00	3812129.00	259.67297	(81081923)
375532.00	3812141.00	245.76108	(81120901)	375461.00	3812124.00	242.31468	(81111505)
375464.00	3812028.00	275.07675	(81021205)	375464.00	3811924.00	312.89264	(81081507)
375466.00	3811828.00	353.21576	(81020223)	375469.00	3811732.00	402.72919	(81050523)
375374.00	3811746.00	345.59641	(81012204)	375277.00	3811756.00	300.05527	(81012619)
375180.00	3811770.00	262.46088	(81063001)	375077.00	3811785.00	230.33363	(81071404)
375077.00	3811688.00	239.90182	(81011704)	375075.00	3811589.00	244.93346	(81051723)
375075.00	3811493.00	245.58965	(81052723)	375075.00	3811394.00	241.26546	(81041001)
375073.00	3811298.00	232.56850	(81010805)	375070.00	3811202.00	221.24979	(81062004)
375070.00	3811105.00	209.55652	(81041602)	375068.00	3811009.00	197.02429	(81021624)
375145.00	3810970.00	209.04689	(81010901)	375240.00	3810856.00	231.07639	(81080824)

375340.00	3810941.00	258.43262	(81032024)	375437.00	3810927.00	289.04126	(81072702)
375534.00	3810912.00	321.80347	(81040306)	375631.00	3810898.00	355.23874	(81020608)
375728.00	3810881.00	381.74945	(81040404)	375826.00	3810867.00	400.23462	(81090624)
375923.00	3810852.00	402.90723	(81062202)	376020.00	3810835.00	388.73087	(81072424)
376119.00	3810821.00	365.28888	(81062703)	376217.00	3810806.00	334.29587	(81080119)
376299.00	3810794.00	306.75311	(81020121)	376353.00	3810785.00	288.42032	(81082222)
376450.00	3810768.00	261.21078	(81020220)	376547.00	3810753.00	250.66182	(81122219)
376644.00	3810739.00	247.30351	(81031720)	376719.00	3810744.00	246.40436	(81122705)

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE SUMMARY OF HIGHEST 1-HR RESULTS ***

** CONC OF NOX IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	HIGH 1ST HIGH VALUE IS	2538.90137	ON 81020108:	AT (375884.00, 3811413.00, 0.00, 0.00)	GC	CART1

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** Message Summary : ISCST3 Model Execution ***

--------- Summary of Total Messages --------

A Total of 0 Fatal Error Message(s)
A Total of 0 Warning Message(s)
A Total of 1085 Informational Message(s)

A Total of 1085 Calm Hours Identified

******** FATAL ERROR MESSAGES ********
*** NONE ***

******** WARNING MESSAGES ********
*** NONE ***

****
*** ISCST3 Finishes Successfully ***
****

```
              ISCST3X  PC (32 BIT) VERSION  3.3.0
             (C) COPYRIGHT 1991-1999, TRINITY CONSULTANTS

 Run Began on  5/02/2000 at 16:00:01

 ** BREEZE ISC SUITE v3.2.2 - G:\Clients\tr110 - TMC Sole\Air-28\Modeling\RNFSA\NOx\nx2ac.dat
 ** Trinity Consultants, Dallas, TX

 CO STARTING
 CO TITLEONE  NOx, RNFSA Phase 2, Annual Average
 CO TITLETWO  TMC Soledad
 CO MODELOPT  CONC  URBAN  NOCALM
 CO AVERTIME  1  ANNUAL
 CO POLLUTID  NOX
 CO TERRHGTS  FLAT
 CO RUNORNOT  RUN
 CO FINISHED

 SO STARTING
 SO ELEVUNIT  METERS
 SO LOCATION  PITOPS  VOLUME  375974.0  3811400.0  0
 SO LOCATION  FINES  VOLUME  375741.0  3811744.0  0
 ** SRCDESCR  Fines
 SO LOCATION  STOCKPIL  VOLUME  376343.8  3811301.3  0
 ** SRCDESCR  Stockpile
 SO LOCATION  ROCKPLT  VOLUME  376359.2  3811119.0  0
 ** SRCDESCR  Rock Plant
 SO SRCPARAM  PITOPS  2.350000E+00  3.5  25  7
 SO SRCPARAM  FINES  4.660000E-02  3.5  25  7
 SO SRCPARAM  STOCKPIL  5.450000E-01  3.5  25  7
 SO SRCPARAM  ROCKPLT  2.730000E-01  3.5  25  7
 SO SRCGROUP  ALL
 SO FINISHED

 RE STARTING
 RE GRIDCART CART1 STA
 RE GRIDCART CART1 XYINC  373634  20  250  3809163  20  250
 RE GRIDCART CART1 END
 RE DISCCART  375707.0  3810561.0
 ** RCPDESCR  Nearest Dwelling
 RE DISCCART  374756.0  3810927.0
 ** RCPDESCR  Trailer Park
 ** BOUNDARY
 RE DISCCART  376707.0  3811134.0
 RE DISCCART  376710.0  3811038.0
 RE DISCCART  376712.0  3810939.0
 RE DISCCART  376717.0  3810843.0
 RE DISCCART  376700.0  3811250.0
 RE DISCCART  376697.0  3811346.0
 RE DISCCART  376693.0  3811450.0
 RE DISCCART  376690.0  3811546.0
 RE DISCCART  376685.0  3811645.0
 RE DISCCART  376683.0  3811744.0
 RE DISCCART  376678.0  3811840.0
 RE DISCCART  376676.0  3811936.0
 RE DISCCART  376671.0  3812035.0
 RE DISCCART  376666.0  3812134.0
 RE DISCCART  376663.0  3812230.0
 RE DISCCART  376659.0  3812329.0
 RE DISCCART  376654.0  3812426.0
 RE DISCCART  376561.0  3812442.0
 RE DISCCART  376464.0  3812452.0
 RE DISCCART  376367.0  3812464.0
 RE DISCCART  376270.0  3812474.0
 RE DISCCART  376248.0  3812399.0
 RE DISCCART  376253.0  3812303.0
 RE DISCCART  376258.0  3812206.0
 RE DISCCART  376260.0  3812110.0
 RE DISCCART  376217.0  3812057.0
 RE DISCCART  376122.0  3812069.0
 RE DISCCART  376025.0  3812081.0
 RE DISCCART  375928.0  3812093.0
 RE DISCCART  375828.0  3812105.0
 RE DISCCART  375728.0  3812117.0
 RE DISCCART  375631.0  3812129.0
 RE DISCCART  375532.0  3812141.0
 RE DISCCART  375461.0  3812124.0
 RE DISCCART  375464.0  3812028.0
 RE DISCCART  375464.0  3811924.0
 RE DISCCART  375466.0  3811828.0
 RE DISCCART  375469.0  3811732.0
 RE DISCCART  375374.0  3811746.0
 RE DISCCART  375277.0  3811756.0
 RE DISCCART  375180.0  3811770.0
 RE DISCCART  375077.0  3811785.0
 RE DISCCART  375077.0  3811688.0
 RE DISCCART  375075.0  3811589.0
 RE DISCCART  375075.0  3811493.0
 RE DISCCART  375075.0  3811394.0
 RE DISCCART  375073.0  3811298.0
 RE DISCCART  375070.0  3811202.0
 RE DISCCART  375070.0  3811105.0
 RE DISCCART  375068.0  3811009.0
 RE DISCCART  375145.0  3810970.0
 RE DISCCART  375240.0  3810956.0
 RE DISCCART  375340.0  3810941.0
 RE DISCCART  375437.0  3810927.0
 RE DISCCART  375534.0  3810912.0
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RE DISCCART  375631.0  3810898.0
RE DISCCART  375728.0  3810881.0
RE DISCCART  375826.0  3810867.0
RE DISCCART  375923.0  3810852.0
RE DISCCART  376020.0  3810835.0
RE DISCCART  376119.0  3810821.0
RE DISCCART  376217.0  3810806.0
RE DISCCART  376299.0  3810794.0
RE DISCCART  376353.0  3810785.0
RE DISCCART  376450.0  3810768.0
RE DISCCART  376547.0  3810753.0
RE DISCCART  376644.0  3810739.0
RE DISCCART  376719.0  3810744.0
RE FINISHED

ME STARTING
ME INPUTFIL  C:\TRINITY\ISC32\NEWHALL.ASC
ME ANEMHGHT  10  METERS
ME SURFDATA  51115  1981
ME UAIRDATA  99999  1981
ME STARTEND  1981  01  01  1  1981  12  31  24
ME FINISHED

OU STARTING
OU RECTABLE  1  FIRST
OU FINISHED

** PROJECTN  0 104 7 -177 0 0.9996 500000 0
** OUTFILE  G:\Clients\tr110 - TMC Sole\Air-28\Modeling\RNFSA\NOx\nx2ac.LST
** RAWFILE  G:\Clients\tr110 - TMC Sole\Air-28\Modeling\RNFSA\NOx\nx2ac.RAW
** RAWFMT  2

** POLLUTNT IDN  01  NOX  X
** POLLUTNT NAM  01
** POLLUTNT EMS  PITOPS 2.350000E+00
** POLLUTNT EMS  FINES 4.660000E-02
** POLLUTNT EMS  STOCKPIL 5.450000E-01
** POLLUTNT EMS  ROCKPLT 2.730000E-01


***********************************
*** SETUP Finishes Successfully ***
***********************************

1 *** ISCST3 - VERSION 99155 ***     ***  NOx, RNFSA Phase 2, Annual Average                                       ***        05/02/00
                                     ***  TMC Soledad                                                              ***        16:00:01
**MODELOPTs:                                                                                                                  PAGE   1
CONC                          URBAN  FLAT                                      NOCALM

                                            ***     MODEL SETUP OPTIONS SUMMARY       ***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

**Intermediate Terrain Processing is Selected

**Model Is Setup For Calculation of Average CONCentration Values.

  --  SCAVENGING/DEPOSITION LOGIC --
**Model Uses NO DRY DEPLETION.  DDPLETE =  F
**Model Uses NO WET DEPLETION.  WDPLETE =  F
**NO WET SCAVENGING Data Provided.
**NO GAS DRY DEPOSITION Data Provided.
**Model Does NOT Use GRIDDED TERRAIN Data for Depletion Calculations

**Model Uses URBAN Dispersion.

**Model Uses User-Specified Options:
          1. Final Plume Rise.
          2. Stack-tip Downwash.
          3. Buoyancy-induced Dispersion.
          4. Not Use Calms Processing Routine.
          5. Not Use Missing Data Processing Routine.
          6. Default Wind Profile Exponents.
          7. Default Vertical Potential Temperature Gradients.

**Model Assumes Receptors on FLAT Terrain.

**Model Assumes No FLAGPOLE Receptor Heights.

**Model Calculates  1 Short Term Average(s) of:   1-HR
    and Calculates ANNUAL Averages

**This Run Includes:     4 Source(s);      1 Source Group(s); and     470 Receptor(s)

**The Model Assumes A Pollutant Type of:  NOX

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
         Model Outputs Tables of ANNUAL Averages by Receptor
         Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)

**Misc. Inputs:  Anem. Hgt. (m) =    10.00 ;   Decay Coef. =      0.0000 ;    Rot. Angle =      0.0
                 Emission Units = GRAMS/SEC                               ;  Emission Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

**Approximate Storage Requirements of Model =     1.2 MB of RAM.

**Input Runstream File:          G:\CLIENTS\TR110--1\AIR-28\MODELING\RNFSA\NOX\NX2AC.DAT
**Output Print File:             G:\CLIENTS\TR110--1\AIR-28\MODELING\RNFSA\NOX\NX2AC.LST
1 *** ISCST3 - VERSION 99155 ***     ***  NOx, RNFSA Phase 2, Annual Average                                       ***        05/02/00
```

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	EMISSION RATE SCALAR VARY BY
PITOPS	0	0.23500E+01	375974.0	3811400.0	0.0	3.50	25.00	7.00	
FINES	0	0.46600E-01	375741.0	3811744.0	0.0	3.50	25.00	7.00	
STOCKPIL	0	0.54500E+00	376343.8	3811301.2	0.0	3.50	25.00	7.00	
ROCKPLT	0	0.27300E+00	376359.2	3811119.0	0.0	3.50	25.00	7.00	

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	PITOPS , FINES , STOCKPIL, ROCKPLT ,

*** GRIDDED RECEPTOR NETWORK SUMMARY ***

*** NETWORK ID: CART1 ; NETWORK TYPE: GRIDCART ***

*** X-COORDINATES OF GRID ***
(METERS)

373634.0, 373884.0, 374134.0, 374384.0, 374634.0, 374884.0, 375134.0, 375384.0, 375634.0, 375884.0,
376134.0, 376384.0, 376634.0, 376884.0, 377134.0, 377384.0, 377634.0, 377884.0, 378134.0, 378384.0,

*** Y-COORDINATES OF GRID ***
(METERS)

3809163.0, 3809413.0, 3809663.0, 3809913.0, 3810163.0, 3810413.0, 3810663.0, 3810913.0, 3811163.0, 3811413.0,
3811663.0, 3811913.0, 3812163.0, 3812413.0, 3812663.0, 3812913.0, 3813163.0, 3813413.0, 3813663.0, 3813913.0,

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZFLAG)
(METERS)

(375707.0,	3810561.0,	0.0,	0.0);	(374756.0,	3810927.0,	0.0,	0.0);
(376707.0,	3811134.0,	0.0,	0.0);	(376710.0,	3811038.0,	0.0,	0.0);
(376712.0,	3810939.0,	0.0,	0.0);	(376717.0,	3810843.0,	0.0,	0.0);
(376700.0,	3811250.0,	0.0,	0.0);	(376697.0,	3811346.0,	0.0,	0.0);
(376693.0,	3811450.0,	0.0,	0.0);	(376690.0,	3811546.0,	0.0,	0.0);
(376685.0,	3811645.0,	0.0,	0.0);	(376683.0,	3811744.0,	0.0,	0.0);
(376678.0,	3811840.0,	0.0,	0.0);	(376676.0,	3811936.0,	0.0,	0.0);
(376671.0,	3812035.0,	0.0,	0.0);	(376666.0,	3812134.0,	0.0,	0.0);
(376663.0,	3812230.0,	0.0,	0.0);	(376659.0,	3812329.0,	0.0,	0.0);
(376654.0,	3812426.0,	0.0,	0.0);	(376561.0,	3812442.0,	0.0,	0.0);
(376464.0,	3812452.0,	0.0,	0.0);	(376367.0,	3812464.0,	0.0,	0.0);
(376270.0,	3812474.0,	0.0,	0.0);	(376248.0,	3812399.0,	0.0,	0.0);
(376253.0,	3812303.0,	0.0,	0.0);	(376258.0,	3812206.0,	0.0,	0.0);
(376260.0,	3812110.0,	0.0,	0.0);	(376217.0,	3812057.0,	0.0,	0.0);
(376122.0,	3812069.0,	0.0,	0.0);	(376025.0,	3812081.0,	0.0,	0.0);
(375928.0,	3812093.0,	0.0,	0.0);	(375828.0,	3812105.0,	0.0,	0.0);
(375728.0,	3812117.0,	0.0,	0.0);	(375631.0,	3812129.0,	0.0,	0.0);
(375532.0,	3812141.0,	0.0,	0.0);	(375461.0,	3812124.0,	0.0,	0.0);
(375464.0,	3812028.0,	0.0,	0.0);	(375464.0,	3811924.0,	0.0,	0.0);
(375466.0,	3811828.0,	0.0,	0.0);	(375469.0,	3811732.0,	0.0,	0.0);
(375374.0,	3811746.0,	0.0,	0.0);	(375277.0,	3811756.0,	0.0,	0.0);
(375180.0,	3811770.0,	0.0,	0.0);	(375077.0,	3811785.0,	0.0,	0.0);
(375077.0,	3811688.0,	0.0,	0.0);	(375075.0,	3811589.0,	0.0,	0.0);
(375075.0,	3811493.0,	0.0,	0.0);	(375075.0,	3811394.0,	0.0,	0.0);
(375073.0,	3811298.0,	0.0,	0.0);	(375070.0,	3811202.0,	0.0,	0.0);
(375070.0,	3811105.0,	0.0,	0.0);	(375068.0,	3811009.0,	0.0,	0.0);
(375145.0,	3810970.0,	0.0,	0.0);	(375240.0,	3810956.0,	0.0,	0.0);
(375340.0,	3810941.0,	0.0,	0.0);	(375437.0,	3810927.0,	0.0,	0.0);
(375534.0,	3810912.0,	0.0,	0.0);	(375631.0,	3810898.0,	0.0,	0.0);
(375728.0,	3810881.0,	0.0,	0.0);	(375826.0,	3810867.0,	0.0,	0.0);
(375923.0,	3810852.0,	0.0,	0.0);	(376020.0,	3810835.0,	0.0,	0.0);
(376119.0,	3810821.0,	0.0,	0.0);	(376217.0,	3810806.0,	0.0,	0.0);
(376299.0,	3810794.0,	0.0,	0.0);	(376353.0,	3810785.0,	0.0,	0.0);
(376450.0,	3810768.0,	0.0,	0.0);	(376547.0,	3810753.0,	0.0,	0.0);
(376644.0,	3810739.0,	0.0,	0.0);	(376719.0,	3810744.0,	0.0,	0.0);

* SOURCE-RECEPTOR COMBINATIONS FOR WHICH CALCULATIONS MAY NOT BE PERFORMED *
LESS THAN 1.0 METER OR 3*ZLB IN DISTANCE, OR WITHIN OPEN PIT SOURCE

SOURCE ID	- - RECEPTOR LOCATION - - XR (METERS)	YR (METERS)	DISTANCE (METERS)
ROCKPLT	376384.0	3811163.0	-3.24

*** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
(1=YES; 0=NO)

```
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1
```

METEOROLOGICAL DATA PROCESSED BETWEEN START DATE: 1981 1 1 1
AND END DATE: 1981 12 31 24

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** WIND PROFILE EXPONENTS ***

STABILITY CATEGORY	WIND SPEED CATEGORY 1	2	3	4	5	6
A	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00
B	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00
C	.20000E+00	.20000E+00	.20000E+00	.20000E+00	.20000E+00	.20000E+00
D	.25000E+00	.25000E+00	.25000E+00	.25000E+00	.25000E+00	.25000E+00
E	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00
F	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00

*** VERTICAL POTENTIAL TEMPERATURE GRADIENTS ***
(DEGREES KELVIN PER METER)

STABILITY CATEGORY	WIND SPEED CATEGORY 1	2	3	4	5	6
A	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
B	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
C	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
D	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
E	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01
F	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01

*** THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

FILE: C:\TRINITY\ISC32\NEWHALL.ASC
FORMAT: (4I2,2F9.4,F6.1,I2,2F7.1,f9.4,f10.1,f8.4,i4,f7.2)
SURFACE STATION NO.: 51115 UPPER AIR STATION NO.: 99999
NAME: UNKNOWN NAME: UNKNOWN
YEAR: 1981 YEAR: 1981

YR	MN	DY	HR	FLOW VECTOR	SPEED (M/S)	TEMP (K)	STAB CLASS	MIXING HEIGHT (M) RURAL	URBAN	USTAR (M/S)	M-O LENGTH (M)	Z-0 (M)	IPCODE	PRATE (mm/HR)
81	01	01	01	314.8	1.00	285.9	7	522.6	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	02	304.9	0.00	284.8	7	507.0	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	03	310.0	0.00	284.8	7	491.4	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	04	346.0	1.00	284.8	7	475.8	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	05	309.0	1.00	285.4	7	460.3	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	06	342.0	1.00	284.3	7	444.7	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	07	342.0	0.00	284.3	7	429.1	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	08	337.1	0.00	284.3	6	43.0	190.2	0.0000	0.0	0.0000	0	0.00
81	01	01	09	6.5	1.00	287.6	5	89.2	211.8	0.0000	0.0	0.0000	0	0.00
81	01	01	10	9.1	0.00	291.5	4	135.3	233.4	0.0000	0.0	0.0000	0	0.00
81	01	01	11	291.6	1.00	297.0	3	181.5	255.1	0.0000	0.0	0.0000	0	0.00
81	01	01	12	80.6	1.00	298.7	2	227.7	276.7	0.0000	0.0	0.0000	0	0.00
81	01	01	13	87.2	0.00	299.3	2	273.8	298.4	0.0000	0.0	0.0000	0	0.00

81 01 01 14	326.7	2.24	299.3	3	320.0	320.0	0.0000	0.0	0.0000	0	0.00
81 01 01 15	337.3	2.24	298.7	3	320.0	320.0	0.0000	0.0	0.0000	0	0.00
81 01 01 16	345.7	2.24	297.6	4	320.0	320.0	0.0000	0.0	0.0000	0	0.00
81 01 01 17	20.1	1.34	294.8	5	325.5	318.6	0.0000	0.0	0.0000	0	0.00
81 01 01 18	97.6	1.00	293.1	6	357.1	310.3	0.0000	0.0	0.0000	0	0.00
81 01 01 19	178.0	1.00	290.9	7	388.7	302.1	0.0000	0.0	0.0000	0	0.00
81 01 01 20	303.2	1.00	289.8	7	420.3	293.9	0.0000	0.0	0.0000	0	0.00
81 01 01 21	358.6	1.00	289.3	7	451.9	285.7	0.0000	0.0	0.0000	0	0.00
81 01 01 22	272.0	1.00	287.6	7	483.5	277.4	0.0000	0.0	0.0000	0	0.00
81 01 01 23	0.7	1.00	287.6	7	515.1	269.2	0.0000	0.0	0.0000	0	0.00
81 01 01 24	337.2	1.00	287.6	7	546.7	261.0	0.0000	0.0	0.0000	0	0.00

*** NOTES: STABILITY CLASS 1=A, 2=B, 3=C, 4=D, 5=E AND 6=F.
FLOW VECTOR IS DIRECTION TOWARD WHICH WIND IS BLOWING.

*** THE ANNUAL (1 YRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PITOPS , FINES , STOCKPIL, ROCKPLT ,

*** NETWORK ID: CART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF NOX IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 373634.00	373884.00	374134.00	374384.00	374634.00	374884.00	375134.00	375384.00	375634.00
3813913.00	1.88390	1.96214	1.90530	1.67392	1.40923	1.28064	1.28654	1.27718	1.17343
3813663.00	2.02042	2.21345	2.29800	2.17338	1.84611	1.57586	1.51140	1.51895	1.40578
3813413.00	2.05728	2.39372	2.65251	2.73411	2.49283	2.06575	1.84382	1.83647	1.72102
3813163.00	1.90913	2.41873	2.89924	3.25910	3.31221	2.88125	2.39539	2.28035	2.16668
3812913.00	1.54890	2.15900	2.89083	3.61290	4.13707	4.09587	3.39285	2.97346	2.83289
3812663.00	1.20735	1.66695	2.44350	3.52099	4.67743	5.48876	5.18882	4.21999	3.91265
3812413.00	1.09370	1.34590	1.82190	2.76780	4.38122	6.39114	7.75504	6.81945	5.86284
3812163.00	1.13369	1.32412	1.60283	2.09416	3.17409	5.58409	9.47672	12.06470	9.95381
3811913.00	1.19839	1.41250	1.69186	2.07677	2.67405	3.88619	7.35470	16.15142	22.61677
3811663.00	1.16729	1.39954	1.71561	2.16185	2.82204	3.86544	5.73455	10.67598	36.53770
3811413.00	1.10600	1.31821	1.60710	2.01758	2.63495	3.63969	5.48009	9.57689	22.73269
3811163.00	1.02804	1.19530	1.40769	1.68140	2.04110	2.53247	3.26327	4.64192	9.74196
3810913.00	0.77669	0.84899	0.93766	1.05985	1.24548	1.54729	2.17955	3.77244	6.66811
3810663.00	0.53641	0.59590	0.67779	0.79057	0.98118	1.38030	2.07240	3.09942	4.17862
3810413.00	0.43933	0.49448	0.57773	0.73227	0.99784	1.36026	1.85286	2.38695	3.07762
3810163.00	0.39036	0.46474	0.59035	0.76747	0.98271	1.26128	1.58721	1.80793	2.41711
3809913.00	0.39403	0.49274	0.61470	0.75446	0.92799	1.13562	1.28445	1.45525	1.93666
3809663.00	0.42044	0.50751	0.60351	0.71861	0.85674	0.97727	1.04255	1.22379	1.58975
3809413.00	0.42863	0.49708	0.57711	0.67307	0.76866	0.82132	0.87740	1.04999	1.34184
3809163.00	0.41854	0.47636	0.54565	0.62003	0.67261	0.69407	0.76139	0.91729	1.15723

*** THE ANNUAL (1 YRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PITOPS , FINES , STOCKPIL, ROCKPLT ,

*** NETWORK ID: CART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF NOX IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 375884.00	376134.00	376384.00	376634.00	376884.00	377134.00	377384.00	377634.00	377884.00
3813913.00	1.13532	1.11285	0.94185	0.66642	0.46630	0.36775	0.32123	0.29624	0.27488
3813663.00	1.34862	1.30128	1.05200	0.71801	0.51027	0.40782	0.36037	0.33132	0.30287
3813413.00	1.63595	1.54810	1.18094	0.78709	0.56900	0.45894	0.40994	0.37100	0.33676
3813163.00	2.03648	1.88115	1.33531	0.88743	0.64446	0.52816	0.46932	0.41916	0.38122
3812913.00	2.62040	2.34703	1.53162	1.03614	0.74457	0.62044	0.54209	0.48385	0.43505
3812663.00	3.52894	3.02716	1.81580	1.24871	0.88851	0.73989	0.64249	0.56121	0.48100
3812413.00	5.10278	4.06950	2.30648	1.54776	1.09874	0.91096	0.75916	0.61690	0.50007
3812163.00	8.39775	5.76486	3.26023	1.98788	1.43142	1.09935	0.83351	0.65273	0.53214
3811913.00	17.31436	8.90160	5.24795	2.74864	1.78009	1.25859	0.96657	0.78891	0.67522
3811663.00	52.19022	19.06749	9.86310	3.89070	2.53204	1.79158	1.35800	1.08041	0.88681
3811413.00	201.65038	63.12912	31.48874	7.50313	3.95079	2.50373	1.76802	1.33215	1.04865
3811163.00	30.48708	30.31025	25.56893	9.08362	4.48573	2.85402	2.01001	1.50480	1.17626
3810913.00	12.40079	12.47055	14.81472	6.77795	3.55200	2.24324	1.64247	1.30253	1.07752
3810663.00	7.23323	7.10244	6.55386	4.39098	3.09683	2.03596	1.41679	1.08216	0.88167
3810413.00	4.69336	4.71131	3.99791	2.96468	2.40036	1.88026	1.38826	1.03115	0.81075
3810163.00	3.29725	3.41308	2.85914	2.14249	1.80731	1.57341	1.29777	1.03069	0.80573
3809913.00	2.48982	2.60541	2.20850	1.67522	1.38928	1.27342	1.13212	0.96625	0.80613
3809663.00	1.97629	2.06550	1.78311	1.38624	1.11691	1.02359	0.96344	0.86482	0.75655
3809413.00	1.62089	1.68572	1.48304	1.18267	0.94380	0.83880	0.80551	0.76174	0.68896
3809163.00	1.36103	1.40773	1.26021	1.02761	0.82706	0.71139	0.67400	0.65822	0.62163

*** THE ANNUAL (1 YRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PITOPS , FINES , STOCKPIL, ROCKPLT ,

*** NETWORK ID: CART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF NOX IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 378134.00	378384.00
3813913.00	0.25349	0.23518
3813663.00	0.27837	0.25912
3813413.00	0.31039	0.28827
3813163.00	0.34936	0.31891
3812913.00	0.38710	0.33785
3812663.00	0.40513	0.34063
3812413.00	0.41221	0.34864
3812163.00	0.45353	0.40306
3811913.00	0.59481	0.53139
3811663.00	0.74355	0.63366
3811413.00	0.85265	0.71093
3811163.00	0.94997	0.78711
3810913.00	0.91172	0.78204
3810663.00	0.75032	0.65865
3810413.00	0.67170	0.57503
3810163.00	0.64765	0.54463
3809913.00	0.65742	0.53900
3809663.00	0.65348	0.55182
3809413.00	0.61403	0.54396
3809163.00	0.56619	0.51196

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE ANNUAL (1 YRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PITOPS , FINES , STOCKPIL, ROCKPLT ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF NOX IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
375707.00	3810561.00	4.18317	374756.00	3810927.00	1.39959
376707.00	3811134.00	6.87579	376710.00	3811038.00	6.29100
376712.00	3810939.00	5.60404	376717.00	3810843.00	5.02246
376700.00	3811250.00	7.66710	376697.00	3811346.00	7.20242
376693.00	3811450.00	5.76926	376690.00	3811546.00	4.72746
376685.00	3811645.00	3.68201	376683.00	3811744.00	3.01834
376678.00	3811840.00	2.73193	376676.00	3811936.00	2.46213
376671.00	3812035.00	2.17855	376666.00	3812134.00	1.93564
376663.00	3812230.00	1.74866	376659.00	3812329.00	1.59718
376654.00	3812426.00	1.47434	376561.00	3812442.00	1.72232
376464.00	3812452.00	1.98300	376367.00	3812464.00	2.23560
376270.00	3812474.00	2.68276	376248.00	3812399.00	3.04687
376253.00	3812303.00	3.33077	376258.00	3812206.00	3.70804
376260.00	3812110.00	4.25425	376217.00	3812057.00	5.15391
376122.00	3812069.00	6.98786	376025.00	3812081.00	8.92540
375928.00	3812093.00	9.62846	375828.00	3812105.00	10.27761
375728.00	3812117.00	10.70710	375631.00	3812129.00	10.89737
375532.00	3812141.00	11.58122	375461.00	3812124.00	12.91663
375464.00	3812028.00	16.31717	375464.00	3811924.00	19.41888
375466.00	3811828.00	20.24551	375469.00	3811732.00	18.00570
375374.00	3811746.00	12.21392	375277.00	3811756.00	8.66077
375180.00	3811770.00	6.60031	375077.00	3811785.00	5.22776
375077.00	3811688.00	5.15917	375075.00	3811589.00	5.22242
375075.00	3811493.00	5.12240	375075.00	3811394.00	4.86127
375073.00	3811298.00	4.31002	375070.00	3811202.00	3.40036
375070.00	3811105.00	2.61063	375068.00	3811009.00	2.16712
375145.00	3810970.00	2.30617	375240.00	3810956.00	2.72908
375340.00	3810941.00	3.42402	375437.00	3810927.00	4.33443
375534.00	3810912.00	5.40105	375631.00	3810898.00	6.42697
375728.00	3810881.00	7.24391	375826.00	3810867.00	9.19400
375923.00	3810852.00	11.69235	376020.00	3810835.00	11.82450
376119.00	3810821.00	10.15126	376217.00	3810806.00	9.19642
376299.00	3810794.00	9.53784	376353.00	3810785.00	9.45299
376450.00	3810768.00	7.71126	376547.00	3810753.00	5.99258
376644.00	3810739.00	4.94564	376719.00	3810744.00	4.42227

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PITOPS , FINES , STOCKPIL, ROCKPLT ,

*** NETWORK ID: CART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF NOX IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 373634.00	373884.00	374134.00	374384.00	374634.00
3813913.0	33.21138 (81121819)	34.92642 (81121818)	36.60040 (81120623)	38.16193 (81012120)	39.53271 (81120923)
3813663.0	35.52600 (81041405)	37.65144 (81091404)	39.77842 (81021823)	41.81371 (81010405)	43.65289 (81070224)
3813413.0	38.00289 (81010407)	40.64273 (81082922)	43.36453 (81060501)	46.05997 (81112120)	48.56980 (81060404)
3813163.0	40.59800 (81010918)	43.86813 (81032503)	47.36031 (81021402)	50.95996 (81052803)	54.46414 (81082002)
3812913.0	43.22324 (81031520)	47.24678 (81050601)	51.70571 (81082206)	56.52589 (81121923)	61.49146 (81113003)
3812663.0	45.77830 (81102007)	50.63070 (81071924)	56.24486 (81011822)	62.63868 (81020706)	69.68201 (81032724)
3812413.0	48.08476 (81022703)	53.80307 (81032008)	60.68864 (81033103)	68.96805 (81120924)	78.77505 (81120404)
3812163.0	49.94676 (81010318)	56.46571 (81040902)	64.60305 (81041201)	74.90710 (81112901)	87.99795 (81121205)
3811913.0	51.16331 (81010706)	58.29288 (81010804)	67.44348 (81111921)	79.53625 (81011704)	95.95193 (81062005)
3811663.0	51.60328 (81092403)	59.00190 (81071601)	68.67539 (81082820)	81.78773 (81082903)	100.38131 (81040401)
3811413.0	51.17897 (81080723)	58.45867 (81080723)	67.97015 (81080723)	80.92364 (81010919)	99.43391 (81010919)

3811163.0	49.95681 (81042906)	56.76414 (81011520)	65.53172 (81021119)	77.25465 (81021319)	93.55359 (81072201)
3810913.0	48.10084 (81030222)	54.19131 (81112703)	61.86555 (81091603)	71.77837 (81082523)	85.09177 (81082707)
3810663.0	45.80781 (81091707)	51.06430 (81100623)	57.56859 (81092806)	65.65154 (81072905)	76.06725 (81071421)
3810413.0	43.31001 (81041204)	47.78953 (81092502)	53.12024 (81071101)	59.58613 (81012223)	67.55264 (81032024)
3810163.0	40.74885 (81010901)	44.45430 (81102602)	48.83902 (81020208)	53.88047 (81071803)	59.90211 (81031706)
3809913.0	38.23238 (81012403)	41.32896 (81022505)	44.85042 (81061804)	48.81292 (81092504)	53.29534 (81032506)
3809663.0	35.83427 (81032024)	38.40901 (81062903)	41.23775 (81052403)	44.34200 (81043022)	47.69661 (81082004)
3809413.0	33.58903 (81071303)	35.72083 (81062623)	38.00993 (81030804)	40.44847 (81022802)	42.99975 (81031306)
3809163.0	31.51966 (81041501)	33.27175 (81050405)	35.14675 (81092501)	37.08118 (81042804)	39.05338 (81031807)

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PITOPS , FINES , STOCKPIL, ROCKPLT ,

*** NETWORK ID: CART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF NOX IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 374884.00	375134.00	375384.00	375634.00	375884.00
3813913.0	40.64705 (81091803)	41.43370 (81092804)	41.87201 (81010104)	41.96383 (81092206)	41.72300 (81101705)
3813663.0	45.16867 (81110820)	46.26835 (81111001)	46.90842 (81032404)	47.09492 (81052420)	46.83365 (81070423)
3813413.0	50.70729 (81091019)	52.30629 (81042202)	53.28844 (81112105)	53.64389 (81102207)	53.43231 (81070423)
3813163.0	57.58265 (81081503)	60.01587 (81110222)	61.60029 (81101922)	62.34682 (81071923)	62.26820 (81113002)
3812913.0	66.19958 (81021224)	70.10410 (81031705)	72.81004 (81122102)	74.32520 (81011008)	74.64537 (81060702)
3812663.0	76.95316 (81021023)	83.58635 (81060404)	88.57008 (81090904)	91.69637 (81032404)	93.06183 (81100103)
3812413.0	89.95181 (81021401)	101.64139 (81050605)	111.80103 (81121403)	118.58861 (81100419)	122.67684 (81092524)
3812163.0	104.51687 (81042801)	124.55093 (81050303)	146.88873 (81120608)	164.29701 (81092205)	175.61942 (81122809)
3811913.0	118.78056 (81121304)	150.75768 (81040422)	194.05174 (81010407)	256.43503 (81050502)	287.33560 (81100521)
3811663.0	128.32037 (81080804)	173.44611 (81092507)	252.22556 (81050202)	392.47910 (81031704)	601.73444 (81021321)
3811413.0	127.70240 (81120122)	175.33261 (81041205)	268.78735 (81100523)	509.57574 (81042024)	1690.25806 (81020108)
3811163.0	117.52893 (81062004)	156.13110 (81062102)	226.71136 (81102821)	380.07169 (81092503)	664.47571 (81062401)
3810913.0	103.79897 (81032205)	131.89565 (81102602)	176.80392 (81040402)	243.61449 (81090922)	305.80533 (81030221)
3810663.0	89.99374 (81052722)	109.06654 (81062605)	134.50183 (81082303)	163.32115 (81042324)	183.32350 (81043023)
3810413.0	77.52722 (81092423)	89.91930 (81032022)	104.23547 (81062022)	117.93791 (81101608)	126.27840 (81081521)
3810163.0	66.88786 (81082407)	74.94986 (81062024)	83.29325 (81080307)	90.50529 (81062023)	94.64272 (81052122)
3809913.0	58.26945 (81032820)	63.51159 (81090304)	68.44161 (81110818)	72.78874 (81110321)	75.13802 (81111618)
3809663.0	51.25460 (81071701)	54.82173 (81061703)	58.11813 (81101608)	60.70949 (81080707)	62.22017 (81021105)
3809413.0	45.58253 (81111207)	48.10557 (81052023)	50.33432 (81031822)	52.09329 (81102601)	53.17521 (81011908)
3809163.0	40.99762 (81033024)	42.83005 (81082322)	44.43570 (81070824)	45.68336 (81040924)	46.53396 (81062306)

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PITOPS , FINES , STOCKPIL, ROCKPLT ,

*** NETWORK ID: CART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF NOX IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 376134.00	376384.00	376634.00	376884.00	377134.00
3813913.0	41.16552 (81121922)	40.31021 (81060224)	39.20439 (81102005)	37.89510 (81030722)	36.43141 (81011804)
3813663.0	46.15327 (81052020)	45.05522 (81072622)	43.57438 (81022324)	41.84863 (81012920)	39.96693 (81042105)
3813413.0	52.59858 (81101703)	51.13478 (81072102)	49.12508 (81012819)	46.75256 (81011804)	44.16767 (81121503)
3813163.0	61.18115 (81102306)	59.21070 (81110418)	56.25455 (81043021)	52.88527 (81100820)	49.35341 (81010908)
3812913.0	73.41881 (81012705)	70.35330 (81121608)	65.91218 (81042905)	60.76170 (81121401)	55.63567 (81083021)
3812663.0	91.57520 (81110319)	86.53294 (81012819)	79.07873 (81060505)	70.90160 (81012102)	63.27835 (81082301)
3812413.0	120.68792 (81050924)	111.02132 (81012501)	97.48875 (81052002)	83.92352 (81091123)	72.41840 (81070101)
3812163.0	172.02829 (81082923)	149.96912 (81030524)	123.08749 (81120703)	99.73608 (81110303)	82.83506 (81103005)
3811913.0	276.24741 (81013004)	214.39815 (81110819)	157.18556 (81032402)	118.33382 (81090704)	94.26213 (81102904)
3811663.0	537.15466 (81080419)	312.10571 (81010207)	193.85172 (81081604)	136.50294 (81081722)	107.50368 (81092002)
3811413.0	1041.44775 (81102822)	384.66516 (81060924)	232.64909 (81071603)	168.08762 (81071603)	126.99171 (81012504)
3811163.0	587.03900 (81010507)	330.24722 (81053023)	303.33426 (81031008)	197.98827 (81112919)	140.11646 (81091606)
3810913.0	294.51968 (81102120)	228.22000 (81061921)	227.57370 (81042701)	170.71111 (81112208)	132.90666 (81102403)
3810663.0	180.45284 (81112319)	157.55597 (81081522)	145.23335 (81122219)	137.20544 (81071906)	116.52139 (81032201)
3810413.0	125.34911 (81080524)	116.07694 (81100904)	107.48538 (81010218)	104.98699 (81070322)	97.31303 (81091602)
3810163.0	94.38833 (81100902)	90.32214 (81102120)	85.94709 (81112622)	83.91553 (81021306)	80.54995 (81111219)
3809913.0	75.21581 (81072404)	73.47400 (81072822)	71.33540 (81103003)	69.93214 (81112119)	68.04955 (81020220)
3809663.0	62.49075 (81030819)	61.82387 (81020505)	60.83078 (81091619)	59.92415 (81080621)	58.67553 (81081605)
3809413.0	53.54901 (81100922)	53.37914 (81012518)	52.93626 (81011906)	52.36514 (81100701)	51.47741 (81020308)
3809163.0	46.94122 (81032624)	46.99791 (81060602)	46.81944 (81072823)	46.45082 (81081701)	45.79229 (81090121)

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PITOPS , FINES , STOCKPIL, ROCKPLT ,

*** NETWORK ID: CART1 ; NETWORK TYPE: GRIDCART ***

** CONC OF NOX IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 377384.00	377634.00	377884.00	378134.00	378384.00
3813913.0	34.93956 (81052001)	33.42118 (81030521)	31.92408 (81073120)	30.45900 (81080805)	29.07606 (81072120)
3813663.0	38.03173 (81080419)	36.11609 (81012102)	34.28121 (81111217)	32.53378 (81052121)	30.86780 (81011107)
3813413.0	41.65852 (81051923)	39.21533 (81100420)	36.92532 (81052121)	34.78390 (81102519)	32.84866 (81040819)

3813163.0	45.79023	(81021505)	42.73080	(81052121)	39.89029	(81103007)	37.19719	(81110303)	34.99417	(81110219)
3812913.0	50.84116	(81082301)	46.76121	(81031901)	43.18539	(81072921)	39.97520	(81040321)	37.25486	(81081520)
3812663.0	56.75909	(81021407)	51.35450	(81032402)	46.89016	(81082219)	43.08891	(81090707)	39.68705	(81102023)
3812413.0	63.41021	(81040321)	56.38089	(81011905)	50.90851	(81102023)	46.24988	(81091502)	42.42064	(81102024)
3812163.0	70.83723	(81102023)	62.11840	(81092224)	55.35199	(81010620)	49.80643	(81022419)	45.12946	(81102907)
3811913.0	79.13346	(81012304)	68.13593	(81102907)	60.14582	(81103004)	53.40850	(81020207)	47.85794	(81031620)
3811663.0	89.03959	(81080320)	75.49335	(81052205)	65.04909	(81060301)	56.91362	(81121718)	50.34420	(81032321)
3811413.0	100.31934	(81020323)	82.25564	(81111906)	69.37380	(81080305)	59.81955	(81080305)	52.43655	(81111418)
3811163.0	107.22046	(81021520)	86.34315	(81081204)	71.96519	(81120720)	61.56680	(81061024)	53.65855	(81122519)
3810913.0	105.46237	(81072223)	86.01369	(81122319)	72.10306	(81060524)	61.77527	(81082419)	53.85983	(81091606)
3810663.0	97.35938	(81010317)	81.87459	(81061902)	69.79926	(81031008)	60.40140	(81031324)	52.98807	(81010704)
3810413.0	86.12425	(81062705)	75.15154	(81102523)	65.56925	(81010317)	57.52465	(81012706)	51.21671	(81112318)
3810163.0	74.63452	(81062606)	67.48542	(81122408)	60.50641	(81032201)	54.21757	(81042106)	48.74889	(81101619)
3809913.0	64.62526	(81111219)	60.07093	(81022202)	55.12713	(81022203)	50.32149	(81062521)	45.90422	(81091223)
3809663.0	56.53280	(81041203)	53.51992	(81013106)	50.02832	(81060922)	46.36430	(81011722)	42.91114	(81020219)
3809413.0	49.92022	(81010507)	47.93218	(81021203)	45.39131	(81010505)	42.70871	(81060724)	39.95606	(81032803)
3809163.0	44.73462	(81090123)	43.23001	(81081422)	41.39428	(81110108)	39.25451	(81080505)	37.16779	(81080706)

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): PITOPS , FINES , STOCKPIL, ROCKPLT ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF NOX IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
375707.00	3810561.00	147.01344	(81112308)	374756.00	3810927.00	93.97438	(81071201)
376707.00	3811134.00	257.55441	(81031008)	376710.00	3811038.00	225.84726	(81040303)
376712.00	3810939.00	210.84950	(81022002)	376717.00	3810843.00	190.14653	(81051820)
376700.00	3811250.00	282.69800	(81021504)	376697.00	3811346.00	246.25554	(81110201)
376693.00	3811450.00	202.78314	(81102822)	376690.00	3811546.00	189.07503	(81080320)
376685.00	3811645.00	180.57214	(81081603)	376683.00	3811744.00	169.52275	(81092224)
376678.00	3811840.00	158.42377	(81011905)	376676.00	3811936.00	146.37276	(81101118)
376671.00	3812035.00	134.49480	(81110122)	376666.00	3812134.00	123.20867	(81080503)
376663.00	3812230.00	112.95231	(81080805)	376659.00	3812329.00	103.47221	(81073120)
376654.00	3812426.00	95.26437	(81020206)	376561.00	3812442.00	98.82695	(81121503)
376464.00	3812452.00	102.75739	(81091907)	376367.00	3812464.00	105.76373	(81043021)
376270.00	3812474.00	108.38082	(81102401)	376248.00	3812399.00	119.05386	(81062220)
376253.00	3812303.00	134.05910	(81013004)	376258.00	3812206.00	152.72844	(81030722)
376260.00	3812110.00	176.11766	(81012501)	376217.00	3812057.00	197.33398	(81043021)
376122.00	3812069.00	202.90160	(81110418)	376025.00	3812081.00	203.95653	(81021602)
375928.00	3812093.00	199.67641	(81121821)	375828.00	3812105.00	191.23061	(81042903)
375728.00	3812117.00	181.41933	(81120905)	375631.00	3812129.00	172.88377	(81081923)
375532.00	3812141.00	163.63068	(81120901)	375461.00	3812124.00	161.34280	(81111505)
375464.00	3812028.00	183.15988	(81021205)	375464.00	3811924.00	208.33983	(81081507)
375466.00	3811828.00	235.18661	(81020223)	375469.00	3811732.00	268.15341	(81050523)
375374.00	3811746.00	230.11488	(81012204)	375277.00	3811756.00	199.79295	(81012619)
375180.00	3811770.00	174.76180	(81063001)	375077.00	3811785.00	153.37070	(81071404)
375077.00	3811688.00	159.73824	(81011704)	375075.00	3811589.00	163.08420	(81051723)
375075.00	3811493.00	163.51677	(81052723)	375075.00	3811394.00	160.63300	(81041001)
375073.00	3811298.00	154.83887	(81010805)	375070.00	3811202.00	147.29971	(81062004)
375070.00	3811105.00	139.51251	(81041602)	375068.00	3811009.00	131.16785	(81021624)
375145.00	3810970.00	139.16986	(81010901)	375240.00	3810956.00	153.83441	(81080824)
375340.00	3810941.00	172.04512	(81032024)	375437.00	3810927.00	192.42151	(81072702)
375534.00	3810912.00	214.23183	(81040306)	375631.00	3810898.00	236.49040	(81020608)
375728.00	3810881.00	254.13913	(81040404)	375826.00	3810867.00	266.44519	(81090624)
375923.00	3810852.00	268.22452	(81062202)	376020.00	3810835.00	258.78741	(81072424)
376119.00	3810821.00	243.18254	(81062703)	376217.00	3810806.00	222.55072	(81080119)
376299.00	3810794.00	204.21535	(81020121)	376353.00	3810785.00	192.01125	(81082222)
376450.00	3810768.00	173.90546	(81020220)	376547.00	3810753.00	166.91302	(81122219)
376644.00	3810739.00	164.71031	(81031720)	376719.00	3810744.00	164.12628	(81022202)

*** THE SUMMARY OF MAXIMUM ANNUAL (1 YRS) RESULTS ***

** CONC OF NOX IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS	201.65038 AT	(375884.00, 3811413.00, 0.00, 0.00)	GC	CART1
	2ND HIGHEST VALUE IS	63.12912 AT	(376134.00, 3811413.00, 0.00, 0.00)	GC	CART1
	3RD HIGHEST VALUE IS	52.19022 AT	(375884.00, 3811663.00, 0.00, 0.00)	GC	CART1
	4TH HIGHEST VALUE IS	36.53770 AT	(375634.00, 3811663.00, 0.00, 0.00)	GC	CART1
	5TH HIGHEST VALUE IS	31.48874 AT	(376384.00, 3811413.00, 0.00, 0.00)	GC	CART1
	6TH HIGHEST VALUE IS	30.48708 AT	(375884.00, 3811163.00, 0.00, 0.00)	GC	CART1
	7TH HIGHEST VALUE IS	30.31025 AT	(376134.00, 3811163.00, 0.00, 0.00)	GC	CART1
	8TH HIGHEST VALUE IS	25.56893 AT	(376384.00, 3811163.00, 0.00, 0.00)	GC	CART1
	9TH HIGHEST VALUE IS	22.73269 AT	(375634.00, 3811413.00, 0.00, 0.00)	GC	CART1
	10TH HIGHEST VALUE IS	22.61677 AT	(375634.00, 3811913.00, 0.00, 0.00)	GC	CART1

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** THE SUMMARY OF HIGHEST 1-HR RESULTS ***

** CONC OF NOX IN MICROGRAMS/M**3 **

GROUP ID	AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL HIGH 1ST HIGH VALUE IS	1690.25806	ON 81020108:	AT (375884.00, 3811413.00, 0.00, 0.00)	GC	CART1

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** Message Summary : ISCST3 Model Execution ***

--------- Summary of Total Messages --------

A Total of 0 Fatal Error Message(s)
A Total of 0 Warning Message(s)
A Total of 1085 Informational Message(s)

A Total of 1085 Calm Hours Identified

******** FATAL ERROR MESSAGES ********
*** NONE ***

******** WARNING MESSAGES ********
*** NONE ***

****
*** ISCST3 Finishes Successfully ***
****

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              ISCST3X  PC (32 BIT) VERSION  3.3.0
             (C) COPYRIGHT 1991-1999, TRINITY CONSULTANTS

 Run Began on  5/05/2000 at 18:23:48

 ** BREEZE ISC SUITE v3.2.2 - G:\Clients\tr110 - TMC Sole\Air-28\Modeling\FEIS_Changes\new-rf2nc.dat
 ** Trinity Consultants, Dallas, TX

 CO STARTING
 CO TITLEONE  Proposed Project with Fines Conveyor and Mitigated Combustion PM-10
 CO TITLETWO  Phase 2 Annual and 24 Hour Average PM-10 Concentrations (NO CALM)
 CO MODELOPT  CONC  URBAN  NOCALM
 CO AVERTIME  24  ANNUAL
 CO POLLUTID  10-PM
 CO TERRHGTS  FLAT
 CO RUNORNOT  RUN
 CO FINISHED

 SO STARTING
 SO ELEVUNIT  METERS
 SO LOCATION  RCKPLNT  VOLUME  376359.2  3811119.0  0
 SO LOCATION  BTCHPLNT  VOLUME  376329.4  3810975.0  0
 SO LOCATION  FINES1  AREA  375691.0  3811794.0  0
 SO LOCATION  FINES2  AREA  375791.0  3811794.0  0
 SO LOCATION  FINES3  AREA  375691.0  3811694.0  0
 SO LOCATION  FINES4  AREA  375791.0  3811694.0  0
 SO LOCATION  STCKPILE  AREA  376343.8  3811301.3  0
 SO LOCATION  PITOPS  AREA  375974.0  3811400.0  0
 SO LOCATION  SRC3  AREALINE  376284.2  3811113.0  0
 SO LOCATION  SRC5  AREALINE  376267.7  3810992.4  0
 SO LOCATION  SRC6  AREALINE  376150.3  3811086.2  0
 SO LOCATION  SRC7  AREALINE  376066.7  3810858.5  0
 SO LOCATION  SRC8  AREALINE  375902.5  3810908.6  0
 SO LOCATION  SRC9  AREALINE  375892.5  3810975.7  0
 SO LOCATION  SRC11  AREALINE  375765.1  3810955.6  0
 SO LOCATION  SRC12  AREALINE  375778.5  3811116.3  0
 SO LOCATION  SRC14  AREALINE  375681.5  3811143.0  0
 SO LOCATION  SRC16  AREALINE  375497.2  3811354.0  0
 SO LOCATION  SRC18  AREALINE  375825.5  3811725.8  0
 SO LOCATION  SRC19  AREALINE  375664.7  3811786.0  0
 SO LOCATION  SRC20  AREALINE  375520.8  3811638.7  0
 SO SRCPARAM  RCKPLNT  5.970000E-01  3.5  50  7
 SO SRCPARAM  BTCHPLNT  3.250000E-02  3.5  50  7
 SO SRCPARAM  FINES1  7.550000E-07  0  100  100  0  0
 SO SRCPARAM  FINES2  7.550000E-07  0  100  100  0  0
 SO SRCPARAM  FINES3  7.550000E-07  0  100  100  0  0
 SO SRCPARAM  FINES4  7.550000E-07  0  100  100  0  0
 SO SRCPARAM  STCKPILE  1.870000E-05  0  100  100  0  0
 SO SRCPARAM  PITOPS  8.260000E-05  0  100  100  0  0
 SO SRCPARAM  SRC3  1.130000E-06  0  122  10  98  0
 SO SRCPARAM  SRC5  1.130000E-06  0  151.9  10  -140  0
 SO SRCPARAM  SRC6  1.130000E-06  0  243.8  10  110.9  0
 SO SRCPARAM  SRC7  1.130000E-06  0  169.5  10  -161.6  0
 SO SRCPARAM  SRC8  1.130000E-06  0  60.8  10  -96.4  0
 SO SRCPARAM  SRC9  1.130000E-06  0  121.8  10  172.1  0
 SO SRCPARAM  SRC11  1.130000E-06  0  151.5  10  -83.6  0
 SO SRCPARAM  SRC12  1.130000E-06  0  92  10  -164  0
 SO SRCPARAM  SRC14  1.130000E-06  0  274  10  -130.5  0
 SO SRCPARAM  SRC16  1.130000E-06  0  488.5  10  -47.8  0
 SO SRCPARAM  SRC18  1.130000E-06  0  166.8  10  -157.6  0
 SO SRCPARAM  SRC19  1.130000E-06  0  198.9  10  135.1  0
 SO SRCPARAM  SRC20  1.130000E-06  0  121.8  10  -172.1  0
 SO SRCGROUP  ALL
 SO FINISHED

 RE STARTING
 RE GRIDCART GRD1 STA
 RE GRIDCART GRD1 XYINC  373634  20  250  3809163  20  250
 RE GRIDCART GRD1 END
 RE DISCCART  375707.0  3810561.0
 ** RCPDESCR  Nearest Dwelling
 RE DISCCART  374756.0  3810927.0
 ** RCPDESCR  Trailer Park
 ** BOUNDARY
 RE DISCCART  376707.0  3811134.0
 RE DISCCART  376710.0  3811038.0
 RE DISCCART  376712.0  3810939.0
 RE DISCCART  376717.0  3810843.0
 RE DISCCART  376700.0  3811250.0
 RE DISCCART  376697.0  3811346.0
 RE DISCCART  376693.0  3811450.0
 RE DISCCART  376690.0  3811546.0
 RE DISCCART  376685.0  3811645.0
 RE DISCCART  376683.0  3811744.0
 RE DISCCART  376678.0  3811840.0
 RE DISCCART  376676.0  3811936.0
 RE DISCCART  376671.0  3812035.0
 RE DISCCART  376666.0  3812134.0
 RE DISCCART  376663.0  3812230.0
 RE DISCCART  376659.0  3812329.0
 RE DISCCART  376654.0  3812426.0
 RE DISCCART  376561.0  3812442.0
 RE DISCCART  376464.0  3812452.0
 RE DISCCART  376367.0  3812464.0
 RE DISCCART  376270.0  3812474.0
 RE DISCCART  376248.0  3812399.0
 RE DISCCART  376253.0  3812303.0
 RE DISCCART  376258.0  3812206.0
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RE DISCCART  376260.0  3812110.0
RE DISCCART  376217.0  3812057.0
RE DISCCART  376122.0  3812069.0
RE DISCCART  376025.0  3812081.0
RE DISCCART  375928.0  3812093.0
RE DISCCART  375828.0  3812105.0
RE DISCCART  375728.0  3812117.0
RE DISCCART  375631.0  3812129.0
RE DISCCART  375532.0  3812141.0
RE DISCCART  375461.0  3812124.0
RE DISCCART  375464.0  3812028.0
RE DISCCART  375464.0  3811924.0
RE DISCCART  375466.0  3811828.0
RE DISCCART  375469.0  3811732.0
RE DISCCART  375374.0  3811746.0
RE DISCCART  375277.0  3811756.0
RE DISCCART  375180.0  3811770.0
RE DISCCART  375077.0  3811785.0
RE DISCCART  375077.0  3811688.0
RE DISCCART  375075.0  3811589.0
RE DISCCART  375075.0  3811493.0
RE DISCCART  375075.0  3811394.0
RE DISCCART  375073.0  3811298.0
RE DISCCART  375070.0  3811202.0
RE DISCCART  375070.0  3811105.0
RE DISCCART  375068.0  3811009.0
RE DISCCART  375145.0  3810970.0
RE DISCCART  375240.0  3810956.0
RE DISCCART  375340.0  3810941.0
RE DISCCART  375437.0  3810927.0
RE DISCCART  375534.0  3810912.0
RE DISCCART  375631.0  3810898.0
RE DISCCART  375728.0  3810881.0
RE DISCCART  375826.0  3810867.0
RE DISCCART  375923.0  3810852.0
RE DISCCART  376020.0  3810835.0
RE DISCCART  376119.0  3810821.0
RE DISCCART  376217.0  3810806.0
RE DISCCART  376299.0  3810794.0
RE DISCCART  376353.0  3810785.0
RE DISCCART  376450.0  3810768.0
RE DISCCART  376547.0  3810753.0
RE DISCCART  376644.0  3810739.0
RE DISCCART  376719.0  3810744.0
RE FINISHED

ME STARTING
ME INPUTFIL  C:\TRINITY\ISC32\NEWHALL.ASC
ME ANEMHGHT  10  METERS
ME SURFDATA  51115  1981
ME UAIRDATA  99999  1981
ME STARTEND  1981  01  01  1  1981  12  31  24
ME FINISHED

OU STARTING
OU RECTABLE  24  FIRST  FOURTH
OU MAXTABLE  24  50
OU FINISHED

** PROJECTN  0 104 7 -177 0 0.9996 500000 0
** OUTFILE  G:\Clients\tr110 - TMC Sole\Air-28\Modeling\FEIS_Changes\new-rf2nc.LST
** RAWFILE  G:\Clients\tr110 - TMC Sole\Air-28\Modeling\FEIS_Changes\new-rf2nc.RAW
** RAWFMT  2

** POLLUTNT IDN  01  10-PM  X
** POLLUTNT NAM  01
** POLLUTNT EMS  RCKPLNT 5.970000E-01
** POLLUTNT EMS  BTCHPLNT 3.250000E-02
** POLLUTNT EMS  FINES1 7.550000E-07
** POLLUTNT EMS  FINES2 7.550000E-07
** POLLUTNT EMS  FINES3 7.550000E-07
** POLLUTNT EMS  FINES4 7.550000E-07
** POLLUTNT EMS  STCKPILE 1.870000E-05
** POLLUTNT EMS  PITOPS 8.260000E-05
** POLLUTNT EMS  SRC3 1.130000E-06
** POLLUTNT EMS  SRC5 1.130000E-06
** POLLUTNT EMS  SRC6 1.130000E-06
** POLLUTNT EMS  SRC7 1.130000E-06
** POLLUTNT EMS  SRC8 1.130000E-06
** POLLUTNT EMS  SRC9 1.130000E-06
** POLLUTNT EMS  SRC11 1.130000E-06
** POLLUTNT EMS  SRC12 1.130000E-06
** POLLUTNT EMS  SRC14 1.130000E-06
** POLLUTNT EMS  SRC16 1.130000E-06
** POLLUTNT EMS  SRC18 1.130000E-06
** POLLUTNT EMS  SRC19 1.130000E-06
** POLLUTNT EMS  SRC20 1.130000E-06


***********************************
*** SETUP Finishes Successfully ***
***********************************

1 *** ISCST3 - VERSION 99155 ***    ***  Proposed Project with Fines Conveyor and Mitigated Combustion PM-10 ***        05/05/00
                                    ***  Phase 2 Annual and 24 Hour Average PM-10 Concentrations (NO CALM)   ***        18:23:48
**MODELOPTs:                                                                                                             PAGE   1
CONC                        URBAN  FLAT                                    NOCALM

                                         ***     MODEL SETUP OPTIONS SUMMARY       ***
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
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**Intermediate Terrain Processing is Selected

**Model Is Setup For Calculation of Average CONCentration Values.

  -- SCAVENGING/DEPOSITION LOGIC --
**Model Uses NO DRY DEPLETION.  DDPLETE =  F
**Model Uses NO WET DEPLETION.  WDPLETE =  F
**NO WET SCAVENGING Data Provided.
**NO GAS DRY DEPOSITION Data Provided.
**Model Does NOT Use GRIDDED TERRAIN Data for Depletion Calculations

**Model Uses URBAN Dispersion.

**Model Uses User-Specified Options:
          1. Final Plume Rise.
          2. Stack-tip Downwash.
          3. Buoyancy-induced Dispersion.
          4. Not Use Calms Processing Routine.
          5. Not Use Missing Data Processing Routine.
          6. Default Wind Profile Exponents.
          7. Default Vertical Potential Temperature Gradients.

**Model Assumes Receptors on FLAT Terrain.

**Model Assumes No FLAGPOLE Receptor Heights.

**Model Calculates  1 Short Term Average(s) of:  24-HR
   and Calculates ANNUAL Averages

**This Run Includes:    21 Source(s);      1 Source Group(s); and     470 Receptor(s)

**The Model Assumes A Pollutant Type of:  10-PM

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
        Model Outputs Tables of ANNUAL Averages by Receptor
        Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)
        Model Outputs Tables of Overall Maximum Short Term Values (MAXTABLE Keyword)

**Misc. Inputs:  Anem. Hgt. (m) =    10.00 ;    Decay Coef. =       0.0000 ;    Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                                   ;  Emission Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

**Approximate Storage Requirements of Model =     1.3 MB of RAM.

**Input Runstream File:          G:\CLIENTS\TR110--1\AIR-28\MODELING\FEIS_C-1\NEW-RF2NC.DAT
**Output Print File:             G:\CLIENTS\TR110--1\AIR-28\MODELING\FEIS_C-1\NEW-RF2NC.LST
1 *** ISCST3 - VERSION 99155 ***    ***  Proposed Project with Fines Conveyor and Mitigated Combustion PM-10 ***        05/05/00
                                    ***  Phase 2 Annual and 24 Hour Average PM-10 Concentrations (NO CALM)   ***        18:23:48
**MODELOPTs:                                                                                                            PAGE   2
CONC                        URBAN  FLAT                                    NOCALM


                                          *** VOLUME SOURCE DATA ***

             NUMBER EMISSION RATE                    BASE    RELEASE    INIT.    INIT.   EMISSION RATE
   SOURCE     PART.  (GRAMS/SEC)     X        Y      ELEV.   HEIGHT      SY       SZ      SCALAR VARY
    ID        CATS.                (METERS) (METERS) (METERS) (METERS) (METERS) (METERS)        BY
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

  RCKPLNT       0   0.59700E+00  376359.2 3811119.0     0.0     3.50    50.00     7.00
  BTCHPLNT      0   0.32500E-01  376329.4 3810975.0     0.0     3.50    50.00     7.00
1 *** ISCST3 - VERSION 99155 ***    ***  Proposed Project with Fines Conveyor and Mitigated Combustion PM-10 ***        05/05/00
                                    ***  Phase 2 Annual and 24 Hour Average PM-10 Concentrations (NO CALM)   ***        18:23:48
**MODELOPTs:                                                                                                            PAGE   3
CONC                        URBAN  FLAT                                    NOCALM


                                          *** AREA SOURCE DATA ***

             NUMBER EMISSION RATE  COORD (SW CORNER)  BASE     RELEASE  X-DIM     Y-DIM    ORIENT.    INIT.  EMISSION RATE
   SOURCE     PART.  (GRAMS/SEC       X        Y      ELEV.    HEIGHT  OF AREA   OF AREA   OF AREA     SZ     SCALAR VARY
    ID        CATS.   /METER**2)   (METERS) (METERS) (METERS) (METERS) (METERS)  (METERS)   (DEG.)  (METERS)       BY
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

  FINES1        0   0.75500E-06  375691.0 3811794.0     0.0     0.00    100.00    100.00      0.00     0.00
  FINES2        0   0.75500E-06  375791.0 3811794.0     0.0     0.00    100.00    100.00      0.00     0.00
  FINES3        0   0.75500E-06  375691.0 3811694.0     0.0     0.00    100.00    100.00      0.00     0.00
  FINES4        0   0.75500E-06  375791.0 3811694.0     0.0     0.00    100.00    100.00      0.00     0.00
  STCKPILE      0   0.18700E-04  376343.8 3811301.2     0.0     0.00    100.00    100.00      0.00     0.00
  PITOPS        0   0.82600E-04  375974.0 3811400.0     0.0     0.00    100.00    100.00      0.00     0.00
1 *** ISCST3 - VERSION 99155 ***    ***  Proposed Project with Fines Conveyor and Mitigated Combustion PM-10 ***        05/05/00
                                    ***  Phase 2 Annual and 24 Hour Average PM-10 Concentrations (NO CALM)   ***        18:23:48
**MODELOPTs:                                                                                                            PAGE   4
CONC                        URBAN  FLAT                                    NOCALM


                                          *** AREALINE SOURCE DATA ***

             NUMBER EMISSION RATE  COORD (SW CORNER)  BASE     RELEASE  X-DIM     Y-DIM    ORIENT.    INIT.  EMISSION RATE
   SOURCE     PART.  (GRAMS/SEC       X        Y      ELEV.    HEIGHT  OF AREA   OF AREA   OF AREA     SZ     SCALAR VARY
    ID        CATS.   /METER**2)   (METERS) (METERS) (METERS) (METERS) (METERS)  (METERS)   (DEG.)  (METERS)       BY
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

  SRC3          0   0.11300E-05  376284.2 3811113.0     0.0     0.00    122.00     10.00     98.00     0.00
```

SRC5	0	0.11300E-05	376267.7	3810992.5	0.0	0.00	151.90	10.00	-140.00	0.00
SRC6	0	0.11300E-05	376150.3	3811086.2	0.0	0.00	243.80	10.00	110.90	0.00
SRC7	0	0.11300E-05	376066.7	3810858.5	0.0	0.00	169.50	10.00	-161.60	0.00
SRC8	0	0.11300E-05	375902.5	3810908.5	0.0	0.00	60.80	10.00	-96.40	0.00
SRC9	0	0.11300E-05	375892.5	3810975.7	0.0	0.00	121.80	10.00	172.10	0.00
SRC11	0	0.11300E-05	375765.1	3810955.5	0.0	0.00	151.50	10.00	-83.60	0.00
SRC12	0	0.11300E-05	375778.5	3811116.2	0.0	0.00	92.00	10.00	-164.00	0.00
SRC14	0	0.11300E-05	375681.5	3811143.0	0.0	0.00	274.00	10.00	-130.50	0.00
SRC16	0	0.11300E-05	375497.2	3811354.0	0.0	0.00	488.50	10.00	-47.80	0.00
SRC18	0	0.11300E-05	375825.5	3811725.7	0.0	0.00	166.80	10.00	-157.60	0.00
SRC19	0	0.11300E-05	375664.7	3811786.0	0.0	0.00	198.90	10.00	135.10	0.00
SRC20	0	0.11300E-05	375520.8	3811638.7	0.0	0.00	121.80	10.00	-172.10	0.00

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID SOURCE IDs

ALL RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE, PITOPS , SRC3 , SRC5 , SRC6 , SRC7 ,
SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 , SRC19 , SRC20 ,

*** GRIDDED RECEPTOR NETWORK SUMMARY ***

*** NETWORK ID: GRD1 ; NETWORK TYPE: GRIDCART ***

*** X-COORDINATES OF GRID ***
(METERS)

373634.0, 373884.0, 374134.0, 374384.0, 374634.0, 374884.0, 375134.0, 375384.0, 375634.0, 375884.0,
376134.0, 376384.0, 376634.0, 376884.0, 377134.0, 377384.0, 377634.0, 377884.0, 378134.0, 378384.0,

*** Y-COORDINATES OF GRID ***
(METERS)

3809163.0, 3809413.0, 3809663.0, 3809913.0, 3810163.0, 3810413.0, 3810663.0, 3810913.0, 3811163.0, 3811413.0,
3811663.0, 3811913.0, 3812163.0, 3812413.0, 3812663.0, 3812913.0, 3813163.0, 3813413.0, 3813663.0, 3813913.0,

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZFLAG)
(METERS)

(375707.0,	3810561.0,	0.0,	0.0);	(374756.0,	3810927.0,	0.0,	0.0);
(376707.0,	3811134.0,	0.0,	0.0);	(376710.0,	3811038.0,	0.0,	0.0);
(376712.0,	3810939.0,	0.0,	0.0);	(376717.0,	3810843.0,	0.0,	0.0);
(376700.0,	3811250.0,	0.0,	0.0);	(376697.0,	3811346.0,	0.0,	0.0);
(376693.0,	3811450.0,	0.0,	0.0);	(376690.0,	3811546.0,	0.0,	0.0);
(376685.0,	3811645.0,	0.0,	0.0);	(376683.0,	3811744.0,	0.0,	0.0);
(376678.0,	3811840.0,	0.0,	0.0);	(376676.0,	3811936.0,	0.0,	0.0);
(376671.0,	3812035.0,	0.0,	0.0);	(376666.0,	3812134.0,	0.0,	0.0);
(376663.0,	3812230.0,	0.0,	0.0);	(376659.0,	3812329.0,	0.0,	0.0);
(376654.0,	3812426.0,	0.0,	0.0);	(376561.0,	3812442.0,	0.0,	0.0);
(376464.0,	3812452.0,	0.0,	0.0);	(376367.0,	3812464.0,	0.0,	0.0);
(376270.0,	3812474.0,	0.0,	0.0);	(376248.0,	3812399.0,	0.0,	0.0);
(376253.0,	3812303.0,	0.0,	0.0);	(376258.0,	3812206.0,	0.0,	0.0);
(376260.0,	3812110.0,	0.0,	0.0);	(376217.0,	3812057.0,	0.0,	0.0);
(376122.0,	3812069.0,	0.0,	0.0);	(376025.0,	3812081.0,	0.0,	0.0);
(375928.0,	3812093.0,	0.0,	0.0);	(375828.0,	3812105.0,	0.0,	0.0);
(375728.0,	3812117.0,	0.0,	0.0);	(375631.0,	3812129.0,	0.0,	0.0);
(375532.0,	3812141.0,	0.0,	0.0);	(375461.0,	3812124.0,	0.0,	0.0);
(375464.0,	3812028.0,	0.0,	0.0);	(375464.0,	3811924.0,	0.0,	0.0);
(375466.0,	3811828.0,	0.0,	0.0);	(375469.0,	3811732.0,	0.0,	0.0);
(375374.0,	3811746.0,	0.0,	0.0);	(375277.0,	3811756.0,	0.0,	0.0);
(375180.0,	3811770.0,	0.0,	0.0);	(375077.0,	3811785.0,	0.0,	0.0);
(375077.0,	3811688.0,	0.0,	0.0);	(375075.0,	3811589.0,	0.0,	0.0);
(375075.0,	3811493.0,	0.0,	0.0);	(375075.0,	3811394.0,	0.0,	0.0);
(375073.0,	3811298.0,	0.0,	0.0);	(375070.0,	3811202.0,	0.0,	0.0);
(375070.0,	3811105.0,	0.0,	0.0);	(375068.0,	3811009.0,	0.0,	0.0);
(375145.0,	3810970.0,	0.0,	0.0);	(375240.0,	3810956.0,	0.0,	0.0);
(375340.0,	3810941.0,	0.0,	0.0);	(375437.0,	3810927.0,	0.0,	0.0);
(375534.0,	3810912.0,	0.0,	0.0);	(375631.0,	3810898.0,	0.0,	0.0);
(375728.0,	3810881.0,	0.0,	0.0);	(375826.0,	3810867.0,	0.0,	0.0);
(375923.0,	3810852.0,	0.0,	0.0);	(376020.0,	3810835.0,	0.0,	0.0);
(376119.0,	3810821.0,	0.0,	0.0);	(376217.0,	3810806.0,	0.0,	0.0);
(376299.0,	3810794.0,	0.0,	0.0);	(376353.0,	3810785.0,	0.0,	0.0);
(376450.0,	3810768.0,	0.0,	0.0);	(376547.0,	3810753.0,	0.0,	0.0);
(376644.0,	3810739.0,	0.0,	0.0);	(376719.0,	3810744.0,	0.0,	0.0);

* SOURCE-RECEPTOR COMBINATIONS FOR WHICH CALCULATIONS MAY NOT BE PERFORMED *
LESS THAN 1.0 METER OR 3*ZLB IN DISTANCE, OR WITHIN OPEN PIT SOURCE

SOURCE ID	RECEPTOR LOCATION XR (METERS)	YR (METERS)	DISTANCE (METERS)
RCKPLNT	376384.0	3811163.0	-56.99
BTCHPLNT	376384.0	3810913.0	-24.89

*** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
(1=YES; 0=NO)

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1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1
```

METEOROLOGICAL DATA PROCESSED BETWEEN START DATE: 1981 1 1 1
AND END DATE: 1981 12 31 24

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** WIND PROFILE EXPONENTS ***

STABILITY CATEGORY	WIND SPEED CATEGORY 1	2	3	4	5	6
A	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00
B	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00
C	.20000E+00	.20000E+00	.20000E+00	.20000E+00	.20000E+00	.20000E+00
D	.25000E+00	.25000E+00	.25000E+00	.25000E+00	.25000E+00	.25000E+00
E	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00
F	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00	.30000E+00

*** VERTICAL POTENTIAL TEMPERATURE GRADIENTS ***
(DEGREES KELVIN PER METER)

STABILITY CATEGORY	WIND SPEED CATEGORY 1	2	3	4	5	6
A	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
B	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
C	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
D	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
E	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01
F	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01

*** THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

FILE: C:\TRINITY\ISC32\NEWHALL.ASC
FORMAT: (4I2,2F9.4,F6.1,I2,2F7.1,f9.4,f10.1,f8.4,i4,f7.2)
SURFACE STATION NO.: 51115 UPPER AIR STATION NO.: 99999
NAME: UNKNOWN NAME: UNKNOWN
YEAR: 1981 YEAR: 1981

YR	MN	DY	HR	FLOW VECTOR	SPEED (M/S)	TEMP (K)	STAB CLASS	MIXING HEIGHT (M) RURAL	URBAN	USTAR (M/S)	M-O LENGTH (M)	Z-0 (M)	IPCODE	PRATE (mm/HR)
81	01	01	01	314.8	1.00	285.9	7	522.6	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	02	304.9	0.00	284.8	7	507.0	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	03	310.0	0.00	284.8	7	491.4	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	04	346.0	1.00	284.8	7	475.8	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	05	309.0	1.00	285.4	7	460.3	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	06	342.0	1.00	284.3	7	444.7	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	07	342.0	0.00	284.3	7	429.1	170.0	0.0000	0.0	0.0000	0	0.00
81	01	01	08	337.1	0.00	284.3	6	43.0	190.2	0.0000	0.0	0.0000	0	0.00
81	01	01	09	6.5	1.00	287.6	5	89.2	211.8	0.0000	0.0	0.0000	0	0.00
81	01	01	10	9.1	0.00	291.5	4	135.3	233.4	0.0000	0.0	0.0000	0	0.00
81	01	01	11	291.6	1.00	297.0	3	181.5	255.1	0.0000	0.0	0.0000	0	0.00
81	01	01	12	80.6	1.00	298.7	2	227.7	276.7	0.0000	0.0	0.0000	0	0.00
81	01	01	13	87.2	0.00	299.3	2	273.8	298.4	0.0000	0.0	0.0000	0	0.00
81	01	01	14	326.7	2.24	299.3	3	320.0	320.0	0.0000	0.0	0.0000	0	0.00
81	01	01	15	337.3	2.24	298.7	3	320.0	320.0	0.0000	0.0	0.0000	0	0.00

81 01 01 16	345.7	2.24	297.6	4	320.0	320.0	0.0000	0.0	0.0000	0	0.00
81 01 01 17	20.1	1.34	294.8	5	325.5	318.6	0.0000	0.0	0.0000	0	0.00
81 01 01 18	97.6	1.00	293.1	6	357.1	310.3	0.0000	0.0	0.0000	0	0.00
81 01 01 19	178.0	1.00	290.9	7	388.7	302.1	0.0000	0.0	0.0000	0	0.00
81 01 01 20	303.2	1.00	289.8	7	420.3	293.9	0.0000	0.0	0.0000	0	0.00
81 01 01 21	358.6	1.00	289.3	7	451.9	285.7	0.0000	0.0	0.0000	0	0.00
81 01 01 22	272.0	1.00	287.6	7	483.5	277.4	0.0000	0.0	0.0000	0	0.00
81 01 01 23	0.7	1.00	287.6	7	515.1	269.2	0.0000	0.0	0.0000	0	0.00
81 01 01 24	337.2	1.00	287.6	7	546.7	261.0	0.0000	0.0	0.0000	0	0.00

*** NOTES: STABILITY CLASS 1=A, 2=B, 3=C, 4=D, 5=E AND 6=F.
FLOW VECTOR IS DIRECTION TOWARD WHICH WIND IS BLOWING.

CONC URBAN FLAT NOCALM

*** THE ANNUAL (1 YRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,
PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

*** NETWORK ID: GRD1 ; NETWORK TYPE: GRIDCART ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 373634.00	373884.00	374134.00	374384.00	374634.00	374884.00	375134.00	375384.00	375634.00
3813913.00	0.96424	1.01921	1.01897	0.92609	0.77805	0.68151	0.66561	0.67695	0.63876
3813663.00	1.01950	1.13024	1.19756	1.17685	1.02942	0.85901	0.78882	0.79722	0.76446
3813413.00	1.01998	1.20055	1.35120	1.43364	1.37138	1.15233	0.98295	0.95745	0.93330
3813163.00	0.92386	1.18501	1.44250	1.65657	1.75607	1.61227	1.31801	1.19332	1.16986
3812913.00	0.74105	1.02707	1.39301	1.77788	2.10015	2.21326	1.91802	1.59161	1.52243
3812663.00	0.59604	0.79608	1.14057	1.65685	2.26524	2.79115	2.89044	2.35481	2.10362
3812413.00	0.55159	0.67119	0.87825	1.27252	1.99239	3.01937	3.98285	3.94470	3.20217
3812163.00	0.56952	0.66451	0.80216	1.02824	1.46448	2.42717	4.29287	6.41535	5.83732
3811913.00	0.59487	0.69915	0.83657	1.02817	1.32362	1.85617	3.09544	6.78902	14.01828
3811663.00	0.58176	0.69079	0.83731	1.04276	1.34838	1.84585	2.77198	5.54900	12.71273
3811413.00	0.55678	0.65913	0.79650	0.98815	1.26978	1.71553	2.51341	4.37405	8.95748
3811163.00	0.51446	0.59525	0.69693	0.82668	0.99688	1.23666	1.62541	2.42132	6.44030
3810913.00	0.40754	0.45159	0.50853	0.58887	0.70673	0.88006	1.20070	1.90383	3.17163
3810663.00	0.30532	0.33994	0.38386	0.43958	0.52780	0.70211	0.97860	1.40579	1.95987
3810413.00	0.23933	0.26483	0.30325	0.37254	0.48579	0.63577	0.85353	1.15625	1.53149
3810163.00	0.20353	0.23841	0.29380	0.36903	0.46315	0.59572	0.77514	0.93471	1.22712
3809913.00	0.19955	0.24181	0.29466	0.36037	0.44850	0.55998	0.66249	0.76967	0.97429
3809663.00	0.20440	0.24424	0.29276	0.35379	0.42679	0.49942	0.55555	0.64613	0.78541
3809413.00	0.20816	0.24477	0.28819	0.33831	0.39087	0.43317	0.47388	0.54405	0.65627
3809163.00	0.20879	0.24041	0.27625	0.31507	0.35025	0.37498	0.40879	0.46436	0.56635

CONC URBAN FLAT NOCALM

*** THE ANNUAL (1 YRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,
PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

*** NETWORK ID: GRD1 ; NETWORK TYPE: GRIDCART ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 375884.00	376134.00	376384.00	376634.00	376884.00	377134.00	377384.00	377634.00	377884.00
3813913.00	0.59928	0.58586	0.53346	0.41463	0.29436	0.21463	0.17628	0.16082	0.14918
3813663.00	0.71494	0.69001	0.60752	0.45525	0.31974	0.23387	0.19715	0.18052	0.16499
3813413.00	0.87068	0.82934	0.69831	0.50660	0.35226	0.25914	0.22465	0.20308	0.18419
3813163.00	1.08738	1.02265	0.81152	0.57666	0.39265	0.29525	0.25859	0.23041	0.20879
3812913.00	1.40357	1.30359	0.95757	0.67718	0.44469	0.34661	0.30020	0.26660	0.23821
3812663.00	1.90155	1.73606	1.16284	0.81911	0.52138	0.41478	0.35726	0.31040	0.26642
3812413.00	2.80115	2.44896	1.50509	1.01468	0.63795	0.51434	0.42669	0.34830	0.28740
3812163.00	4.84826	3.71944	2.18047	1.29449	0.83585	0.63440	0.48472	0.38604	0.31520
3811913.00	11.61222	6.29993	3.67158	1.79161	1.07234	0.76323	0.58609	0.46729	0.38458
3811663.00	41.38642	15.28540	7.76201	2.66789	1.62923	1.09499	0.78632	0.59989	0.48247
3811413.00	38.51508	66.25852	114.70936	5.57291	2.52267	1.49016	1.02529	0.76591	0.60034
3811163.00	11.23651	23.38951	10.66766	7.54236	3.00763	1.78239	1.21479	0.88965	0.68385
3810913.00	7.35645	9.27758	14.93656	5.94812	2.72719	1.58115	1.07775	0.80732	0.64233
3810663.00	3.42960	4.62332	5.45317	3.33999	2.18264	1.37241	0.92015	0.68372	0.54575
3810413.00	2.33360	2.82973	2.99947	2.03961	1.58243	1.21327	0.87741	0.63757	0.48986
3810163.00	1.63746	1.98050	1.99463	1.43940	1.12352	0.97727	0.79752	0.62636	0.48444
3809913.00	1.23504	1.48621	1.46042	1.11196	0.84459	0.75922	0.68000	0.57579	0.47702
3809663.00	0.98821	1.16538	1.13380	0.90048	0.68233	0.59471	0.56229	0.50815	0.44149
3809413.00	0.81963	0.94361	0.91533	0.75052	0.57967	0.48605	0.45850	0.43864	0.39853
3809163.00	0.69546	0.78318	0.75981	0.63920	0.50610	0.41577	0.37994	0.37087	0.35444

CONC URBAN FLAT NOCALM

*** THE ANNUAL (1 YRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,
PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

*** NETWORK ID: GRD1 ; NETWORK TYPE: GRIDCART ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 378134.00	378384.00
3813913.00	0.13762	0.12789
3813663.00	0.15173	0.14084
3813413.00	0.16927	0.15610
3813163.00	0.19003	0.17298
3812913.00	0.21175	0.18652
3812663.00	0.22744	0.19473
3812413.00	0.24056	0.20327
3812163.00	0.26364	0.22774
3811913.00	0.32695	0.28530
3811663.00	0.40246	0.34388
3811413.00	0.48612	0.40343
3811163.00	0.54506	0.44690
3810913.00	0.53029	0.44779
3810663.00	0.45434	0.38994
3810413.00	0.40034	0.34029
3810163.00	0.38288	0.31703
3809913.00	0.38728	0.31442
3809663.00	0.37936	0.31985
3809413.00	0.35296	0.31133
3809163.00	0.32367	0.29097

CONC URBAN FLAT NOCALM

*** THE ANNUAL (1 YRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,
PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
375707.00	3810561.00	1.99905	374756.00	3810927.00	0.79572
376707.00	3811134.00	5.52015	376710.00	3811038.00	5.41213
376712.00	3810939.00	4.71400	376717.00	3810843.00	4.00448
376700.00	3811250.00	5.17050	376697.00	3811346.00	5.07167
376693.00	3811450.00	3.98029	376690.00	3811546.00	3.21160
376685.00	3811645.00	2.49122	376683.00	3811744.00	1.95554
376678.00	3811840.00	1.74189	376676.00	3811936.00	1.56191
376671.00	3812035.00	1.37881	376666.00	3812134.00	1.23095
376663.00	3812230.00	1.12070	376659.00	3812329.00	1.03156
376654.00	3812426.00	0.95793	376561.00	3812442.00	1.15176
376464.00	3812452.00	1.31643	376367.00	3812464.00	1.44730
376270.00	3812474.00	1.70145	376248.00	3812399.00	1.94591
376253.00	3812303.00	2.16015	376258.00	3812206.00	2.43429
376260.00	3812110.00	2.82330	376217.00	3812057.00	3.45529
376122.00	3812069.00	4.62323	376025.00	3812081.00	5.30470
375928.00	3812093.00	5.55964	375828.00	3812105.00	6.03096
375728.00	3812117.00	6.15968	375631.00	3812129.00	6.52574
375532.00	3812141.00	6.93021	375461.00	3812124.00	7.23259
375464.00	3812028.00	8.42702	375464.00	3811924.00	8.90103
375466.00	3811828.00	8.16072	375469.00	3811732.00	6.89232
375374.00	3811746.00	5.04329	375277.00	3811756.00	3.81543
375180.00	3811770.00	3.05365	375077.00	3811785.00	2.50460
375077.00	3811688.00	2.50411	375075.00	3811589.00	2.44251
375075.00	3811493.00	2.34625	375075.00	3811394.00	2.24701
375073.00	3811298.00	1.98525	375070.00	3811202.00	1.61856
375070.00	3811105.00	1.37539	375068.00	3811009.00	1.21519
375145.00	3810970.00	1.28859	375240.00	3810956.00	1.49285
375340.00	3810941.00	1.79796	375437.00	3810927.00	2.15858
375534.00	3810912.00	2.57342	375631.00	3810898.00	3.04163
375728.00	3810881.00	3.43240	375826.00	3810867.00	4.13868
375923.00	3810852.00	5.62672	376020.00	3810835.00	6.96930
376119.00	3810821.00	6.96713	376217.00	3810806.00	7.47675
376299.00	3810794.00	8.53243	376353.00	3810785.00	8.61961
376450.00	3810768.00	6.95524	376547.00	3810753.00	5.07377
376644.00	3810739.00	3.90148	376719.00	3810744.00	3.36580

CONC URBAN FLAT NOCALM

*** THE 1ST HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,
PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

*** NETWORK ID: GRD1 ; NETWORK TYPE: GRIDCART ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 373634.00	373884.00	374134.00	374384.00	374634.00
3813913.0	4.11662 (81121824)	4.47232 (81120624)	4.60161 (81120624)	3.85142 (81050924)	3.80513 (81110824)
3813663.0	4.50793 (81112024)	4.79099 (81121824)	5.26753 (81120624)	5.11140 (81120624)	4.06618 (81050924)
3813413.0	4.47832 (81112224)	5.23412 (81112224)	5.67417 (81121824)	6.29055 (81120624)	5.63299 (81120624)

3813163.0	4.33458	(81011824)	5.17159	(81112224)	6.26459	(81112224)	6.87217	(81121824)	7.62549	(81120624)
3812913.0	3.14210	(81011824)	4.76518	(81011824)	6.02334	(81112224)	7.68392	(81112224)	8.57520	(81121824)
3812663.0	3.15598	(81120324)	3.41637	(81120324)	5.03326	(81011824)	7.19109	(81011824)	9.73112	(81112224)
3812413.0	3.54965	(81122624)	3.99989	(81122624)	4.39900	(81120324)	5.15572	(81011824)	8.66985	(81011824)
3812163.0	3.84023	(81120324)	4.39652	(81120324)	4.97921	(81120324)	5.74322	(81120324)	6.80349	(81120324)
3811913.0	3.01697	(81121424)	3.73475	(81120324)	4.90809	(81120324)	6.39581	(81120324)	8.12107	(81120324)
3811663.0	2.95559	(81030324)	3.45559	(81030324)	4.09751	(81030324)	4.93970	(81030324)	6.25249	(81122624)
3811413.0	3.31789	(81080424)	3.77061	(81080424)	4.36000	(81080424)	5.15471	(81080424)	6.29473	(81080424)
3811163.0	2.64613	(81080424)	2.81399	(81080424)	3.20834	(81040124)	3.79325	(81040124)	4.55458	(81040124)
3810913.0	2.26881	(81081524)	2.36077	(81081524)	2.74496	(81040124)	3.32790	(81040124)	4.07782	(81040124)
3810663.0	1.91156	(81041624)	2.21073	(81041624)	2.47622	(81041624)	2.73995	(81091724)	3.57974	(81091724)
3810413.0	1.85537	(81041624)	1.91793	(81041624)	2.32617	(81091724)	2.50539	(81091724)	3.02769	(81082424)
3810163.0	1.60382	(81091724)	1.76820	(81091724)	1.79817	(81082424)	2.55192	(81082424)	2.83919	(81082424)
3809913.0	1.37182	(81091724)	1.73555	(81082424)	2.21682	(81082424)	2.43533	(81082424)	2.70844	(81082424)
3809663.0	1.64341	(81082424)	1.96072	(81082424)	2.10831	(81082424)	2.24506	(81082424)	2.44994	(81073124)
3809413.0	1.74604	(81082424)	1.82514	(81082424)	1.86626	(81082424)	1.96638	(81073124)	2.36416	(81062324)
3809163.0	1.58015	(81082424)	1.63031	(81043024)	1.61878	(81073124)	1.93368	(81062324)	2.17048	(81062324)

*** THE 1ST HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,
PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

*** NETWORK ID: GRD1 ; NETWORK TYPE: GRIDCART ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 374884.00		375134.00		375384.00		375634.00		375884.00	
3813913.0	3.62196	(81022324)	3.78386	(81022324)	5.76197	(81102324)	4.99817	(81102324)	2.70287	(81111124)
3813663.0	4.53044	(81110824)	4.51821	(81022324)	6.04149	(81102324)	6.09913	(81102324)	3.52483	(81102324)
3813413.0	4.87879	(81110824)	4.93497	(81022324)	5.91897	(81102324)	7.40585	(81102324)	4.63956	(81102324)
3813163.0	6.44704	(81050924)	6.26313	(81110824)	6.18718	(81022324)	8.96067	(81102324)	6.06303	(81102324)
3812913.0	9.38020	(81120624)	7.09739	(81050924)	7.36149	(81022324)	10.62255	(81102324)	7.84528	(81102324)
3812663.0	11.15977	(81121824)	11.66222	(81120624)	9.78500	(81110824)	11.52656	(81102324)	10.25790	(81102324)
3812413.0	12.84450	(81112224)	15.46889	(81121824)	14.69358	(81050924)	12.93857	(81022324)	14.60877	(81102324)
3812163.0	10.11022	(81011824)	17.87812	(81112224)	23.78197	(81121824)	20.44834	(81110824)	25.13439	(81102324)
3811913.0	10.06041	(81120324)	12.76435	(81120324)	26.61524	(81112224)	49.09174	(81120624)	50.72667	(81102324)
3811663.0	8.37580	(81122624)	13.71566	(81120324)	27.46298	(81120324)	46.56044	(81011824)	134.74075	(81120624)
3811413.0	8.05998	(81080424)	11.19837	(81080424)	17.15123	(81080424)	31.54606	(81050824)	141.13081	(81040124)
3811163.0	5.71537	(81040124)	8.09170	(81041624)	10.71129	(81041624)	21.67561	(81082424)	40.67211	(81080324)
3810913.0	4.63463	(81040124)	5.91843	(81091724)	8.35064	(81073124)	13.58331	(81011624)	25.22935	(81072524)
3810663.0	3.73840	(81071724)	5.02113	(81073124)	7.12156	(81011624)	8.20228	(81111524)	12.44452	(81072524)
3810413.0	3.44782	(81082424)	4.28191	(81073124)	6.08297	(81073124)	5.97931	(81101224)	8.97891	(81042424)
3810163.0	3.31644	(81073124)	4.28652	(81073124)	4.33045	(81073124)	4.96459	(81062324)	6.87130	(81042424)
3809913.0	3.16188	(81073124)	3.50276	(81073124)	3.63662	(81090124)	4.36579	(81072524)	5.35339	(81042424)
3809663.0	2.89338	(81062324)	2.65067	(81062324)	3.09689	(81090124)	3.99399	(81072524)	4.50743	(81042424)
3809413.0	2.43467	(81062324)	2.53338	(81090124)	2.77825	(81080324)	3.69527	(81072524)	4.05861	(81070624)
3809163.0	2.00259	(81111524)	2.32324	(81080324)	2.70477	(81080324)	3.47458	(81072524)	3.72390	(81070624)

*** THE 1ST HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,
PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

*** NETWORK ID: GRD1 ; NETWORK TYPE: GRIDCART ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 376134.00		376384.00		376634.00		376884.00		377134.00	
3813913.0	2.93463	(81110324)	3.55244	(81110324)	3.24288	(81110324)	2.31967	(81110324)	1.41455	(81102424)
3813663.0	3.37679	(81110324)	4.16549	(81110324)	3.49993	(81110324)	2.30082	(81110324)	1.65580	(81100824)
3813413.0	3.96560	(81110324)	4.91827	(81110324)	3.69948	(81110324)	2.25857	(81110324)	1.96908	(81100824)
3813163.0	4.78511	(81110324)	5.80987	(81110324)	3.83172	(81110324)	2.30599	(81100824)	2.84890	(81052024)
3812913.0	6.00261	(81110324)	6.77184	(81110324)	3.97552	(81110324)	3.09122	(81052024)	3.66713	(81052024)
3812663.0	8.07891	(81102324)	7.56691	(81110324)	4.38794	(81110324)	4.63000	(81052024)	3.54183	(81052024)
3812413.0	12.18392	(81102324)	7.88481	(81110324)	6.76327	(81052024)	4.40103	(81083024)	3.73564	(81052024)
3812163.0	19.46382	(81110324)	10.30949	(81052024)	7.69292	(81083024)	5.59394	(81121524)	3.87729	(81052024)
3811913.0	33.59766	(81110324)	22.25243	(81052024)	9.21676	(81121524)	6.71540	(81052024)	4.03467	(81102024)
3811663.0	60.66776	(81052024)	29.62796	(81110324)	15.01340	(81052024)	7.52462	(81032024)	5.96260	(81032024)
3811413.0	298.95065	(81111924)	281.62817	(81110324)	27.77456	(81122524)	15.79078	(81122524)	10.35281	(81111924)
3811163.0	53.11803	(81072824)	43.39852	(81022224)	36.66042	(81111924)	21.60781	(81111924)	13.01943	(81111924)
3810913.0	32.90633	(81100924)	65.49826	(81100924)	42.01989	(81010524)	14.14046	(81022224)	11.00034	(81111924)
3810663.0	18.47470	(81070924)	30.80521	(81100924)	24.52928	(81010524)	21.26213	(81010524)	11.18909	(81022224)
3810413.0	13.16963	(81100924)	18.45005	(81100924)	10.31957	(81010524)	14.54305	(81010524)	13.41459	(81010524)
3810163.0	10.43717	(81100924)	13.04479	(81100924)	7.41372	(81103024)	7.47453	(81010524)	10.09315	(81010524)
3809913.0	8.57902	(81100924)	10.37659	(81100924)	6.24814	(81100924)	4.78572	(81080724)	5.88081	(81010524)
3809663.0	7.22371	(81100924)	8.72844	(81100924)	5.46504	(81100924)	4.01019	(81103024)	3.70423	(81010524)
3809413.0	6.19131	(81100924)	7.50878	(81100924)	4.87467	(81100924)	3.50585	(81072824)	3.19161	(81080724)
3809163.0	5.37943	(81100924)	6.52978	(81100924)	4.47447	(81100924)	3.28881	(81072824)	2.81980	(81080724)

*** THE 1ST HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,

PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

*** NETWORK ID: GRD1 ; NETWORK TYPE: GRIDCART ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 377384.00	377634.00	377884.00	378134.00	378384.00
3813913.0	1.55304 (81100824)	1.90850 (81052024)	2.18667 (81052024)	1.91174 (81052024)	1.39624 (81052024)
3813663.0	1.91577 (81052024)	2.42137 (81052024)	2.24433 (81052024)	1.68404 (81052024)	1.20539 (81091124)
3813413.0	2.63748 (81052024)	2.63412 (81052024)	2.03922 (81052024)	1.40184 (81052124)	1.24177 (81091124)
3813163.0	3.08910 (81052024)	2.47085 (81052024)	1.71364 (81052024)	1.42597 (81091124)	1.20775 (81091124)
3812913.0	2.97635 (81052024)	2.21558 (81052024)	1.66806 (81091124)	1.41827 (81091124)	1.33999 (81121524)
3812663.0	2.89183 (81052024)	1.99611 (81091124)	1.68104 (81091124)	1.69871 (81102024)	1.78416 (81102024)
3812413.0	2.45836 (81052024)	2.12632 (81102024)	2.27026 (81102024)	2.18500 (81102024)	1.88330 (81102024)
3812163.0	3.08509 (81102024)	2.90560 (81102024)	2.48254 (81102024)	2.02582 (81081624)	1.83756 (81081624)
3811913.0	3.48168 (81032024)	3.16318 (81032024)	2.71511 (81032024)	2.32580 (81032024)	2.00532 (81032024)
3811663.0	4.58295 (81032024)	3.51671 (81032024)	2.86656 (81113024)	2.53726 (81113024)	2.24244 (81113024)
3811413.0	7.54523 (81122524)	6.04609 (81122524)	5.01958 (81122524)	4.26588 (81122524)	3.68670 (81122524)
3811163.0	8.88965 (81111924)	6.55220 (81111924)	5.10075 (81111924)	4.41752 (81122524)	3.98666 (81122524)
3810913.0	8.66275 (81111924)	6.43929 (81111924)	5.00450 (81111924)	4.06580 (81111924)	3.37903 (81111924)
3810663.0	5.48346 (81022024)	5.17146 (81111924)	4.62577 (81111924)	3.78616 (81111924)	3.09038 (81111924)
3810413.0	8.97011 (81022224)	4.45997 (81022024)	3.22927 (81022024)	3.18001 (81111924)	3.01215 (81111924)
3810163.0	9.45196 (81010524)	7.24493 (81022224)	4.16585 (81022224)	3.00046 (81022024)	2.12236 (81022024)
3809913.0	7.58238 (81010524)	7.13364 (81010524)	5.94958 (81022224)	3.85997 (81022224)	2.56396 (81022024)
3809663.0	4.86465 (81010524)	5.97205 (81010524)	5.64249 (81010524)	4.97161 (81022224)	3.53357 (81022224)
3809413.0	3.17539 (81010524)	4.12805 (81010524)	4.86525 (81010524)	4.61571 (81010524)	4.22116 (81022224)
3809163.0	2.24960 (81010524)	2.81670 (81010524)	3.55363 (81010524)	4.06846 (81010524)	3.87284 (81010524)

*** THE 1ST HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,
PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
375707.00	3810561.00	7.42171	(81101224)	374756.00	3810927.00	4.50701	(81040124)
376707.00	3811134.00	31.64162	(81111924)	376710.00	3811038.00	26.93095	(81111924)
376712.00	3810939.00	26.81619	(81022224)	376717.00	3810843.00	31.76268	(81010524)
376700.00	3811250.00	30.31512	(81111924)	376697.00	3811346.00	27.02750	(81111924)
376693.00	3811450.00	20.45628	(81122524)	376690.00	3811546.00	12.71283	(81102424)
376685.00	3811645.00	12.40914	(81052024)	376683.00	3811744.00	11.52410	(81052024)
376678.00	3811840.00	10.18542	(81121524)	376676.00	3811936.00	9.17434	(81121524)
376671.00	3812035.00	6.84254	(81110324)	376666.00	3812134.00	7.32052	(81083024)
376663.00	3812230.00	6.98747	(81052024)	376659.00	3812329.00	7.44864	(81052024)
376654.00	3812426.00	6.60486	(81052024)	376561.00	3812442.00	5.79172	(81052024)
376464.00	3812452.00	6.39397	(81110324)	376367.00	3812464.00	8.26142	(81110324)
376270.00	3812474.00	10.30071	(81110324)	376248.00	3812399.00	11.31719	(81110324)
376253.00	3812303.00	12.05548	(81110324)	376258.00	3812206.00	12.30485	(81110324)
376260.00	3812110.00	11.98351	(81110324)	376217.00	3812057.00	16.25874	(81110324)
376122.00	3812069.00	24.55803	(81110324)	376025.00	3812081.00	22.12913	(81110324)
375928.00	3812093.00	24.33167	(81102324)	375828.00	3812105.00	29.53229	(81102324)
375728.00	3812117.00	21.19163	(81022324)	375631.00	3812129.00	22.24413	(81120624)
375532.00	3812141.00	25.71320	(81120624)	375461.00	3812124.00	27.35983	(81120624)
375464.00	3812028.00	30.64763	(81112224)	375464.00	3811924.00	35.37650	(81112224)
375466.00	3811828.00	31.20869	(81011824)	375469.00	3811732.00	26.17843	(81011824)
375374.00	3811746.00	21.84055	(81120324)	375277.00	3811756.00	18.64667	(81120324)
375180.00	3811770.00	16.03586	(81120324)	375077.00	3811785.00	13.82420	(81120324)
375077.00	3811688.00	12.97132	(81120324)	375075.00	3811589.00	10.94538	(81122624)
375075.00	3811493.00	9.41456	(81030324)	375075.00	3811394.00	9.90566	(81080424)
375073.00	3811298.00	7.88560	(81040124)	375070.00	3811202.00	7.25196	(81040124)
375070.00	3811105.00	7.06540	(81040124)	375068.00	3811009.00	6.14228	(81040124)
375145.00	3810970.00	6.19242	(81091724)	375240.00	3810956.00	6.60447	(81091724)
375340.00	3810941.00	8.15991	(81082424)	375437.00	3810927.00	9.25964	(81073124)
375534.00	3810912.00	13.07365	(81011624)	375631.00	3810898.00	12.70714	(81011624)
375728.00	3810881.00	13.00314	(81111524)	375826.00	3810867.00	13.86127	(81072524)
375923.00	3810852.00	20.05514	(81072524)	376020.00	3810835.00	33.90068	(81100924)
376119.00	3810821.00	28.72647	(81100924)	376217.00	3810806.00	28.10058	(81072824)
376299.00	3810794.00	30.08542	(81100924)	376353.00	3810785.00	40.77620	(81100924)
376450.00	3810768.00	34.14273	(81100924)	376547.00	3810753.00	31.98840	(81010524)
376644.00	3810739.00	32.74167	(81010524)	376719.00	3810744.00	31.15766	(81010524)

*** THE 4TH HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,
PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

*** NETWORK ID: GRD1 ; NETWORK TYPE: GRIDCART ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 373634.00	373884.00	374134.00	374384.00	374634.00

3813913.0	3.82830	(81112024)	4.30828	(81010924)	4.12780	(81050924)	3.50071	(81120624)	2.67002	(81123024)
3813663.0	3.83445	(81121824)	4.40278	(81112024)	4.88501	(81010924)	4.66306	(81031524)	3.64982	(81051724)
3813413.0	3.99531	(81121324)	4.41815	(81121824)	5.15277	(81112024)	5.59088	(81010924)	5.14102	(81061724)
3813163.0	3.62034	(81021824)	4.51251	(81112024)	5.16657	(81010924)	6.19405	(81120624)	6.61176	(81111024)
3812913.0	2.80954	(81112224)	3.83983	(81030824)	5.27092	(81021824)	6.30882	(81031724)	7.85370	(81120624)
3812663.0	2.81130	(81122624)	3.16682	(81011324)	4.12909	(81021724)	6.05329	(81030824)	8.07141	(81031724)
3812413.0	3.03262	(81042124)	3.47354	(81111524)	3.80211	(81122624)	4.70863	(81021724)	7.09839	(81021824)
3812163.0	2.79415	(81112324)	3.37891	(81111524)	4.27531	(81042124)	5.02959	(81111524)	5.87435	(81122824)
3811913.0	2.76023	(81122724)	3.45805	(81122724)	4.00966	(81122424)	4.69836	(81042124)	6.02614	(81111524)
3811663.0	2.55289	(81092424)	2.92958	(81092424)	3.39072	(81092424)	4.02337	(81052224)	5.00597	(81121424)
3811413.0	2.43078	(81050524)	2.83021	(81050524)	3.36433	(81050524)	4.10519	(81050524)	5.12806	(81030324)
3811163.0	2.36154	(81040124)	2.65214	(81050824)	2.95986	(81081524)	3.25507	(81080124)	3.89140	(81011624)
3810913.0	1.80918	(81052124)	2.04081	(81052124)	2.37305	(81081524)	2.54116	(81091724)	3.02741	(81050824)
3810663.0	1.61939	(81091724)	1.79662	(81091724)	2.10653	(81091724)	2.50297	(81040124)	2.48857	(81121624)
3810413.0	1.48601	(81100624)	1.60938	(81040124)	1.61718	(81100624)	1.85696	(81111224)	2.53211	(81073124)
3810163.0	1.17951	(81011624)	1.33561	(81121624)	1.61552	(81071724)	1.96750	(81092524)	2.35168	(81043024)
3809913.0	1.11294	(81082424)	1.33708	(81032024)	1.60203	(81092524)	1.91827	(81092524)	2.20117	(81092524)
3809663.0	1.23716	(81071724)	1.33973	(81061824)	1.56733	(81092524)	1.78033	(81072724)	2.07030	(81062924)
3809413.0	1.18803	(81041024)	1.31711	(81092524)	1.55169	(81072724)	1.74248	(81043024)	1.76973	(81062924)
3809163.0	1.14964	(81072724)	1.37107	(81072724)	1.45605	(81062324)	1.52200	(81062924)	1.54553	(81062924)

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE 4TH HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,
PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

*** NETWORK ID: GRD1 ; NETWORK TYPE: GRIDCART ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 374884.00		375134.00		375384.00		375634.00		375884.00	
3813913.0	3.30706	(81051724)	2.97447	(81102224)	3.09713	(81102224)	2.42444	(81010124)	2.38397	(81090324)
3813663.0	3.32974	(81022324)	3.59849	(81121024)	3.55892	(81102224)	3.17230	(81010124)	2.71732	(81090324)
3813413.0	3.97635	(81061624)	4.46608	(81121024)	4.11912	(81102224)	4.07427	(81110924)	3.26371	(81102224)
3813163.0	5.69696	(81111024)	4.56675	(81022324)	4.86951	(81051724)	4.96270	(81110924)	4.19760	(81010124)
3812913.0	8.15526	(81031524)	6.61171	(81051724)	6.41306	(81121024)	6.31416	(81022324)	5.35147	(81122924)
3812663.0	10.42002	(81112224)	10.11642	(81031524)	7.45613	(81121024)	8.24191	(81102224)	7.02472	(81122924)
3812413.0	10.72033	(81011824)	14.29108	(81112224)	12.79300	(81072024)	11.08919	(81110824)	9.81629	(81122924)
3812163.0	8.02763	(81021724)	15.25755	(81121324)	21.97939	(81020324)	17.59581	(81050924)	14.91237	(81110924)
3811913.0	8.43657	(81011824)	11.66580	(81042124)	22.06058	(81112024)	43.96574	(81030924)	34.41658	(81110924)
3811663.0	7.42045	(81121424)	11.35445	(81121424)	21.37403	(81011824)	39.40234	(81122824)	105.23404	(81010924)
3811413.0	6.81537	(81050524)	9.62209	(81050824)	16.18981	(81031824)	29.82036	(81031824)	123.24430	(81050824)
3811163.0	4.95714	(81011624)	6.47694	(81091724)	9.51573	(81011624)	19.11996	(81041024)	33.33591	(81071524)
3810913.0	4.10526	(81041624)	4.65073	(81031424)	7.13866	(81071324)	11.32243	(81073124)	18.50462	(81071524)
3810663.0	3.61156	(81061824)	4.11316	(81043024)	5.64126	(81062324)	6.58224	(81111224)	11.07074	(81062324)
3810413.0	2.98307	(81043024)	3.81612	(81041224)	4.86303	(81062324)	5.41401	(81062924)	8.14062	(81062224)
3810163.0	2.82470	(81092524)	3.12009	(81081724)	3.66438	(81111524)	4.57668	(81062924)	5.61913	(81120124)
3809913.0	2.48844	(81072724)	2.78022	(81111524)	3.19742	(81091224)	3.98693	(81062224)	4.80642	(81072524)
3809663.0	2.16666	(81101224)	2.46475	(81062924)	2.60909	(81071524)	3.31384	(81070224)	4.10755	(81062224)
3809413.0	2.02148	(81111524)	2.16711	(81081424)	2.34151	(81071524)	2.71814	(81070624)	3.55900	(81062224)
3809163.0	1.85633	(81062324)	1.89059	(81111524)	2.04340	(81062424)	2.37373	(81070124)	3.09323	(81062224)

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE 4TH HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,
PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

*** NETWORK ID: GRD1 ; NETWORK TYPE: GRIDCART ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 376134.00		376384.00		376634.00		376884.00		377134.00	
3813913.0	2.43078	(81060624)	2.35947	(81021524)	1.82696	(81040124)	1.72324	(81013024)	1.32358	(81091924)
3813663.0	2.78343	(81060624)	2.52618	(81030324)	2.02606	(81040724)	1.73729	(81013024)	1.39912	(81083024)
3813413.0	3.29543	(81021524)	2.80013	(81101124)	2.29793	(81013024)	1.84448	(81100824)	1.48390	(81083024)
3813163.0	3.99128	(81021524)	3.17652	(81102024)	2.48267	(81102024)	2.13972	(81040124)	1.63519	(81030524)
3812913.0	5.16106	(81110524)	3.81097	(81040724)	3.07663	(81101124)	2.29365	(81040124)	2.07347	(81110624)
3812663.0	6.83756	(81110524)	4.44244	(81040724)	3.66437	(81101124)	2.68371	(81110624)	2.37882	(81091124)
3812413.0	9.45046	(81010124)	5.77201	(81040724)	4.55409	(81100824)	3.18723	(81091124)	2.71825	(81033124)
3812163.0	13.91254	(81110924)	8.35226	(81110324)	5.47292	(81110924)	4.02837	(81101124)	3.08664	(81091124)
3811913.0	22.05369	(81110924)	13.16202	(81110324)	8.31471	(81101124)	5.06440	(81101824)	3.44515	(81032024)
3811663.0	47.90602	(81083024)	23.35059	(81012224)	9.74167	(81083024)	6.12446	(81103024)	4.26719	(81121724)
3811413.0	177.87331	(81121724)	244.47748	(81102224)	18.50529	(81113024)	10.28851	(81052224)	6.51389	(81113024)
3811163.0	48.21274	(81041624)	35.94703	(81100924)	23.65575	(81022224)	10.79294	(81110224)	7.88010	(81121724)
3810913.0	28.58800	(81073124)	45.92462	(81042424)	22.73913	(81030524)	11.15234	(81010524)	5.36253	(81102524)
3810663.0	15.90078	(81062924)	20.29456	(81042424)	13.15658	(81011224)	10.04374	(81011724)	6.82538	(81110124)
3810413.0	10.14911	(81072824)	12.04596	(81080624)	8.36219	(81103024)	7.86049	(81013124)	6.33380	(81011724)
3810163.0	7.35325	(81070624)	8.60607	(81080624)	6.85667	(81052624)	5.17406	(81042724)	5.43735	(81050424)
3809913.0	6.17823	(81042024)	6.43226	(81072824)	5.86986	(81052624)	4.26051	(81090124)	3.99448	(81063024)
3809663.0	5.13870	(81060824)	5.08056	(81052724)	4.82068	(81052624)	3.60637	(81072724)	3.10804	(81080724)
3809413.0	4.30823	(81070624)	4.18015	(81052724)	3.97555	(81122124)	3.05124	(81011224)	2.59973	(81011224)
3809163.0	3.71256	(81032724)	3.50204	(81052724)	3.47372	(81122124)	2.72200	(81070124)	2.38662	(81011224)

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE 4TH HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,
PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

*** NETWORK ID: GRD1 ; NETWORK TYPE: GRIDCART ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

Y-COORD (METERS)	X-COORD (METERS) 377384.00	377634.00	377884.00	378134.00	378384.00
3813913.0	1.18195 (81091924)	1.13601 (81121524)	1.03326 (81083024)	0.84326 (81091124)	1.02248 (81083024)
3813663.0	1.29390 (81030524)	1.21771 (81030524)	0.95958 (81100824)	1.16368 (81083024)	1.00138 (81040824)
3813413.0	1.39616 (81030524)	1.20962 (81052124)	1.33918 (81091124)	1.14281 (81083024)	0.95124 (81110424)
3813163.0	1.53235 (81100724)	1.56106 (81091124)	1.32915 (81083024)	1.08474 (81110424)	1.05040 (81052124)
3812913.0	1.88367 (81091124)	1.58161 (81040824)	1.24485 (81110424)	1.24644 (81040824)	1.19526 (81022424)
3812663.0	1.96203 (81040824)	1.64293 (81033124)	1.50326 (81103024)	1.41510 (81033124)	1.25908 (81022424)
3812413.0	2.27864 (81052124)	1.93833 (81090724)	1.58955 (81022424)	1.39998 (81121524)	1.37496 (81090724)
3812163.0	2.41521 (81091124)	2.00719 (81121524)	2.02237 (81032024)	1.75576 (81102924)	1.46905 (81101824)
3811913.0	3.23754 (81022424)	2.48308 (81101824)	2.00494 (81101924)	1.84337 (81101824)	1.64368 (81121724)
3811663.0	3.68558 (81101824)	3.09860 (81121724)	2.73036 (81102424)	2.33849 (81121724)	2.06350 (81121724)
3811413.0	5.00188 (81113024)	3.99554 (81052224)	3.35746 (81052224)	2.86177 (81052224)	2.46793 (81052224)
3811163.0	6.15664 (81122524)	5.21112 (81111824)	4.07259 (81111824)	3.21902 (81111824)	2.58499 (81111824)
3810913.0	4.44906 (81031324)	3.44960 (81021324)	3.04233 (81112924)	2.69777 (81112924)	2.45715 (81110224)
3810663.0	4.20960 (81102524)	2.96390 (81051624)	2.88322 (81031324)	2.54106 (81031324)	2.11066 (81112724)
3810413.0	4.88591 (81011124)	3.27562 (81042724)	2.09428 (81022224)	1.95679 (81102524)	1.97870 (81031324)
3810163.0	4.43878 (81011724)	3.96010 (81011724)	2.79219 (81011124)	1.99946 (81042724)	1.48559 (81101624)
3809913.0	4.21892 (81022224)	3.39418 (81080524)	3.26375 (81011724)	2.41687 (81011124)	1.79985 (81010524)
3809663.0	3.06007 (81013124)	3.33441 (81013124)	2.73046 (81080524)	2.71061 (81011724)	2.06949 (81011124)
3809413.0	2.62236 (81050424)	2.72918 (81013124)	2.66650 (81013124)	2.26782 (81080524)	2.27483 (81011724)
3809163.0	2.14257 (81063024)	2.31828 (81063024)	2.38947 (81013124)	2.18159 (81013124)	1.93007 (81080524)

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE 4TH HIGHEST 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,
PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
375707.00	3810561.00	6.47511	(81073124)	374756.00	3810927.00	3.38670	(81091724)
376707.00	3811134.00	18.80027	(81121724)	376710.00	3811038.00	18.01729	(81121724)
376712.00	3810939.00	17.92505	(81110124)	376717.00	3810843.00	16.46931	(81030524)
376700.00	3811250.00	15.95677	(81010724)	376697.00	3811346.00	21.06521	(81111824)
376693.00	3811450.00	13.51261	(81052224)	376690.00	3811546.00	10.92534	(81122524)
376685.00	3811645.00	8.94092	(81052124)	376683.00	3811744.00	8.18008	(81081624)
376678.00	3811840.00	7.45039	(81090724)	376676.00	3811936.00	6.74741	(81033124)
376671.00	3812035.00	6.01130	(81101124)	376666.00	3812134.00	5.30195	(81091124)
376663.00	3812230.00	4.74069	(81110924)	376659.00	3812329.00	4.34908	(81071024)
376654.00	3812426.00	4.30925	(81100824)	376561.00	3812442.00	5.01848	(81101124)
376464.00	3812452.00	5.48554	(81100824)	376367.00	3812464.00	5.49617	(81010124)
376270.00	3812474.00	6.20556	(81101124)	376248.00	3812399.00	7.02096	(81032624)
376253.00	3812303.00	7.64727	(81101124)	376258.00	3812206.00	8.69512	(81101124)
376260.00	3812110.00	10.43291	(81101124)	376217.00	3812057.00	12.44396	(81010124)
376122.00	3812069.00	16.56839	(81101124)	376025.00	3812081.00	17.74131	(81122924)
375928.00	3812093.00	16.86396	(81111124)	375828.00	3812105.00	19.14910	(81022324)
375728.00	3812117.00	20.05480	(81120624)	375631.00	3812129.00	20.63123	(81051724)
375532.00	3812141.00	21.12854	(81031524)	375461.00	3812124.00	24.70698	(81050924)
375464.00	3812028.00	28.47220	(81120624)	375464.00	3811924.00	29.72321	(81011824)
375466.00	3811828.00	24.64776	(81122324)	375469.00	3811732.00	23.82928	(81122824)
375374.00	3811746.00	19.36150	(81042124)	375277.00	3811756.00	16.05806	(81042124)
375180.00	3811770.00	13.32667	(81011824)	375077.00	3811785.00	10.88429	(81011824)
375077.00	3811688.00	10.38009	(81121424)	375075.00	3811589.00	8.51198	(81121224)
375075.00	3811493.00	8.49037	(81031824)	375075.00	3811394.00	8.79021	(81050824)
375073.00	3811298.00	7.19789	(81050824)	375070.00	3811202.00	6.30619	(81052124)
375070.00	3811105.00	5.41180	(81091724)	375068.00	3811009.00	5.22960	(81091724)
375145.00	3810970.00	5.38965	(81040124)	375240.00	3810956.00	6.03627	(81061824)
375340.00	3810941.00	7.59212	(81031424)	375437.00	3810927.00	7.99368	(81043024)
375534.00	3810912.00	9.90637	(81073124)	375631.00	3810898.00	11.03384	(81073124)
375728.00	3810881.00	10.96056	(81081424)	375826.00	3810867.00	11.93812	(81011624)
375923.00	3810852.00	16.90113	(81062224)	376020.00	3810835.00	22.91477	(81043024)
376119.00	3810821.00	23.98079	(81062324)	376217.00	3810806.00	22.93183	(81062924)
376299.00	3810794.00	27.80303	(81072824)	376353.00	3810785.00	29.67386	(81100124)
376450.00	3810768.00	25.35584	(81080624)	376547.00	3810753.00	17.45241	(81122224)
376644.00	3810739.00	16.13484	(81112524)	376719.00	3810744.00	14.56152	(81112524)

**MODELOPTs:
CONC URBAN FLAT NOCALM

*** THE MAXIMUM 50 24-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): RCKPLNT , BTCHPLNT, FINES1 , FINES2 , FINES3 , FINES4 , STCKPILE,
PITOPS , SRC3 , SRC5 , SRC6 , SRC7 , SRC8 , SRC9 , SRC11 , SRC12 , SRC14 , SRC16 , SRC18 ,
SRC19 , SRC20 ,

** CONC OF 10-PM IN MICROGRAMS/M**3 **

RANK	CONC	(YYMMDDHH)	AT RECEPTOR (XR,YR)	OF TYPE	RANK	CONC	(YYMMDDHH)	AT RECEPTOR (XR,YR)	OF TYPE
1.	298.95065	(81111924)	AT (376134.00, 3811413.00)	GC	26.	189.38478	(81121524)	AT (376384.00, 3811413.00)	GC

2.	281.62817	(81110324)	AT	(376384.00,	3811413.00)	GC	27.	188.86261	(81110224)	AT	(376384.00,	3811413.00)	GC
3.	270.45630	(81010124)	AT	(376384.00,	3811413.00)	GC	28.	188.76711	(81110824)	AT	(376384.00,	3811413.00)	GC
4.	245.81383	(81102324)	AT	(376384.00,	3811413.00)	GC	29.	187.48608	(81112224)	AT	(376384.00,	3811413.00)	GC
5.	244.47748	(81102224)	AT	(376384.00,	3811413.00)	GC	30.	186.26848	(81010824)	AT	(376384.00,	3811413.00)	GC
6.	240.58305	(81101124)	AT	(376384.00,	3811413.00)	GC	31.	185.36134	(81101424)	AT	(376384.00,	3811413.00)	GC
7.	240.23468	(81111124)	AT	(376384.00,	3811413.00)	GC	32.	185.16338	(81010924)	AT	(376384.00,	3811413.00)	GC
8.	237.75026	(81110924)	AT	(376384.00,	3811413.00)	GC	33.	184.93225	(81110724)	AT	(376384.00,	3811413.00)	GC
9.	235.35310	(81120624)	AT	(376384.00,	3811413.00)	GC	34.	184.38362	(81110524)	AT	(376384.00,	3811413.00)	GC
10.	234.77672	(81101524)	AT	(376384.00,	3811413.00)	GC	35.	182.83714	(81120524)	AT	(376384.00,	3811413.00)	GC
11.	234.10658	(81111024)	AT	(376384.00,	3811413.00)	GC	36.	182.36687	(81022224)	AT	(376134.00,	3811413.00)	GC
12.	229.17583	(81122524)	AT	(376134.00,	3811413.00)	GC	37.	181.68123	(81021524)	AT	(376384.00,	3811413.00)	GC
13.	222.44000	(81120924)	AT	(376384.00,	3811413.00)	GC	38.	181.60060	(81112124)	AT	(376384.00,	3811413.00)	GC
14.	212.98920	(81120724)	AT	(376384.00,	3811413.00)	GC	39.	181.11885	(81112924)	AT	(376384.00,	3811413.00)	GC
15.	209.11952	(81092924)	AT	(376384.00,	3811413.00)	GC	40.	179.94847	(81121924)	AT	(376384.00,	3811413.00)	GC
16.	207.14171	(81102024)	AT	(376384.00,	3811413.00)	GC	41.	179.72081	(81020424)	AT	(376384.00,	3811413.00)	GC
17.	206.63316	(81122924)	AT	(376384.00,	3811413.00)	GC	42.	178.33522	(81010724)	AT	(376384.00,	3811413.00)	GC
18.	205.63597	(81011324)	AT	(376384.00,	3811413.00)	GC	43.	177.87331	(81121724)	AT	(376134.00,	3811413.00)	GC
19.	203.95374	(81122824)	AT	(376384.00,	3811413.00)	GC	44.	177.50574	(81022724)	AT	(376384.00,	3811413.00)	GC
20.	202.92033	(81112024)	AT	(376384.00,	3811413.00)	GC	45.	176.85077	(81022424)	AT	(376384.00,	3811413.00)	GC
21.	200.85475	(81050924)	AT	(376384.00,	3811413.00)	GC	46.	175.40771	(81082824)	AT	(376384.00,	3811413.00)	GC
22.	198.64937	(81121824)	AT	(376384.00,	3811413.00)	GC	47.	175.23289	(81011524)	AT	(376384.00,	3811413.00)	GC
23.	198.45528	(81120424)	AT	(376384.00,	3811413.00)	GC	48.	174.10905	(81123124)	AT	(376384.00,	3811413.00)	GC
24.	197.80829	(81022324)	AT	(376384.00,	3811413.00)	GC	49.	173.50542	(81091824)	AT	(376384.00,	3811413.00)	GC
25.	196.82300	(81051924)	AT	(376384.00,	3811413.00)	GC	50.	173.18211	(81030124)	AT	(376384.00,	3811413.00)	GC

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** THE SUMMARY OF MAXIMUM ANNUAL (1 YRS) RESULTS ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	1ST HIGHEST VALUE IS	114.70936 AT	(376384.00, 3811413.00, 0.00, 0.00)	GC	GRD1
	2ND HIGHEST VALUE IS	66.25852 AT	(376134.00, 3811413.00, 0.00, 0.00)	GC	GRD1
	3RD HIGHEST VALUE IS	41.38642 AT	(375884.00, 3811663.00, 0.00, 0.00)	GC	GRD1
	4TH HIGHEST VALUE IS	38.51508 AT	(375884.00, 3811413.00, 0.00, 0.00)	GC	GRD1
	5TH HIGHEST VALUE IS	23.38951 AT	(376134.00, 3811163.00, 0.00, 0.00)	GC	GRD1
	6TH HIGHEST VALUE IS	15.28540 AT	(376134.00, 3811663.00, 0.00, 0.00)	GC	GRD1
	7TH HIGHEST VALUE IS	14.93656 AT	(376384.00, 3810913.00, 0.00, 0.00)	GC	GRD1
	8TH HIGHEST VALUE IS	14.01828 AT	(375634.00, 3811913.00, 0.00, 0.00)	GC	GRD1
	9TH HIGHEST VALUE IS	12.71273 AT	(375634.00, 3811663.00, 0.00, 0.00)	GC	GRD1
	10TH HIGHEST VALUE IS	11.61222 AT	(375884.00, 3811913.00, 0.00, 0.00)	GC	GRD1

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** THE SUMMARY OF HIGHEST 24-HR RESULTS ***

** CONC OF 10-PM IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL	HIGH 1ST HIGH VALUE IS	298.95065	ON 81111924: AT	(376134.00, 3811413.00, 0.00, 0.00)	GC	GRD1
	HIGH 4TH HIGH VALUE IS	244.47748	ON 81102224: AT	(376384.00, 3811413.00, 0.00, 0.00)	GC	GRD1

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** Message Summary : ISCST3 Model Execution ***

--------- Summary of Total Messages --------

A Total of 0 Fatal Error Message(s)
A Total of 0 Warning Message(s)
A Total of 1085 Informational Message(s)

A Total of 1085 Calm Hours Identified

```
******** FATAL ERROR MESSAGES ********
          ***  NONE  ***

********   WARNING MESSAGES   ********
          ***  NONE  ***

************************************
*** ISCST3 Finishes Successfully ***
************************************
```

APPENDIX E

Plume Rise Calculations

01/09/98
12:13:45

```
 ***  SCREEN3 MODEL RUN  ***
 *** VERSION DATED 95250 ***

TMC Plume Rise

SIMPLE TERRAIN INPUTS:
   SOURCE TYPE              =        POINT
   EMISSION RATE (G/S)      =      2.00000
   STACK HEIGHT (M)         =       1.4600
   STK INSIDE DIAM (M)      =        .2000
   STK EXIT VELOCITY (M/S)=        13.4400
   STK GAS EXIT TEMP (K)    =     400.0000
   AMBIENT AIR TEMP (K)     =     293.0000
   RECEPTOR HEIGHT (M)      =        .0000
   URBAN/RURAL OPTION       =        URBAN
   BUILDING HEIGHT (M)      =        .0000
   MIN HORIZ BLDG DIM (M) =          .0000
   MAX HORIZ BLDG DIM (M) =          .0000

      ***************************************
      *** SUMMARY OF SCREEN MODEL RESULTS ***
      ***************************************

 CALCULATION       MAX CONC   DIST TO  TERRAIN
  PROCEDURE       (UG/M**3)   MAX (M)   HT (M)
--------------  -----------  -------  -------
SIMPLE TERRAIN    .5352E+05       3.       1.

****************************************************
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
****************************************************

BUOY. FLUX =      .353 M**4/S**3;  MOM. FLUX =    1.323 M**4/S**2.

*** FULL METEOROLOGY ***

**********************************
*** SCREEN AUTOMATED DISTANCES ***
**********************************

*** TERRAIN HEIGHT OF    1. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***
```

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
1.	163.5	4	20.0	20.0	6400.0	.62	.17	.15	NO
100.	2176.	4	1.0	1.0	320.0	10.26	15.94	14.08	NO
200.	955.7	6	1.0	1.0	10000.0	17.88	21.75	14.89	NO
300.	671.9	6	1.0	1.0	10000.0	17.88	31.58	20.54	NO
400.	471.7	6	1.0	1.0	10000.0	17.88	41.16	25.78	NO
500.	347.3	6	1.0	1.0	10000.0	17.88	50.45	30.64	NO
600.	267.4	6	1.0	1.0	10000.0	17.88	59.48	35.18	NO
700.	213.5	6	1.0	1.0	10000.0	17.88	68.24	39.43	NO
800.	175.4	6	1.0	1.0	10000.0	17.88	76.76	43.44	NO
900.	147.5	6	1.0	1.0	10000.0	17.88	85.04	47.23	NO
1000.	126.4	6	1.0	1.0	10000.0	17.88	93.10	50.84	NO
1100.	110.0	6	1.0	1.0	10000.0	17.88	100.96	54.29	NO
1200.	96.99	6	1.0	1.0	10000.0	17.88	108.62	57.59	NO
1300.	86.43	6	1.0	1.0	10000.0	17.88	116.10	60.76	NO
1400.	77.74	6	1.0	1.0	10000.0	17.88	123.40	63.81	NO

1500.	70.49	6	1.0	1.0	10000.0	17.88	130.54	66.75	NO
1600.	64.35	6	1.0	1.0	10000.0	17.88	137.52	69.60	NO
1700.	59.12	6	1.0	1.0	10000.0	17.88	144.36	72.35	NO
1800.	54.60	6	1.0	1.0	10000.0	17.88	151.06	75.03	NO
1900.	50.67	6	1.0	1.0	10000.0	17.88	157.62	77.63	NO
2000.	47.22	6	1.0	1.0	10000.0	17.88	164.05	80.15	NO
2100.	44.18	6	1.0	1.0	10000.0	17.88	170.37	82.62	NO
2200.	41.48	6	1.0	1.0	10000.0	17.88	176.57	85.02	NO
2300.	39.07	6	1.0	1.0	10000.0	17.88	182.65	87.37	NO
2400.	36.90	6	1.0	1.0	10000.0	17.88	188.64	89.66	NO
2500.	34.94	6	1.0	1.0	10000.0	17.88	194.52	91.90	NO
2600.	33.17	6	1.0	1.0	10000.0	17.88	200.30	94.10	NO
2700.	31.56	6	1.0	1.0	10000.0	17.88	205.99	96.25	NO
2800.	30.09	6	1.0	1.0	10000.0	17.88	211.59	98.36	NO
2900.	28.74	6	1.0	1.0	10000.0	17.88	217.11	100.43	NO
3000.	27.50	6	1.0	1.0	10000.0	17.88	222.54	102.46	NO
3500.	22.56	6	1.0	1.0	10000.0	17.88	248.57	112.11	NO
4000.	19.06	6	1.0	1.0	10000.0	17.88	272.92	121.05	NO
4500.	16.47	6	1.0	1.0	10000.0	17.88	295.86	129.41	NO
5000.	14.48	6	1.0	1.0	10000.0	17.88	317.58	137.29	NO
5500.	12.90	6	1.0	1.0	10000.0	17.88	338.24	144.76	NO
6000.	11.63	6	1.0	1.0	10000.0	17.88	357.97	151.87	NO
6500.	10.58	6	1.0	1.0	10000.0	17.88	376.87	158.68	NO
7000.	9.698	6	1.0	1.0	10000.0	17.88	395.03	165.21	NO
7500.	8.949	6	1.0	1.0	10000.0	17.88	412.53	171.50	NO
8000.	8.306	6	1.0	1.0	10000.0	17.88	429.42	177.57	NO
8500.	7.748	6	1.0	1.0	10000.0	17.88	445.77	183.45	NO
9000.	7.259	6	1.0	1.0	10000.0	17.88	461.62	189.15	NO
9500.	6.827	6	1.0	1.0	10000.0	17.88	477.00	194.68	NO
10000.	6.442	6	1.0	1.0	10000.0	17.88	491.96	200.06	NO
15000.	4.112	6	1.0	1.0	10000.0	17.88	623.66	247.59	NO
20000.	3.015	6	1.0	1.0	10000.0	17.88	733.35	287.41	NO
25000.	2.378	6	1.0	1.0	10000.0	17.88	829.17	322.37	NO
30000.	1.963	6	1.0	1.0	10000.0	17.88	915.27	353.90	NO
40000.	1.606	4	1.0	1.0	320.0	10.26	1552.23	1553.16	NO
50000.	1.428	4	1.0	1.0	320.0	10.26	1745.75	1750.00	NO

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:

3.	.5352E+05	4	20.0	20.0	6400.0	.62	.64	.56	NO

DIST = DISTANCE FROM THE SOURCE
CONC = MAXIMUM GROUND LEVEL CONCENTRATION
STAB = ATMOSPHERIC STABILITY CLASS (1=A, 2=B, 3=C, 4=D, 5=E, 6=F)
U10M = WIND SPEED AT THE 10-M LEVEL
USTK = WIND SPEED AT STACK HEIGHT
MIX HT = MIXING HEIGHT
PLUME HT= PLUME CENTERLINE HEIGHT
SIGMA Y = LATERAL DISPERSION PARAMETER
SIGMA Z = VERTICAL DISPERSION PARAMETER
DWASH = BUILDING DOWNWASH:
DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

****
*** SCREEN DISCRETE DISTANCES ***
****

*** TERRAIN HEIGHT OF 1. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
1.	163.5	4	20.0	20.0	6400.0	.62	.17	.15	NO

5.	.3830E+05	4	20.0	20.0	6400.0	.62	.80	.70	NO
10.	.1740E+05	4	10.0	10.0	3200.0	1.38	1.61	1.41	NO
25.	8443.	4	3.0	3.0	960.0	3.73	4.09	3.61	NO
50.	4518.	4	1.5	1.5	480.0	7.00	8.14	7.19	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

```
*********************************************
*  SUMMARY OF TERRAIN HEIGHTS ENTERED FOR   *
*    SIMPLE ELEVATED TERRAIN PROCEDURE      *
*********************************************
```

TERRAIN HT (M)	DISTANCE RANGE (M) MINIMUM	MAXIMUM
1.	1.	50000.
1.	1.	--
1.	5.	--
1.	10.	--
1.	25.	--
1.	50.	--

```
**********************************
*** END OF SCREEN MODEL OUTPUT ***
**********************************
```

APPENDIX E4

CALCULATED EMISSIONS AND COST INCREASES FOR AN ASSUMED ALTERNATIVE SITE AT 30 MILES FURTHER FROM PRIMARY MARKET

APPENDIX E-4

CALCULATED EMISSIONS AND COST INCREASES FOR AN ASSUMED ALTERNATIVE SITE 30 MILES FARTHER FROM PRIMARY MARKET

POLLUTANTS ADDED WITH ASSUMED ALTERNATIVE SITE[1]

Pollutant	Emission Increase	Pollutant Increase with Alternative Site			
	lb/day	TMC tons	B-2 tons	B-3 tons	B-2 + B-3 tons
Phase I					
CO	249	335	-	-	-
NOx	441	595	-	-	-
ROC	46	62	-	-	-
SOx	0	0	-	-	-
PM10	35	47	-	-	-
Phase II					
CO	395	573	-	-	-
NOx	503	729	-	-	-
ROC	46	66	-	-	-
SOx	0	0	-	-	-
PM10	25	36	-	-	-
Total					
CO	-	908	5,111	8,228	13,339
NOx	-	1,325	7,455	12,000	19,455
ROC	-	128	719	1,158	1,877
SOx	-	0	0	0	0
PM10	-	84	471	758	1,230

[1] Assumptions, based on site assumed to be 30 miles more distant than proposed TMC Project.
Assumptions are presented on Page E4-2

TMC = Current Project - 56.1 MMton
B-2 - Soledad Canyon - 315.7 MMtons = 451 MM short tons * 70% product
B-3 - CalMat Area - 508.2 MMton = 726 MM short tons * 70% product
B-2 + B-3 = Sum of B-2 and B-3 areas

Sample Calculations
TMC Phase I pollutant increase with alternative site
tons = lb/day increase * 270 operating days/year * 10 years / 2000 lb/ton
B-2 pollutant increase in tons = TMC pollutant tons * B-2 product tons/TMC product tons

Emissions calculated using EMFAC7G for 1998 (Phase 1) and 2008 (Phase 2) heavy duty diesel truck fleet mixes traveling an average of 45 mph under summertime conditions. Emission factors used are listed below.

EMFAC7G Emission Factors (g/VMT)

Project Phase	CO	ROC	NOx	SOx	PM10
Phase 1	6.31	1.16	11.18	-	0.89
Phase 2	5.97	0.69	7.6	-	0.38

POLLUTANTS ADDED WITH ASSUMED ALTERNATIVE SITE

			Truck Trips	Alternative Site Miles
Phase I				
Two-way truck trips -	30 miles each way	Aggregate	265	15,900
Two-way truck trips -	0 miles each way	Ready Mix	75	-
Two-way truck trips -	30 miles each way	Base/Fines	33	1,980
Two-way truck trips -	0 miles each way	Flyash/Cement	7	-
		Total		17,880
Phase II				
Two-way truck trips -	30 miles each way	Aggregate	500	30,000
Two-way truck trips -	0 miles each way	Ready Mix	75	-
Two-way truck trips -	0 miles each way	Base/Fines	0	-
Two-way truck trips -	0 miles each way	Flyash/Cement	7	-
		Total		30,000

Assumptions

Aggregate hauls would increase 30 miles each way with alternative
Ready mix would not change as the batch plants would be located within 20 miles of their markets
Base/fines hauls would increase 30 miles each way with alternative
Flyash/cement hauls would remain the same

Sample Calculations

Phase I truck trips from Page 3-175
Phase II truck trips from Page 3-180

Alternative Site Miles = truck trips * 2 * added one-way mileage

COSTS ADDED WITH ASSUMED ALTERNATIVE SITE

	Total Added Costs for Produced Million Tons			
	TMC	B-2	B-3	B-2 + B-3
Million Tons Produced	56.1	315.7	508.2	823.9
$/ton/mile [1]	$ 0.1596	$ 0.1596	$ 0.1596	$ 0.1596
Total Added Cost	$ 268,606,800	$ 1,511,571,600	$ 2,433,261,600	$ 3,944,833,200

Sample Calculation

Total Added Costs = Cost per ton per mile * Million Product Tons * 1,000,000 * 30 miles

[1] Southern California Rock Products Association, "Building Cities, Producing Jobs," revised by Stephen Bledsoe, President, 1993

APPENDIX E5

DRAFT AIR CONFORMITY ANALYSIS

APPENDIX E5
DRAFT AIR CONFORMITY ANALYSIS

Conformity[1]

The purpose of this analysis is to demonstrate compliance with the provisions of 40 CFR Part 93-100 et seq. regarding Conformity of Federal actions to State or Federal Implementation Plans (SIPs and FIPs). Following are the 10 steps developed by the BLM that lead to a demonstration of conformity with this requirement per BLM Air Quality Conformity Analysis and Determination Process, (Course 7000-006), and Draft BLM Air Quality Handbook.

The State of California, Air Resources Board (ARB) has jurisdiction over mobile sources, while the SCAQMD has jurisdiction over stationary and fugitive sources.

1. Determine Spatial and Jurisdictional Applicability
2. Describe SIP and Content
3. Background Information
4. Air Quality Impact Analysis
5. Compare to Applicable SIP Provisions and Rules
6. Conclusion Statement
7. Formal Determination
8. Agency/Public Review
9. Submittal to Appropriate Agency
10. Archiving Considerations

Following is a discussion of each of the steps.

2.2.4.1 Spatial and Jurisdictional Applicability

The Project is located near the base of the Northern Slope of the San Gabriel Mountains in the South Coast Air Basin (SCAB). The SCAQMD has state air quality jurisdiction over the Project area. The Antelope Valley Air Pollution Control District is located to the northeast and generally downwind of the Project location. The Ventura County Air Pollution Control District is to the west and generally upwind of the Project area. The attainment status of the SCAB is presented in Table 2.2.4-1.

[1] This section was prepared for the SDEIS (November 1999), thus section numbers are as they appeared in that document.

Table 2.2.4-1
South Coast Air Basin Attainment Status

Criteria Pollutant	Attainment Status
Ozone (NO_2 and VOC)	Extreme Non Attainment
PM-10	Serious Non Attainment
Carbon Monoxide	Serious Non Attainment
Sulphur Dioxide	Attainment

2.2.4.2 Applicable State Implementation Plan (SIP) Contents

Ozone (NO_2 and VOC Emissions)

The 1994 SIP for Ozone is the currently approved plan that applies to the SCAQMD and corresponds to the SCAQMD 1994 AQMP. A general discussion of the AQMP appears in the DEIS beginning on pp 3-160.

The 1994 AQMP proposes short- and intermediate- term emission reduction measures and includes 61 stationary source, 16 on-road, 10 off-road, 11 transportation control and indirect source, two advanced transportation technology, and four further study measures. The SIP also requires that Best Available Control Technology (BACT) be applied to new stationary sources and that Best Available Control Measures (BACM) be applied to fugitive sources.

The Project is not a traditional stationary source of NO_2 or VOC emissions. (Note: For the purposes of this analysis Reactive Organic Gases (ROG) and Volatile Organic Compounds (VOC) are used synonymously.) The vast majority of NO_2 and VOC emissions from the Project are produced by on-road and off-road mobile sources. Exceptions are emissions from offsite electrical generation and fuels storage and transfer. A few select pieces of mobile equipment may be permitted by the SCAQMD if they are part of the stationary aggregate handling process. Any devices requiring a permit will be subject to the SCAQMD Regulation XIII New Source Review Program. That program requires the application of BACT and requires that stationary source emissions be fully offset by the SCAQMD or with applicant provided offsets.

Of the emission control measures proposed in the AQMP, the following may apply to the sources in the Project:

On-Road Sources

MON-04 Eliminate Excessive Curb Idling
MON-08 Further NOx Reductions for Heavy Duty Engines

Off-Road Mobile Sources

MOF-04 Off-Road Mobile Source Emission Reduction Credit Program

FIP-09 Enhanced In-Use Compliance Program for Nonroad Engines over 38kW, Fleet Program for Nonroad Engines over 37kW.

Indirect Source Control Measures

ISR-03 Registration and Commercial Vehicles

ISR-06 Enhanced Rule 1501

Transportation Improvements

TCM-01 Transportation Improvements

Advanced Transportation Technology Measures

ATT-04 Alternative Fuels/Infrastructure

Long Term Emission Reduction Measures

Advanced Add-On Control Technologies. (AQMP- P4-28)

Carbon Monoxide (CO) Applicable SIP

Currently, there is no approved SIP for CO. For the purposes of this analysis, the proposed 1997 AQMP provisions that apply to CO will be evaluated. A general SIP requirement is that BACT be applied to new stationary sources and that BACM be applied to fugitive sources.

The Project is not a traditional stationary source of CO emissions. The vast majority of CO emissions from the Project are produced by on-road and off-road sources. An exception to this are emissions from offsite electrical generation. A few select pieces of mobile equipment may be permitted by the SCAQMD if they are part of the stationary aggregate handling process. As noted above, any devices requiring a permit will be subject to the SCAQMD Regulation XIII New Source Review Program. That program requires the application of BACT and requires that stationary source emissions be fully offset by the SCAQMD or with applicant provided offsets.

CO emission reduction measures contained in the 1997 AQMP that may apply to this project include:

Mobile Source Control Measures

MON-04 Eliminate Excessive Curb idling

Off-Road Mobile Sources

MOF-04 Off-Road Mobile Source Emission Reduction Credit Program

FIP-09 Enhanced In-Use Compliance Program for Nonroad Engines over 38kW, Fleet Program for Nonroad Engines over 37kW.

Particulate Matter Less than 10 Microns (PM-10) - Applicable SIP

Currently, there is no approved SIP for PM-10. For the purposes of this analysis, the proposed 1997 AQMP provisions that apply to PM-10 will be evaluated. A general SIP requirement is that BACT be applied to new stationary sources and that BACM be applied to fugitive sources.

The project is a source of fugitive PM-10 emissions from the excavation and aggregate material processing, and a source of combustion related PM-10 from mobile sources. Stationary sources of PM-10 including the concrete ready mix plant and the rock processing plant will be permitted by the SCAQMD as stationary sources. All devices requiring a permit will be subject to the SCAQMD Regulation XIII New Source Review Program. That program requires the application of BACT and requires that stationary source emissions be fully offset by the Community Bank or applicant provided offsets. In addition, SCAQMD Rules 403 and 1186 regulate fugitive dust generated at specific sites. This project will be subject to and comply with Rules 403 and 1186 requirements that include the application of BACM.

PM-10 emission reduction measures contained in the 1997 AQMP that may apply to this project include:

Stationary Sources

BCM-03	Further Emission Reductions from Unpaved Roads
BCM-06	Emission Reduction Measures from Fugitive Dust Sources To Meet Best Available Control Measures Requirements (Rule 403)

Mobile Source Control Measures

M-9/M-10	Offroad Industrial Equipment
MON-04	Eliminate Excessive Curb Idling

Other Source Control Measures

CTY-12	Control of Emissions from Paved Roads
CTY-13	Further Emission Reductions from Construction and Demolition Activities

2.2.4.3 Background Information

Regional Issues and Project Characteristics

In order to evaluate the impact of this project on the SCAB, a basic understanding of the concepts of construction aggregate supply and demand is useful. Construction aggregates are a low value-to-weight commodity. Transportation costs are a primary factor in the price of aggregate, in fact, the average cost of a ton of aggregate doubles when it is hauled for a distance of 35 miles (DMG Map #010). The FEIS presents additional discussion on this subject beginning in Section 1.1.2.1. The Surface Mining and Reclamation Act (SMARA), via

the Division of Mines and Geology (DMG) and the State Mining and Geology Board (SMGB), has a mandate to evaluate and conserve the mineral resources of the State. As presented in DMG Open File Report 94-14 and by the Department of Conservation/DMG (DOC) in their letter dated September 10, 1999, (see Appendix A) the San Fernando Valley Production/Consumption Region is predicted to be depleted of its aggregate supply in 2001. Aggregate for the greater Los Angeles area must then be supplied by the surrounding regions. The area that includes the Project location is the closest possible large source of material to supply the future needs of the area.

Demand for construction aggregate materials is predicted by the DMG based on population projections as discussed in Section 1.1.2.3 of this FEIS and aggregate production operations are not considered to be growth inducing.

As presented in the discussion relating to the Agency Preferred Alternative, environmental and economic impacts will occur if the Project is not approved. These impacts are associated with the additional transportation required to import the needed aggregate from more distant sources to the greater Los Angeles area.

Ventura County, located to the west of the Project site, is currently importing aggregate materials from as far away as the Palmdale and Bakersfield areas because they cannot supply adequate construction materials to meet the current demand from within the County. The Ventura County Resource Management Agency is considering evaluating air quality impacts of newer and proposed mining projects by considering the projects themselves to be air quality mitigation because of their net benefit to the air basin due to reduced transportation emissions (personal communication, Lou Merzario). Retail prices for PCC aggregate in Ventura County have doubled in the last three years.

Site History

The Project proposes mining sand and gravel on a site that has been mined for much of the past 30 years, and was mined in accordance with a Conditional Use Permit issued by Los Angeles County which expired in 1992. Mining techniques used in the previous operation were similar to the Project, however the Project will employ BACT for stationary sources, BACM for fugitive sources, and utilize Environmental Protection Agency/Air Resources Board (EPA/ARB) certified engines on mobile equipment. The previous operation had none of these controls.

SCAQMD/State Regulatory Structure

A key to determining conformity is that the Project complies with the SIP and its associated rules. In addition, it is BLM policy to *"Provide for compliance with applicable air pollution control laws including State and Federal air or other pollution control standards, programs, or implementation plans."* This Section includes a discussion of each air quality regulation that could apply to the project.

SCAQMD Regulation XIII - New Source Review

The SCAQMD regulates new stationary sources of air emissions through Regulation XIII. This regulation requires the application of BACT to all new sources, and requires emission offsets for sources with annual emissions in excess of thresholds specified in Rule 1304, Table A. The Project will be subject to this rule, will apply BACT, and is not expected to require emission offsets until Phase 2. The Project will comply with the requirements of Regulation XIII.

SCAQMD Rule 403 "Fugitive Dust"

The purpose of this rule is to reduce the amount of particulate matter entrained in the ambient air as a result of man-made fugitive dust sources by requiring actions to prevent, reduce, or mitigate fugitive dust emissions. The Project is subject to this Rule and will prepare a Fugitive Dust Plan that will be reviewed and approved by the SCAQMD on an annual basis. The Plan will include BACM and the regulation prohibits both visible dust and PM-10 concentrations in excess of 50 ug/m^3 averaging time, such as 24-hour, at the project boundary. The Project will comply with the Requirements of Rule 403.

SCAQMD Rule 1186, "PM-10 from Paved and Unpaved Roads"

The purpose of this Rule is to reduce the amount of particulate matter entrained in the ambient air as a result of vehicular travel on paved and unpaved public roads and livestock areas. The Project will comply with this rule as it applies to the portion of Soledad Canyon Road fronted by the project.

AB2588 - The Air Toxics "Hot Spots" Information and Assessment Act

The Act requires covered facilities to submit an emissions inventory for the approximately 400 hazardous substances subject to the statute. The statute further provides for risk assessments of emissions for higher priority facilities. Facilities are subject to the act if the emissions of criteria pollutants from a permitted stationary source exceeds 10 tons per year or if the facility is on an industry-specific list. Sand and gravel facilities without asphaltic concrete production are not on the industry-specific list.

Typical AB2588 substances emitted for sand and gravel facilities include crystalline silica and asbestos. Asbestos is not present in the formations to be mined and crystalline silica levels in the formation are very low, less than 5 percent. Other aggregate deposits in the Irwindale, Azusa and Simi Valley areas have crystalline silica contents that range from 20 to 50 percent. The Occupational Safety and Health Administration (OSHA) and the Mine Safety and Health Administration (MSHA) also require that workers be protected from asbestos and crystalline silica. Standard practices employed for the protection of employees and the control of fugitive dust will prevent an offsite hazard from either of these substances. The Project will comply with the requirements of AB2588 as implemented by the SCAQMD.

AB1807 - The Tanner Toxic Air Contamination Act
SCAQMD Rule 1401

This act, passed in 1983, establishes a regulatory program to identify and assess the public health risk of selected chemicals and regulate emissions of such chemicals. Implementation responsibility for the program lies with the ARB and the SCAQMD. Specifically, SCAQMD Rule 1401 "New Source Review of Toxic Air Contaminants" provides for review of new projects. Diesel exhaust particulates have recently been added to the AB1807 list of chemicals. SCAQMD Rule 1401 has not yet incorporated this recent change. The ARB will be proposing updated diesel exhaust particulate emission standards that will reduce emissions 90 percent by the year 2007. As part of the application process for stationary sources (see SCAQMD Regulation XIII), compliance with Rule 1401 is required and a permit will not be issued unless the proposed project complies with the provisions of Rule 1401. The Project will comply with Rule 1401.

Proposition 65

Proposition 65: The Safe Drinking Water and Toxics Enforcement Act, prohibits discharges of any chemical "known to the state to cause cancer or reproductive toxicity" to a potential source of drinking water and requires clear and reasonable warnings be provided before an exposure to any listed chemical. The Project, like any industrial and most commercial facilities, will have chemicals listed by Proposition 65 present at the facility. These chemicals may include a variety of items used in small quantities for routine maintenance of heavy equipment, crystalline silica, and diesel engine exhaust. The Project will comply with all requirements of Proposition 65 including notice to employees, visitors, and the general public, as required.

Transported Pollutants

The Project site may be impacted by pollutant transport from the San Fernando Valley and Santa Clarita Valley urban centers located upwind to the south and west. The Project could potentially have transport impacts to the communities of Acton and the Antelope Valley which are located downwind from the Project site. Pollutants are generally transported from the greater Los Angeles area downwind to the desert air basins to the northeast. During Santa Ana wind conditions, the direction of transport would be reversed.

Impacts to Air Basin With No Project

The regional effects of not developing the aggregate reserves at the Project site would result in an increase in haul truck emissions by the following amounts:

Pollutant	Phase 1 Additional lbs/day	Phase 2 Additional lbs/day
CO	228.3	394.5
NOx	404.6	502.2
ROC	42.0	45.6
PM-10	32.2	25.1

These increased airshed emissions must be considered when comparing significant effects of the No Action and Reduced Quantity Mining Concept Alternatives to the Proposed Action. As can be seen, on a regional basis, the level of impact of the No Action Alternative will be greater than the Proposed Action. Implementation of the Proposed Action will reduce regional air quality impacts by 95.5 tons/year for Phase 1 and 140.3 tons/year for Phase 2.

2.2.4.4 Air Quality Impact Analysis

Air Quality Calculations

As presented in the DEIS, updated elsewhere in the SDEIS, and summarized on Tables 2.2.4-2 and 2.2.4-3, direct and indirect Project emissions have been quantified including a new mitigation measure identified by the Applicant to reduce PM-10 emissions from the Project. This information is presented on a pounds per day and tons per year basis. Tables 2.2.4-4 and 2.2.4-5 present the total direct and indirect PM-10 emissions for Phase 1 and Phase 2.

Table 2.2.4-2
Phase 1 Project Emissions with New Mitigation

Equipment/Emittant	Units	CO	NOx	ROG	SOx	PM-10 *
Heavy Equipment	lb/day	134	397	18.4	44.1	
Haul Trucks	lb/day	186.7	330.8	48.6	0	
Worker Vehicles	lb/day	9.7	1.4	0.8	0	
Fuel Stg.	lb/day	0	0	0.2	0	
Offsite Electrical	lb/day	6.2	32	0.3	3.7	
Subtotal	lb/day	336.6	761.2	68.3	47.8	
Operating Days	day/year	270	270	270	270	Various
Emissions	lb/year	90,982	205,524	18,441	12,906	
Emissions	ton/year	45.4	102.8	9.2	6.5	36.1
Conformity De Minimus	tons/year	100	10	10	100	70
Conformity Required	Yes/No	NO	YES	NO	NO	NO
* - PM-10 Calcs from Table 2.2.4-4						

Table 2.2.4-3
Phase 2 Project Emissions with New Mitigation

Equipment/Emittant	Units	CO	NOx	ROG	SOx	PM-10 *
Heavy Equipment	lb/day	209	660	30.5	71.5	
Haul Trucks	lb/day	306.4	390.1	50.2	0	
Worker Vehicles	lb/day	9.6	1.4	0.3	0	
Fuel Stg.	lb/day	0	0	0.3	0	
Offsite Electrical	lb/day	7.0	40.4	0.4	4.2	
Subtotal	lb/day	532	1,091.9	81.7	75.7	
Operating Days	day/year	290	290	290	290	Various
Emissions	lb/year	154,280	316,651	23,693	21,953	
Emissions	ton/year	77.1	158.3	11.8	11.0	61.7
Conformity De Minimus	tons/year	100	10	10	100	70
Conformity Required	Yes/No	NO	YES	YES	NO	NO
* - PM-10 Calcs from Table 2.2.4-5						

The emission estimates have then been compared to the de-minimus threshold for requiring a Conformity Determination as presented in 40 CFR 93.153. In Phase 1, estimated emissions of NO_2 exceed the 10 tons per year threshold and a Conformity Determination is required. In Phase 2, estimated emissions of NO_2 and VOC exceed the 10 tons per year threshold and a Conformity Determination is required. A Conformity Determination is not required for PM-10, CO, or SO_2.

Air Dispersion Modeling

Air Quality Dispersion Modeling using the EPA approved ISCST3 model was performed using the emission estimates discussed previously. The results of this modeling are presented in Appendix B. In summary, no exceedences of the National Ambient Air Quality Standards (NAAQS) due to Project emissions are predicted at or beyond the facility boundary.

Health Effects

The NAAQS have been developed to protect the public health. The National Primary Standard is the level of air quality necessary, with an adequate margin of safety, to protect the public health. As stated previously, no exceedences of any NAAQS are predicted for the Project.

In addition, National Emission Standards for Hazardous Air Pollutants (NESHAP) and CAA Section 112 have been developed to protect the public health and the environment from hazardous air pollutants. The Project is not subject to a NESHAP standard, and does not qualify as a major source of Hazardous Air Pollutants (HAP).

Table 2.2.4-4
Phase 1 PM-10 Emissions for Various Scenarios

Source	Proposed Project			Proposed Project - w/NFSA Conveyor					Reduced NFSA Alternative - w/NFSA Conveyor				
	Daily Emissions (lb/day)			Daily Emissions (lb/day)			Schedule	Annual Emissions	Daily Emissions (lb/day)			Schedule	Annual Emissions
	Generated	Control	Residual	Generated	Control	Residual	(day/yr)	(tpy)	Generated	Control	Residual	(day/yr)	(tpy)
Heavy Equip ops	84.6	0%	84.6	84.6	0%	84.6	270	11.42	78.2	0%	78.2	270	10.56
Rock Plant Processing	21.9	n/a	21.9	21.9	n/a	21.9	270	2.96	21.9	n/a	21.9	270	2.96
Conveyor	2.0	n/a	2.0	2.0	n/a	2.0	270	0.27	2.0	n/a	2.0	270	0.27
Aggregate Fines and Loading	11.0	n/a	11.0	11.0	n/a	11.0	270	1.49	11.0	n/a	11.0	270	1.49
Concrete Plant	6.2	n/a	6.2	6.2	n/a	6.2	270	0.84	6.2	n/a	6.2	270	0.84
Trucks on paved roads	407.9	90%	40.8	407.9	90%	40.8	270	5.51	407.9	90%	40.8	270	5.51
Trucks on unpaved roads	17.5	80%	3.5	33.7	80%	6.7	270	0.91	33.7	80%	6.7	270	0.9
Scrapers	692.2	78%	152.3				270	0.00				270	0.00
Replacement Conveyor System				2.8	0%	2.8	270	0.38	2.8	0%	2.8	270	0.38
NFSA Activity	9.4	50%	4.7	9.4	50%	4.7	270	0.63	0.0	50%	0.0	270	0.00
Wind Erosion - Excavation	43.2	75%	10.8	43.2	75%	10.8	365	1.97	43.2	75%	10.8	365	1.97
Wind Erosion - NFSA	12.8	75%	3.2	12.8	75%	3.2	365	0.58	0.0	75%	0.0	365	0.00
Wind Erosion - Stockpiles	11.6	75%	2.9	11.6	75%	2.9	365	0.53	11.6	75%	2.9	365	0.53
Blasting	62.0	0%	62.0	62.0	0%	62.0	104	3.22	62.0	0%	62.0	104	3.22
Heavy Equip - Comb	11.8	0%	11.8	11.8	0%	11.8	270	1.59	11.8	0%	11.8	270	1.59
Haul Trucks - Comb	43.9	40%	26.3	43.9	40%	26.3	270	3.56	43.9	40%	26.3	270	3.56
Elec Gen - Comb	1.2	0%	1.2	1.2	0%	1.2	270	0.16	1.2	0%	1.2	270	0.16
Emp. Commute - Comb	0.0	0%	0.0	0.0	0%	0.0	270	0.00	0.0	0%	0.0	270	0.00
Totals	1439.2		445.2	766		299			737.4		284.7		
Days Per Year			270										
Tons Per Year			60.1					36.0					33.9

n/a = not applicable (emission calculated using controlled factors)

Table 2.2.4-5
Phase 2 PM-10 Emissions for Various Scenarios

Source	Proposed Project			Proposed Project - w/NFSA Conveyor					Reduced NFSA Alternative - w/NFSA Conveyor				
	Daily Emissions (lb/day)			Daily Emissions (lb/day)			Schedule	Annual Emissions	Daily Emissions (lb/day)			Schedule	Annual Emissions
	Generated	Control	Residual	Generated	Control	Residual	(day/yr)	(tpy)	Generated	Control	Residual	(day/yr)	(tpy)
Heavy Equip ops	153.9	0%	153.9	153.9	0%	153.9	290	22.32	147.9	0%	147.9	290	21.45
Rock Plant Processing	40.4	n/a	40.4	40.4	n/a	40.4	290	5.86	40.4	n/a	40.4	290	5.86
Conveyor	3.0	n/a	3.0	3.0	n/a	3.0	290	0.44	3.0	n/a	3.0	290	0.44
Aggregate Fines and Loading	20.0	n/a	20.0	20.0	n/a	20.0	290	2.90	20.0	n/a	20.0	290	2.90
Concrete Plant	6.2	n/a	6.2	6.2	n/a	6.2	290	0.90	6.2	n/a	6.2	290	0.90
Trucks on paved roads	703.1	90%	70.3	703.1	90%	70.3	290	10.19	703.1	90%	70.3	290	10.19
Trucks on unpaved roads	33.1	80%	6.6	62.6	80%	12.5	290	1.82	62.6	80%	12.5	290	1.82
Scrapers	959.8	78%	211.2				290	0.00				290	0.00
Replacement Conveyor System				5.1	0%	5.1	290	0.74	5.1	0%	5.1	290	0.74
NFSA Activity	15.0	50%	7.5	15.0	50%	7.5	290	1.09	7.0	50%	3.5	290	0.51
Wind Erosion - Excavation	43.2	75%	10.8	43.2	75%	10.8	365	1.97	43.2	75%	10.8	365	1.97
Wind Erosion - NFSA	12.8	75%	3.2	12.8	75%	3.2	365	0.58	9.0	75%	2.3	365	0.41
Wind Erosion - Stockpiles	20.0	75%	5.0	11.6	75%	2.9	365	0.53	11.6	75%	2.9	365	0.53
Blasting	62.0	0%	62.0	62.0	0%	62.0	208	6.45	62.0	0%	62.0	208	6.45
Heavy Equip - Comb	19.9	0%	19.9	19.9	0%	19.9	290	2.89	19.9	0%	19.9	290	2.89
Haul Trucks - Comb	32.5	40%	19.5	32.5	40%	19.5	290	2.83	32.5	40%	19.5	290	2.83
Elec Gen - Comb	1.4	0%	1.4	1.4	0%	1.4	290	0.20	1.4	0%	1.4	290	0.20
Emp. Commute - Comb	0.1	0%	0.1	0.1	0%	0.1	290	0.01	0.1	0%	0.1	290	0.01
Totals	2126.3		640.9	1192.7		438.6			1174.9		427.7		
Days Per Year			290										
Tons Per Year			92.9					61.7					60.1

n/a = not applicable (emission calculated using controlled factors)

California laws concerning the protection of the general public from hazardous air pollutants have been previously discussed and include the AB2588 Toxic "Hot Spots" Regulation, SCAQMD Rule 1401, and Proposition 65. By complying with these regulatory programs, as discussed in Section 2.2.4.3, the Project will not expose the public health to pollutant levels not covered by the National Primary Standards.

Class I Federal Areas

Major stationary sources are required to evaluate the effect of a project's emissions on Class I Wilderness areas within 100 km of the project site. Stationary source emissions from the Project area do not exceed the major source thresholds and the facility is not a major stationary source because fugitive dust and mobile equipment emissions are not stationary source emissions.

An analysis of the effect of the Project on the San Gabriel Wilderness area, located 21 miles (33.5 km) to the east, has been performed. The results show that the resulting change in concentration is less than the Prevention of Significant Deterioration (PSD) thresholds. Table 2.2.4-6 summarizes the model results at the San Gabriel Wilderness Area.

Table 2.2.4-6
Estimated Concentrations at the San Gabriel Wilderness Area

Emittant	Phase 2 Maximum Concentration (ug/m3)	PSD Significance Threshold, 40 CFR 51.165 (b)(2) (ug/m3)	Exceed Standard at Class I Area ?
PM-10 - 24 Hour Average	0.0958	5.0	No
PM-10 - Annual Average	0.0094	1.0	No
NO2 Annual Average	0.0176	1.0	No

Visibility impacts to Class I facilities should also be considered. In accordance with SCAQMD Regulation XIII, Rule 1303, stationary sources with emissions in excess of 15 ton per year of PM-10 and 40 tons per year of NOx are required to perform a modeling analysis for plume visibility if the facility is within 29 km of the San Gabriel Class I area. Since the Project is not a stationary source with emissions in excess of either of these thresholds, and since it is located 33.5 km from the San Gabriel Wilderness Area, additional analysis for plume visibility is not required.

The Angeles National Forest is the responsible agency for the San Gabriel Wilderness area and has been notified as part of the NEPA and Conformity processes.

Conformity Determination Requirements

PM-10

Direct and indirect emissions from the Project have been calculated and are presented in Tables 2.2.4-2 and 2.2.4-3. In accordance with 40 CFR 93.153(b)(1), a Conformity Determination is not required for PM-10. However, the Project must comply with all Federal and local laws and regulations, which include provisions of the applicable SIP as discussed in Section 2.2.4.5 and the laws discussed in Section 2.2.4.3.

CO

Direct and indirect emissions from the Project have been calculated and are presented in Tables 2.2.4-2 and 2.2.4-3. In accordance with 40 CFR 93.153(b)(1), a Conformity Determination is not required for CO. However, the Project must comply with all Federal and local laws and regulations, which include provisions of the applicable SIP as discussed in Section 2.2.4.5 and the laws discussed in Section 2.2.4.3.

NO_2

Direct and indirect emissions from the Project have been calculated and are presented in Tables 2.2.4-2 and 2.2.4-3. In accordance with 40 CFR 93.153(b)(1), a Conformity Determination is required for NO_2 for Project Phases 1 and 2. Conformity with the approved SIP is presented in Section 2.2.4.5 and Project compliance with local laws is discussed in Section 2.2.4.3.

VOC

Direct and indirect emissions from the Project have been calculated and are presented in Tables 2.2.4-2 and 2.2.4-3. In accordance with 40 CFR 93.153(b)(1), a Conformity Determination is required for VOC for Project Phase 2. Conformity with the approved SIP is presented in Section 2.2.4.5 and Project compliance with local laws is discussed in Section 2.2.4.3.

SO_2

Direct and indirect emissions from the Project have been calculated and are presented in Tables 2.2.4-2 and 2.2.4-3. In accordance with 40 CFR 93.153(b)(1), a Conformity Determination is not required for SO_2. In addition, the SCAB is in attainment for SO_2, no further analysis is required.

2.2.4.5 Comparison to Applicable SIP Provisions and Rules

Ozone - NO_2 and VOC

The criteria for determining conformity for NO_2 and VOC are specified in 40 CFR 93.158. Section 93.158 (c) requires compliance or consistency with all measures identified in the applicable SIP. Potential requirements of the approved 1994 SIP/AQMP were reviewed as they may apply to the Project. An AQMP consistency discussion is presented in the DEIS (page 3-189). Table 2.2.4-7 summarizes compliance of the Project with the approved Ozone SIP.

Table 2.2.4-7
Summary of 1994 Ozone SIP Applicable Provisions

Control Measure	Project Compliance
Best Available Control Technology	BACT will be applied to all stationary sources
Best Available Control Measures	BACM will be applied to all fugitive sources.
MON-04 Eliminate Excessive Curb Idling	Included as mitigation measure AQ-1.
MON-08 Further NOx Reductions for Heavy Duty Engines	Included as mitigation measure AQ-4, ARB/EPA certified engines will be used.
MOF-04 Off-Road Mobile Source Emission Reduction Credit Program	N/A
FIP-09 Enhanced In-Use Compliance Program for Nonroad Engines over 38kW	Included as mitigation measure AQ-4, ARB/EPA certified engines will be used.
ISR-03 Registration and Commercial Vehicles	Project will comply with all promulgated rules as required.
ISR-06 Enhanced Rule 1501	Rule 1501 was repealed by the SCAQMD Board and will not apply to this project.

Control Measure	Project Compliance
TCM-01 Transportation Improvements	This provision generally applies to on-highway vehicles. The Project will serve to supply aggregate that is needed based on population growth and infrastructure needs, and is not considered growth inducing Transportation-related emissions are considered to be included in the growth projections of the Regional Transportation Plan (RTP). The Project generated levels of traffic fall below the thresholds for the Congestion Management Plan (see page 3-299 of DEIS) and all traffic related improvements required by Los Angeles County have been included in mitigation measures T1 through T3.
ATT-04 Alternative Fuels/Infrastructure	The goal of this measure is to identify market barriers and develop strategies to accelerate deployment of infrastructure standards. Included in the measure is the designation of industry cluster representatives to evaluate alternatives. Sand and gravel mining is not listed as an industrial category. The Project will explore alternative fuels for the diesel powered yard loaders; however the technology is not proven and will require additional development. Alternative fuel technology is not practical at this time for the heavy duty construction equipment used in mineral extraction. The majority of the Highway vehicles are under the control of independent operators, not the Applicant.
Advanced Add-On Control Technologies. (AQMP- P4-28)	Additional technologies may become available that reduce equipment emissions. The Project will implement these technologies as they become available and are required by law or regulation.

In addition, Section 93.158 (a) requires that one of several conditions be met for an action to be determined to conform. For emissions of ozone or NO_2, Section 93.158(a)(5)(A) states "The total of direct and indirect emissions from the action is determined and documented by the state agency primarily responsible for the applicable SIP to result in a level of emissions which, together with all other emissions in the nonattainment area, will not exceed the emission budgets in the applicable SIP."

Project emissions were compared with the 1994 AQMP NOx emission inventory and the 1994 PM-10 emission inventory. The results of these comparisons appear as Tables 2.2.4-8 through 2.2.4-11. Based on this analysis, Project air emissions are well within the emission levels, by activity source, included in the 1994 AQMP. For instance, the Phase 2 Project emissions amount to 1.78 percent of the 2010 PM-10 attributable to Mineral Processes in the SCAB. During this time the Project will produce 4.2 million tons of aggregate per year while Los

Angeles County will consume approximately 36 million tons of aggregate (DMG Open File Report 94-14, page 32). However, the SCAB includes more than just Los Angeles County. Based on 1998 Department of Finance population data, Los Angeles County accounts for 62 percent of the population in the SCAB. Thus, since Los Angeles County demand is projected at 36 million tons per year, demand for the SCAB can be estimated at 58 million tons per year. At this rate, the 4.2 million tons per year annual production in Phase 2 would account for 7.25 percent of total demand for the SCAB while only contributing 1.78 percent of the budgeted emissions in the 1994 AQMP. The Mineral Processes category in the emission inventory contains mostly PM-10 emissions because mining operations of this type are not typically stationary sources of NO_2 and VOC. Emissions from mobile on-road and off-road sources are included in different inventory categories, as presented in the Tables.

As discussed in Section 2.2.4.3, the demand for construction aggregate is a function of population. The emission inventories presented in the 1994 AQMP account for population increases, as do the DMG predictions for construction aggregate supply and demand. Construction aggregate production in the basin will increase or decrease to meet demand. Production will either take place at existing facilities or at new facilities such as the Project. Aggregate produced by the Project and new sources will result in lower basin-wide emissions on a per ton produced basis because BACT and BACM are not uniformly applied to existing sources. Similarly, since the Project location has more opportunities for a large expansion project than other regions and it can be considered the closest available new resource for the greater Los Angeles Area, transportation related emissions will be minimized with this Project, and will be higher for any alternative location farther from the San Fernando Valley and central Los Angeles.

Finally, the SCAQMD has reviewed the Project Draft Environmental Impact Report (DEIR) (February 1999) that contained the consistency analysis and had no comment. SCAQMD representatives (Ms. Connie Day) have also been consulted in developing this Conformity Determination.

Carbon Monoxide

Section 93.158 (c) requires compliance or consistency with all measures identified in the applicable SIP. Potential requirements of the 1997 AQMP were reviewed as they may apply to the Project. Table 2.2.4-12 presents Project compliance with those measures.

PM-10

Section 93.158 (c) requires compliance or consistency with all measures identified in the applicable SIP. Potential requirements of the 1997 AQMP were reviewed as they may apply to the Project. Table 2.2.4-13 presents Project compliance with those measures.

Table 2.2.4-8
Per Ton Comparison of TMC & SCAQMD District-wide PM-10 Emission Inventories for Base Year 2010 in 1994 AQMP: "Proposed Project - w/NFSA Conveyor"

SCAQMD Category*	TMC Process(es)	Emissions (tons/day) PM-10		
		TMC Phase 1	TMC Phase 2	SCAQMD Avg.
Mineral Processes	Conveyor Losses	0.0024	0.0041	**3.08**
	Rock Plant Processing	0.0110	0.02020	
	Aggregate and Fines Processing	0.0055	0.0100	
	Concrete Plant Processing	0.0031	0.0031	
	Blasting	0.0088	0.0177	
	TOTAL	*0.0308*	*0.0550*	
Entrained Road Dust - Paved	Onsite Truck Movement Over Paved Surfaces	0.0204	0.0352	**555.1**
Entrained Road Dust - Unpaved	Onsite Truck Movement Over Unpaved Surfaces	0.0034	0.00625	**174.57**
	Scraper Loading, Hauling and Unloading	0.0000	0	
	TOTAL	*0.0034*	*0.00625*	
Heavy-Duty Diesel Trucks	Haul Trucks	0.0132	0.00975	**27.68**
Mobile Equipment	Heavy Equipment Operation - Combustion	0.0059	0.0100	**15.96**
Construction & Demolition	Heavy Equipment Operation (non-combustion)	0.0423	0.0770	**132.41**
Light Duty Passenger	Worker Vehicles	0.0000	0.0001	**29.94**
Fugitive Windblown Dust	Wind Erosion of Excavation	0.0054	0.0054	**17.71**
	Wind Erosion of NFSA	0.0016	0.0016	
	NFSA Activity	0.0024	0.0038	
	Wind Erosion of Stockpiles	0.0015	0.0015	
	TOTAL	*0.0108*	*0.0122*	

*** SCAQMD Source Category taken from *Appendix III Base and Future Year Emission Inventories*, Table 2-13 (2010, pp. T-23, App. III-A), 1994 AQMP.**

Note: The following emission sources from the proposed Soledad Canyon project were not included in this analysis:
Fuel Storage and Transfer
Offsite Electrical Generation

Table 2.2.4-9
Percentage Comparison of TMC & SCAQMD District-wide PM-10 Emission Inventories for Base Year 2010 in 1994 AQMP: "Proposed Project - w/NFSA Conveyor"

SCAQMD Category*	TMC Process(es)	Emissions (% SCAQMD Average)		
		PM-10		
		TMC Phase 1	TMC Phase 2	SCAQMD Avg.
Mineral Processes	Conveyor Losses	0.08%	0.13%	**100%**
	Rock Plant Processing	0.36%	0.66%	
	Aggregate and Fines Processing	0.18%	0.32%	
	Concrete Plant Processing	0.10%	0.10%	
	Blasting	0.29%	0.57%	
	TOTAL	*1.00%*	*1.79%*	
Entrained Road Dust - Paved	Onsite Truck Movement Over Paved Surfaces	0.004%	0.006%	**100%**
Entrained Road Dust - Unpaved	Onsite Truck Movement Over Unpaved Surfaces	0.002%	0.004%	**100%**
	Scraper Loading, Hauling, and Unloading	0.000%	0.000%	
	TOTAL	*0.002%*	*0.004%*	
Heavy-Duty Diesel Trucks	Haul Trucks	0.05%	0.04%	**100%**
Mobile Equipment	Heavy Equipment Operation - Combustion	0.04%	0.06%	**100%**
Construction & Demolition	Heavy Equipment Operation (non-combustion)	0.03%	0.06%	**100%**
Light Duty Passenger	Worker Vehicles	0.000%	0.000%	**100%**
Fugitive Windblown Dust	Wind Erosion of Excavation	0.030%	0.030%	**100%**
	Wind Erosion of NFSA	0.009%	0.009%	
	NFSA Activity	0.013%	0.021%	
	Wind Erosion of Stockpiles	0.008%	0.008%	
	TOTAL	0.061%	0.069%	

*** SCAQMD Source Category taken from *Appendix III Base and Future Year Emission Inventories*, Table 2-13 (2010, pp. T-23, App. III-A), 1994 AQMP.**

Note: The following emission sources from the proposed Soledad Canyon project were not included in this analysis:
Fuel Storage and Transfer
Offsite Electrical Generation

Table 2.2.4-10
Per Ton Comparison of TMC & SCAQMD District-wide NOx and VOC Emission Inventories for Base Year 2010 in 1994 AQMP: "Proposed Project - w/NFSA Conveyor

SCAQMD Category*	TMC Process(es)	Emissions (tons/day)					
		VOC			NOx		
		TMC Phase 1	TMC Phase 2	SCAQMD Avg.	TMC Phase 1	TMC Phase 2	SCAQMD Avg.
Mineral Processes	Conveyor Losses	0.00	0.00	**0.41**	0.00	0.00	**0.73**
	Rock Plant Processing	0.00	0.00		0.00	0.00	
	Aggregate and Fines Processing	0.00	0.00		0.00	0.00	
	Concrete Plant Processing	0.00	0.00		0.00	0.00	
	TOTAL	0.00	0.00		*0.00*	*0.00*	
Heavy-Duty Diesel Trucks	Haul Trucks	0.0243	0.0251	**42.90**	0.1654	0.1951	**271.84**
Mobile Equipment	Heavy Equipment Operation - Combustion	0.0092	0.0153	**70.40**	0.1985	0.3300	**257.01**
Light Duty Passenger	Worker Vehicles	0.0004	0.0002	**108.25**	0.0007	0.0007	**124.27**

Table 2.2.4-11
Percentage Comparison of TMC & SCAQMD District-wide NOx and VOC Emission Inventories for Base Year 2010 in 1994 AQMP: "Proposed Project - w/NFSA Conveyor"

SCAQMD Category*	TMC Process(es)	Emissions (% SCAQMD Average)					
		VOC			NOx		
		TMC Phase 1	TMC Phase 2	SCAQMD Avg.	TMC Phase 1	TMC Phase 2	SCAQMD Avg.
Mineral Processes	Conveyor Losses	0.00%	0.00%	**100%**	0.00%	0.00%	**100%**
	Rock Plant Processing	0.00%	0.00%		0.00%	0.00%	
	Aggregate and Fines Processing	0.00%	0.00%		0.00%	0.00%	
	Concrete Plant Processing	0.00%	0.00%		0.00%	0.00%	
	TOTAL	*0.00%*	*0.00%*		*0.00%*	*0.00%*	
Heavy-Duty Diesel Trucks	Haul Trucks	0.06%	0.06%	**100%**	0.06%	0.07%	**100%**
Mobile Equipment	Heavy Equipment Operation - Combustion	0.01%	0.02%	**100%**	0.08%	0.13%	**100%**
Light Duty Passenger	Worker Vehicles	0.00%	0.00%	**100%**	0.001%	0.001%	**100%**

*** SCAQMD Source Category taken from Appendix III-A Current and Future Average Annual Day Emissions in the South Coast Air Basin, Table 2-13 (2010 baseline year, p. T-13), 1994 AQMP.**

Note: The following emission sources from the proposed Soledad Canyon project were not included in this analysis:

Fuel Storage and Transfer
Offsite Electrical Generation

Table 2.2.4-12
Summary of CO 1997 AQMP Applicable Provisions

Control Measure	Project Compliance
Best Available Control Technology	BACT will be applied to all stationary sources.
Best Available Control Measures	BACM will be applied to all fugitive sources.
MON-04 Eliminate Excessive Curb Idling	No longer a control measure in the proposed 1994 AQMP but still included as mitigation measure AQ 1.
MOF-04 Off-Road Mobile Source Emission Reduction Credit Program	N/A
FIP-09 Enhanced In-Use Compliance Program for Nonroad Engines over 38kW, Fleet Program for Nonroad Engines over 37kW.	Included as mitigation measure AQ-4, ARB/EPA certified engines will be used.

Table 2.2.4-13
Summary of PM-10 1997 AQMP Applicable Provisions

Control Measure	Project Compliance
Best Available Control Technology	BACT will be applied to all stationary sources.
Best Available Control Measures	BACM will be applied to all fugitive sources.
BCM-03 Further Emission Reductions from Unpaved Roads	Requires implementation of reasonably available control measures (RACM) for unpaved roads. Project will comply with BACM as part of Rule 403 and Rule 1186 compliance.
BCM-06 Emission Reduction Measures from Fugitive Dust Sources To Meet BACM Requirements (Rule 403)	Project will comply with this control measure as part of Rule 403 compliance.
M-9/M-10 Offroad Industrial Equipment	Included as mitigation measure AQ-4, ARB/EPA certified engines will be used, and all new equipment will be compliant with the standards in place at time of manufacture.

Control Measure	Project Compliance
CTY-12 Control of Emissions from Paved Roads	Measure considers chemical stabilization of road shoulders. Implementing agencies are local jurisdictions and transportation agencies. N/A to the Project.
CTY-13 Further Emission Reductions from Construction and Demolition Activities	Would require wider application of dust control plans. Project is required to have a dust control plan per SCAQMD Rule 403.

2.2.4.6 Conclusion Statement/Draft Conformity Determination

The Project (Proposed Action) and alternatives have been analyzed under Section 176 of the Clean Air Act (CAA), as required by 40 CFR 93.158, and the Project has been determined to be in conformity to the applicable SIP's purpose of attaining NAAQS.

2.2.4.7 Formal Determination

A final Conformity Determination will be made by the BLM as specified in 40 CFR 93.156 (d) and comments will be responded to as specified in 40 CFR 93.156(c).

2.2.4.8 Agency/Public Review

This draft conformity analysis complies with 40 CFR 92.156(b) and will have public review concurrent with the public review period for the SDEIS. Notification will also be provided to appropriate agencies as required in 40 CFR 93.155 (a).

2.2.4.9 Submittal to Appropriate Agencies

As required by 40 CFR 93.155 (b), applicable agencies will be notified of the formal Conformity Determination within 30 days of making a final Conformity Determination.

2.2.4.10 Archiving Considerations

The Final EIS and Record of Decision (ROD) will serve as the archive for the Conformity Analysis.

APPENDIX E6

FINAL CONFORMITY DETERMINATION

WEST COAST
ENVIRONMENTAL AND ENGINEERING

4253 Transport Street, Suite A
Ventura, CA 93003
Phone 805/644-7976 Fax 805/644-5929

444 South Flower Street, 31st Floor
Los Angeles, CA 90071
Phone 213/229-0075 Fax 213/229-0088

www.wcenviro.com

May 22, 2000

Mr. Glenn W. Harris
Natural Resources Specialist
Bureau of Land Management, Ridgecrest Field Office (CA-650)
300 S. Richmond Rd.
Ridgecrest, CA 93555

Re: Final Conformity Determination TR110-059
Soledad Canyon Sand and Gravel Mining Project

Dear Mr. Harris:

Enclosed for your information is the Final Conformity Determination for the Transit Mixed Concrete Company, Soledad Canyon Project. Documents attached include:

Attachment 1.	Final Conformity Determination
Attachment 2.	Correspondence from South Coast Air Quality Management District (SCAQMD) dated March 22, 2000 confirming that the project was considered in the development of the 1994 SIP and the 1997 AQMP currently under consideration for approval by the EPA.
Attachment 3.	Correspondence from the Southern California Association of Governments (SCAG) dated March 16, 2000 confirming that the project is included in the 1994 SIP and the 1997 AQMP.
Attachment 4.	Response to Comments on Draft Conformity Analysis.
Attachment 5.	Comment letters on draft conformity analysis.
Attachment 6.	Updated tables 2.2.4-4, 5, 8 and 9 from the Draft Conformity Analysis.
Attachment 7.	Mitigation commitment letter from the applicant.

Thank you for your assistance with this issue. Please do not hesitate to give me a call if you have questions or comments.

Kind regards,

John A. Hecht, P.E.

Cc: Scott Archer, BLM Denver
Elena Misquez, BLM Palm Springs
Jack Mills, BLM Sacramento
Brian Mastin, TMC

FINAL CONFORMITY CERTIFICATION

PROJECT NAME: Transit Mixed Concrete Company, Soledad Canyon Sand and Gravel Mining Project

PROJECT LOCATION: Soledad Canyon, Los Angeles County, California

PROJECT DESCRIPTION: Proposal to mine, produce and sell approximately 56 million tons of sand and gravel resources per Federal Contracts over a 20 year period.

DRAFT CONFORMITY DETERMINATION WAS SIGNED ON: November 17, 1999

PUBLIC NOTICE WAS PUBLISHED IN THE: Newhall Signal November 28, and December 2, 1999, the Antelope Valley Press December 2 and December 3, 1999 , the Daily News November 28 and December 2, 1999, and the Federal Register on November 26, 1999.

THE DRAFT CONFORMITY DETERMINATION WAS ALSO PROVIDED TO:

AGENCY: US EPA	DATE: 11/17, 12/1, 12/6, and 12/8/99
AGENCY: South Coast AQMD	DATE: 12/1/99
AGENCY: Southern California Association of Governments	DATE: 11/22, 12/1/99
AGENCY: US Forest Service	DATE: 11/18/99
AGENCY: California Air Resources Board	DATE: 11/18/99

A FORTY FIVE (45) DAY COMMENT PERIOD EXPIRED ON: JANUARY 10, 2000

Eleven (11) COMMENTS/RESPONSES ARE ATTACHED.

I HEREBY CERTIFY THIS PROJECT CONFORMS WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL AIR QUALITY LAWS, REGULATIONS AND STATUTES, AS DEFINED IN THE: 1994 State of California Implementation Plan, and the 1997 Air Quality Management Plan, which is pending approval. This certification is contingent on the Project obtaining all necessary air quality permits and implementation of mitigation measures AQ-1, AQ-2, AQ-3 and AQ-4 as identified in the Soledad Canyon Sand and Gravel Mining Project Final Environmental Impact Statement (OEPC # DES99-13) and required by local or state agencies.

SIGNED: _____ TITLE: District Manager, CDD DATE: 5-22-00

Attachment 2

South Coast
Air Quality Management District
21865 E. Copley Drive, Diamond Bar, CA 91765-4182
(909) 396-2000 · http://www.aqmd.gov

March 22, 2000

James G. Kenna
BLM
Palm Springs - South Coast Field Office
P.O. Box 1260
North Palm Springs, CA 92258

Dear Mr. Kenna:

The South Coast Air Quality Management District (AQMD) staff has reviewed the Draft General Conformity Determination for the proposed TMC Soledad Canyon Project, Los Angeles County project number 91-165.

Based on our review, AQMD staff believes that the conformity determination is appropriate and has been made in accordance with the requirements of 40 CFR 93 and AQMD rule 1901. It is clear from the documentation that the proposed project was considered in the development of the population and growth projection developed by the Southern California Association of Governments and used in the 1994 State Implementation Plan and the 1997 Air Quality Management Plan. Please note that the 1997 AQMP is currently under consideration for approval by the U.S. EPA, and is expected to be approved very soon.

Should you require clarification of these comments or additional assistance please feel free to contact Connie Day, Program Supervisor, of my staff at (909) 396-3055.

Sincerely,

Carol A. Gomez
Manager, Transportation Programs

cc: John Hecht/West Coast Environmental
Barbara Baird/AQMD

Attachment 3

SOUTHERN CALIFORNIA

ASSOCIATION of GOVERNMENTS

Main Office

818 West Seventh Street

12th Floor

Los Angeles, California

90017-3435

t (213) 236-1800

f (213) 236-1825

www.scag.ca.gov

Officers: • President: Supervisor Zev Yaroslavsky, Los Angeles County • First Vice President: Councilmember Ron Bates, City of Los Alamitos • Second Vice President: Supervisor Kathy Davis, San Bernardino County • Immediate Past President: Mayor Bob Bartlett, City of Monrovia

Imperial County: Tom Veysey, Imperial County • David Dhillon, El Centro

Los Angeles County: Yvonne Brathwaite Burke, Los Angeles County • Zev Yaroslavsky, Los Angeles County • Eileen Ansari, Diamond Bar • Bob Bartlett, Monrovia • Bruce Barrows, Cerritos • George Bass, Bell • Hal Bernson, Los Angeles • Chris Christiansen, Covina • Robert Bruesch, Rosemead • Laura Chick, Los Angeles • Gene Daniels, Paramount • Jo Anne Darcy, Santa Clarita • John Ferraro, Los Angeles • Michael Feuer, Los Angeles • Ruth Galanter, Los Angeles • Jackie Goldberg, Los Angeles • Ray Grabinski, Long Beach • Dee Hardison, Torrance • Mike Hernandez, Los Angeles • Nate Holden, Los Angeles • Lawrence Kirkley, Inglewood • Keith McCarthy, Downey • Cindy Miscikowski, Los Angeles • Stacey Murphy, Burbank • Pam O'Connor, Santa Monica • Jenny Oropeza, Long Beach • Nick Pacheco, Los Angeles • Alex Padilla, Los Angeles • Bob Pinzler, Redondo Beach • Beatrice Proo, Pico Rivera • Mark Ridley-Thomas, Los Angeles • Richard Riordan, Los Angeles • Karen Rosenthal, Claremont • Marcine Shaw, Compton • Rudy Svorinich, Los Angeles • Paul Talbot, Alhambra • Sidney Tyler, Jr., Pasadena • Joel Wachs, Los Angeles • Rita Walters, Los Angeles • Dennis Washburn, Calabasas

Orange County: Charles Smith, Orange County • Ron Bates, Los Alamitos • Ralph Bauer, Huntington Beach • Art Brown, Buena Park • Elizabeth Cowan, Costa Mesa • Jan Debay, Newport Beach • Cathryn DeYoung, Laguna Niguel • Richard Dixon, Lake Forest • Alta Duke, La Palma • Shirley McCracken, Anaheim • Bev Perry, Brea

Riverside County: James Venable, Riverside County • Ron Loveridge, Riverside • Greg Pettis, Cathedral City • Andrea Puga, Corona • Ron Roberts, Temecula • Charles White, Moreno Valley

San Bernardino County: Kathy Davis, San Bernardino County • Bill Alexander, Rancho Cucamonga • Jim Bagley, Twentynine Palms • David Eshleman, Fontana • Lee Ann Garcia, Grand Terrace • Gwenn Norton-Perry, Chino Hills • Judith Valles, San Bernardino

Ventura County: Judy Mikels, Ventura County • Donna De Paola, San Buenaventura • Glen Becerra, Simi Valley • Toni Young, Port Hueneme

Riverside County Transportation Commission: Robin Lowe, Hemet

Ventura County Transportation Commission: Bill Davis, Simi Valley

Printed on Recycled Paper 559-03/06/00

March 16, 2000

James G. Kenna
Field Manager
Palm Springs-South Coast Field Office
Bureau of Land Management
P.O. Box 1260
North Palm Springs, CA 92258

RE: **Soledad Canyon Sand and Gravel Mining Project (Los Angeles County Project No. 91-165) - Conformity Determination**

Dear Mr. Kenna:

SCAG staff has considered the Draft Conformity Analysis included in the Soledad Canyon Sand and Gravel Mining Project Draft EIR, to determine if the proposed Project, (1) is in conformance with the 1994 SIP, and (2) will conform with the 1997 SIP if adopted as currently proposed, pursuant to the provisions of 40 CFR:93.158(a)(5)(A).

After careful review and consideration, SCAG concurs with the conformity determination outlined in the Draft Conformity Analysis. The analysis suggests that the proposed Project is consistent with SCAG's Regional Comprehensive Plan and Guide including regional population and growth forecasts, which was also used in the development of the 1994 and 1997 State Implementation Plans.

If you should have any questions, please contact Jeffrey Smith, Senior Planner at (213) 236-1867. Thank you.

Sincerely,

J. DAVID STEIN
Manager, Performance Assessment and Implementation

cc: Mr. John A. Hecht, P.E.,
West Coast Environmental and Engineering

Attachment 4

The following comment letters were received on the draft conformity determination contained in the Supplemental Draft Environmental Impact Statement (SDEIS) for the Soledad Canyon Sand and Gravel Mining Project. These comment letters are also part of the Final EIS for the Project. The codes used to identify the comment letters in the FEIS are provided in the following table. Each comment letter has been numbered consistent with the numbering used in the FEIS. Note that the letters contain comments in addition to those relating to the conformity determination because the draft conformity analysis was combined with the SDEIS. Accordingly, the comments in each letter that specifically pertained to conformity have been identified in the following table. The following pages contain response to those comments.

FEIS Letter Number	Commentor	Letter Date	Conformity Comment Numbers
F-1	US EPA Region 9	1/6/2000	1, 7, 12, 13
L-5	City of Santa Clarita	1/4/2000	2, 11, 12
L-10	SCAQMD	1/26/2000	1
C-17	Hall and Associates for SAFE	1/8/2000	12, B-2

F-1: UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, REGION IX – FROM DEANNA M. WIEMAN, DEPUTY DIRECTOR, DATED 1/6/00

Response to Comment 1: This Final Conformity Determination, along with the letters from South Coast Air Quality Management District (SCAQMD) and the Southern California association of Governments (SCAG), respond to the commentor's concerns, see Attachments 2 and 3. See response to comment 13 for additional detail. The Final Conformity Determination is included as Appendix E-6 of the Final Environmental Impact Statement (FEIS).

Response to Comment 7: This Final Conformity Determination, along with the letters from South Coast Air Quality Management District (SCAQMD) and the Southern California association of Governments (SCAG), respond to the commentor's concerns, see Attachments 2 and 3. See response to comment 13 for additional detail. The Final Conformity Determination is included as Appendix E-6 of the Final Environmental Impact Statement (FEIS).

Response to Comment 12: The commentor is correct, as stated in the Draft Conformity analysis, NOx and VOC emissions are subject to 40 CFR Section 93.158. The Final Conformity Determination is included as Attachment 1.

Response to Comment 13: The commentor requests documentation from SCAQMD and SCAG as required by 93.158(a)(5)(i)(A). The requested letters have been provided and confirm that emissions from the project were considered in the 1994 SIP and 1997 AQMP. The letters are included as Attachments 2 and 3.

L-5: CITY OF SANTA CLARITA, FROM JEFFREY LAMBERT, DIRECTOR OF PLANNING AND BUILDING SERVICES, DATED 1/4/00

Response to Comment 2: See response to comment 11 following.

Response to Comment 11: The comment related to the adequacy of the conformity analysis. A final conformity determination appears in Attachment 1. Information on the project stationary source emissions (PM10) with respect to the mineral processing category was used as an indicator for the draft conformity determination. The fact that aggregate need and the emission budgets in both the 1994 SIP and the 1997 AQMP are based on population projections is the basis for concluding the that the mobile source emissions (NOx and VOC) for aggregate mining operations are included in the applicable SIP. The population projections used both for determining the aggregate need and for developing the SIP emission calculations are consistent and are based on data from the California Department of Finance.

Mobile sources will be used at the facility to excavate and transport construction aggregate material. A number of planning and related documents demonstrate that mobile emissions from the Project have been contemplated in the Population and Growth Projections of the 1994 SIP and 1997 AQMP. These documents stress the importance of continued availability of aggregate in the region given the predicted decrease in permitted supplies along with the projected increase in population. Project- related mobile source emissions are shown in SDEIS Table 2.2.4-10.

The 1994 SIP and 1997 AQMP utilize population and industrial growth projections based on information provided by the Southern California Association of Governments (SCAG). SCAG in turn utilizes information from the California Department of Finance (DOF) and other sources for its projections. These growth projections are factored into the AQMP (and subsequent SIP) to project future emissions from mobile sources. A summary of the SIP population projections for the South Coast Air Basin (SCAB) in 2010 is presented in Table 1.

Table 1. Population Projections for the 1994 AQMP, the 1997 AQMPs, and the DMG OFR 94-14

SourceYear		Projected Population South Coast Air Basin (SCAB)
1994 AQMP	2010	17.3 Million
1997 AQMP	2010	18.9 Million
DMG OFR 94-14	2010	18.4 Million *

* Calculated from project County population of 11,441,900 (predicted by Department of Finance) representing 62% of the population of the SCAB.

Similar population projections were used to estimate aggregate demand for the region. The California Division of Mines and Geology (DMG) Open File Report 94-14 analyzes the availability and predicts the consumption of aggregate material for Los Angeles County. In this analysis, projected future aggregate demand is based on population projections published by the DOF in May 1993 (DMG 94-14, page 25). When adjusted for basin considerations, the DOF projections used by the DMG estimate a SCAB population of 18.4 million for the year 2010. The DMG report concludes that portions of the Los Angeles County production region will be out of aggregate as soon as the year 2001 and that all of the aggregate reserves in the Los Angeles County production region will be depleted by 2016 if no new sources are permitted. Therefore, it is apparent that new production facilities, along with their related mobile emission sources will be needed in order for the region to continue to meet its aggregate consumption demands. It should also be emphasized that the Project site was designated by the State Mining and Geology Board as a "Regionally Significant Construction Aggregate Resource Area" in SMARA Designation Report No. 6, January 1987, as noted in the Soledad Canyon Draft EIS, May 1999, page 1-28.

The demand for aggregate resources is also addressed in the Regional Comprehensive Plan (RCP), adopted by SCAG in April 1995, which identifies the need for construction aggregates on pages 9-18 and 9-19, with a conclusion that "all active coastal quarries will be depleted in the next 6 years". In addition, both the Draft and Final Environmental Impact Reports (DEIR and FEIR, respectively) for the Regional Comprehensive Plan prepared for SCAG (December 1993), discuss the potentially significant impact of encroaching development on Portland Cement Concrete (PCC) grade aggregate resources. Mitigation Measure 9.6 from the DEIR and FEIR compels local jurisdictions to incorporate mineral resource management policies into their general plans.

Given the clearly articulated need for aggregate in Los Angeles County, the importance of sites Designated as Regionally Significant, and projected SCAB population levels, it is evident

that the need for aggregate projects has been acknowledged and included in the analysis of regional growth as well as in the development of the 1994 SIP and the 1997 AQMP.

In response to the specific comments raised by the commentor, we provide the following:

The Division of Mines and Geology (DMG) has spent several man years studying the relationships between aggregate production and consumption. DMG predicts aggregate consumption based on population data contained in Report 94-14, which includes the greater Los Angeles region, not just Los Angeles County.

The Commentor states that we have assumed that there is no import or export of aggregate to or from areas outside the SCAB. This statement is correct and that assumption is also used by the DMG in preparing their reports. However, as noted on page 2-15 of the SDEIS, aggregate is a low value-to-weight commodity and the average cost of a ton of aggregate doubles for each 35 miles it is transported. While it is certainly possible that material could be transported out of the air basin, the fact is that the basin is rapidly running out of aggregate resources to meet demand. The proposed TMC facility will meet aggregate demand that is already present in the basin and while imports are likely, the volume of material that is shipped out of the basin is expected to be very low. The distance this material would have to be shipped to transport it out of the basin would make the material very expensive in these other markets relative to locally-produced material. Also, transporting material this increased distance will also cause additional air pollution generated by trucks. As stated in the analysis, greater environmental impacts will result from importing material from outside the basin than from implementation of the project.

The commentor states that the analysis incorrectly assumes that all mineral processes in the District produce emissions in proportion to tonnage mined at the same rate as the proposed project. However, it should be clarified that the analysis evaluates the project emissions with respect to the emission budget in the SIP, and demonstrates that project emissions are within the levels considered in that budget. Accordingly, the Project's emissions are related to levels in the SIP, not to other mineral processes.

It should be noted that the SCAQMD generally includes the implementation of new control measures that would apply to all sources in the emissions budget. The project will be required to used Best Available Control Technology (BACT). Also, in the next 10-20 years, many of the existing facilities in the SCAB will be modified, which will require BACT, or will run out of aggregate reserves and require new permitted locations which will also require BACT. Therefore, these changes to existing operations are generally anticipated in the development of the SIP emissions budgets.

The commentor suggests that the analysis incorrectly assumes that aggregate is the sole mineral process which needs to be considered in the analysis. Emissions from the mineral process category have been further evaluated using backup reports obtained from the SCAQMD. Several mineral process types that are not included in the project description (i.e. asphalt production) are included in the mineral process category. The updated tables from the draft conformity determination, included as Attachment 5, contain revised data, however this data does not impact the conclusion that the project conforms to the applicable SIP.

The Commentor suggests that the analysis should be based solely on industry output. As noted on page 2-15 of the SDEIS, "[d]emand for construction aggregate materials is predicted by the DMG based on population projections as discussed on page 1-11 of the DEIS and aggregate production operations are not considered to be growth inducing." The DEIS and SDEIS do not attempt to calculate changes in production or emissions using population figures, industry output, or any other means. What the demand/population analysis in the SDEIS does is show that the project emissions are accounted for in the State Implementation Plan (SIP). The emission estimates were provided by the SCAQMD based (according to the AQMP) on industry growth. The production estimates were provided by the DMG. The demand/population analysis shows that the project is indeed accounted for in the SIP.

The commentor suggests that mining includes all activities covered under Standard Industrial Classification (SIC) codes 10-14 and therefore, existing and cumulative projects included in these SIC codes should be included in the analysis. This comment is incorrect. The Mineral Process category does not include all activities in SIC codes 10-14. All appropriate stationary source industrial activities related to the project are included in the mineral process category.

Table 2-4 in the 1997 AQMP states that Point Source Industries in SIC Codes 10-14 are included in *Group 1: Source Categories Use Industry Output as Growth Factors*. However, the numbers that were used to develop Tables 2.2.4-8 and 2.2.4-9 in the SDEIS come from the Table 2-13 *Summary of Emissions, 2010 Projected Annual Average Emission Inventory for the South Coast Air Basin* in the 1994 AQMP. The emissions that were used to calculate the percentage of emissions (from Table 2-13) are specific to the industry in question (*Mineral Processes*).

It would be duplicative of this analysis to calculate all "existing and cumulative" projects included in SIC Codes 10-14 as the City suggests, because these SIC codes include other mining such as metal mining, coal mining, and most importantly, oil and gas extraction. The oil and gas industry in the area is included in different source categories in Table 2-13 of the 1994 AQMP. For example, *Oil and Gas Extraction* is a separate category in Table 2-13. Accordingly, these emissions have been contemplated in different categories of the SIP. To

address these emissions in the context of the Project would inappropriately duplicate the analysis.

The commentor further requests a proper industry output-based analysis that looks at the effect of the project in combination with all existing and proposed mineral processes within the Air District. The analysis is unnecessary because aggregate demand figures are already available from the DMG (as discussed above). To do an analysis of "existing and proposed mineral processes within the District" would duplicate the efforts of the SCAQMD and SCAG in preparing the SIP. In addition, most of the actual production data is proprietary and not available to individual operators, but is included in the DMG projections. The most reliable information regarding this industry is an analysis of data provided by the DMG and the SCAQMD, two independent and impartial government entities.

Response to Comment 12: The commentor suggests that the information presented in Tables 2.2.4-8 and 2.2.4-9, is incorrect. The numbers listed in Tables 2.2.4-8 and 2.2.4-9 are the numbers from the 1994 SIP (not the 1997 AQMP as listed in the title of the table). Although it is regrettable that this table was mislabeled, the numbers in the table are correct. The 1994 SIP values are the correct numbers to use in this calculation because the 1997 AQMP has not been approved. Use of the 1994 SIP was confirmed by South Coast Air Quality Management District staff. Thus the percentages listed in the SDEIS are correct. This typographical error has been corrected in the Final Conformity Determination, see Attachment 6.

L-10: SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT, FROM STEVE SMITH, PROGRAM SUPERVISOR, CEQA SECTION, DATED 1/26/00

Response to Comment 1: With respect to conformity, the commentor states that the SCAQMD is continuing to evaluate the proposed project to determine whether or not it is included in the applicable SIP. The SCAQMD response letter included in Attachment 2 clearly states that the project was included in the applicable 1994 SIP and the 1997 AQMP.

C-17: HALL AND ASSOCIATES FOR SAFE ACTION FOR THE ENVIRONMENT - FROM CARLYLE W. HALL, JR, DATED 1/8/00

Response to Comment 12: The commentor states that the conclusion presented in the DEIS that the Project would be consistent with the 1994 SIP and the 1997 AQMP is "disproved" by evidence in the DEIS. Specifically, the commentor claims that because the Project will contribute to PM10 emissions in an area that exceeds California Ambient Air Quality Standards, it cannot be concluded to conform to the 1994 SIP and the 1997 AQMP.

The commentor confuses air quality standards under The California Environmental Quality Act (CEQA) with vary different requirements for a conformity determination under the Clean Air Act. 40 CFR § 93.100 et seq. Under CEQA, emissions from a proposed project may be determined to be "significant" if they exceed stated state or local thresholds or criteria. Under the Federal conformity analysis presented for the Project, the focus is not on stated significance criteria or thresholds, but rather on whether the emissions from the Project have been contemplated in the emissions budgets in the 1994 SIP and the 1997 AQMP. 40 CFR § 93.158(a)(5)(i)(A).

Accordingly, it is possible to have a project that exceeds CEQA air quality significance criteria while still conforming to the applicable SIP and/or AQMP. Here, independent to whether or not the Project may exceed certain thresholds under CEQA, the Project has been found by SCAG and the SCAQMD to conform to the 1994 SIP and the 1997 AQMP.

Under the Federal Clean Air Act and the Federal Land Policy Management Act, Bureau approved activities must comply with all applicable local, state and Federal air quality laws, regulations, standards and implementation plans. Based on conservative modeling assumptions and including background concentrations, the EIS analysis indicates the one hour NO2 and 24 hour PM-10 State of California ambient air quality standards would be exceeded at the point of maximum impact along the proposed Project Boundary. However, before project construction and operation can occur, the proponent must obtain air pollutant emission permits from the appropriate air regulatory agencies, demonstrating that its actions will not violate applicable state and local air district rules and regulations. Therefore, Bureau approval is contingent upon the successful acquisition of all necessary air quality permits and implementation of the mitigation measures identified in the FEIS and required by local or state agencies.

In compliance with 40CFR93.160, the applicant has prepared a mitigation monitoring program included in the FEIS. Implementation of mitigation measures AQ-1 through AQ-4 is required for this conformity determination. Included in Attachment 7 is a letter of commitment from the Applicant regarding the mitigation measures required for the conformity determination. The mitigation monitoring program includes identification of the responsible agency and an implementation schedule.

Response to Attachment Comment B-2: See response to Comment 12.

Attachment 5

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

RECEIVED
BUREAU OF LAND MANAGEMENT
00 JAN 12 PM 3: 10
PALM SPRINGS-SOUTH COAST
RESOURCE AREA

James Kenna
Field Manager
Bureau of Land Management
Palm Springs - South Coast Field Office
P.O. Box 1260
North Palm Springs, CA 92258-1260

JAN 6 2000

Dear Mr. Kenna:

The U.S. Environmental Protection Agency (EPA) has reviewed the May, 1999, Draft Environmental Impact Statement (DEIS) and November, 1999, Supplemental to the Draft Environmental Impact Statement (DSEIS) for the **Soledad Canyon Sand and Gravel Mining Project, Los Angeles County, California.** Our review and comments on this DEIS are provided pursuant to the National Environmental Policy Act (NEPA), the Council on Environmental Quality's NEPA Implementation Regulations at 40 CFR 1500-1508, and Clean Air Act Section 309.

The DEIS/DSEIS analyzes alternatives for Transit Mixed Concrete Company (TMC) to mine and produce sand and gravel resources in Soledad Canyon over a 20-year period. The project site is on split estate lands where the minerals are federally owned and administered by the BLM and the surface is privately owned. Approximately 83 million tons of material would be mined to produce 56 million tons of sand and gravel, also known as Portland cement concrete sand and gravel. The proposed project would include a concrete batch plant to produce and deliver ready-mixed concrete to local markets. Alternatives to the proposed action include No Action, Reduced North Fines Storage Area, Offsite Batch Plant Location, Reclaimed Water Use, Railroad Transportation, and Alternative North Fines Storage Area.

Based on public comments and EPA input on the DEIS originally published last May, BLM decided to identify in a DSEIS its preferred alternative, different from TMC's proposal identified in the May DEIS as the proposed alternative. The DSEIS provides additional information on the agency's preferred alternative, which is the Reduced North Fines Storage Area Alternative with a conveyor belt system for transporting fines material. We commend BLM on its decision to publish this DSEIS and identify a preferred alternative which it appears would result in significantly less impact than TMC's original proposal, especially to air quality. The potential impacts of the originally proposed and preferred alternatives remain unclear, however, because of questionable assumptions made in the air quality modeling and uncertainties with respect to conformity with the State Implementation Plan (SIP).

We have rated this DEIS/DSEIS as EO-2 -- Environmental Objections-Insufficient Information (see the enclosed "Summary of Rating Definitions and Follow-Up Action"). Our objections are based on uncertainties regarding the project's potential impacts to air quality and conformity with the SIP. We also have concerns regarding the project's potential impacts to aquatic resources and water quality, including waters of the U.S., and uncertainties regarding the adequacy of the reclamation bond. We recommend that the Final Environmental Impact Statement (FEIS) provide additional information regarding air quality modeling and SIP conformity, water quality, compliance with Clean Water Act Section 404, facilities design, mitigation measures and best management practices, financial assurance, blasting, and environmental justice. Information on conformity is necessary because BLM cannot sign a Record of Decision until project conformity has been demonstrated. The FEIS should also describe in detail the design of the proposed conveyor system, its potential impacts, and necessary mitigation measures. 1

In addition, we are concerned that this mining and production EIS may have been influenced by the previous EA for sale of the mineral estate which, without evaluating the impacts of the overall project, appears to have compromised BLM's decisionmaking authority, leaving the agency with fewer options on production of the mineral estate. We recommend that, in the future, BLM analyze in one NEPA document the full scope of potential impacts involved in the decision to proceed with a mineral sale or lease, including the mining and production of the mineral estate. Our detailed comments are enclosed. 2

We appreciate the opportunity to review this DEIS/DSEIS and would be happy to continue to work with you and your staff to address our issues in the FEIS. We also respectfully request a copy of the FEIS be sent to this address when it is officially filed with our Washington, D.C., office. If you have any questions, please call me at (415) 744-1566, or Jeanne Geselbracht at (415) 744-1576.

Sincerely,

Deanna M. Wieman, Deputy Director
Cross-Media Division

002548

Enclosures

cc: Daryl Koutnik, County of Los Angeles, Department of Regional Planning
Esther Feldman, Chairman, Regional Planning Commission
Elizabeth Erickson, Regional Water Quality Control Board - Los Angeles Region
Connie Day, South Coast Air Quality Management District
Jack Mills, BLM-Sacramento

General Comments

The DEIS/DSEIS analyzes alternatives for a sand and gravel sale which BLM approved in a 1989 environmental assessment (EA). In issuing the FONSI, the BLM also committed to analyze the impacts of the project operations (under a Mining and Reclamation Plan) at a later date. EPA disagrees with BLM's practice of assessing mineral sales in an EA and then later evaluating the impacts of the sale's logical consequences in a subsequent EA or EIS. The Soledad Sale EA did not analyze a No Action alternative; nor did it thoroughly analyze the potential impacts of mining and production at the site. For example, potential impacts to air quality were not analyzed in the EA despite the fact that the project is in a non-attainment area for PM10 (particulate matter smaller than 10 ug/m^3), carbon monoxide, ozone, and nitrogen dioxide. Furthermore, the EA indicated that the proposed sale was not within a 100-year flood plain and, therefore, did not analyze the potential impacts of mining on the flood plain of the Santa Clara River. However, the proposed project being analyzed in the DEIS/DSEIS does involve actions near the flood plain and potentially could affect it.

Clearly, the sale decision and the mine production decision meet the definition of connected actions [40 CFR 1508.25(a)(1)].. "Connected actions" and "similar actions," both of which appear to be relevant to the scope of mineral sale NEPA documents, are defined in CEQ's NEPA Implementation Regulations. In accordance with 40 CFR 1508.25(a)(1), connected actions should be discussed in the *same impact statement*. Actions are connected if they: (i) automatically trigger other actions which may require environmental impact statements, (ii) cannot or will not proceed unless other actions are taken previously or simultaneously, or (iii) are interdependent parts of a larger action and depend on the larger action for their justification. In addition, agencies should analyze in a *single EIS* similar actions which, when viewed with other reasonably foreseeable or proposed agency actions, have similarities that provide a basis for evaluating their environmental consequences together, such as common timing or geography. [1508.25(a)(3)].

Based on both these definitions, it is clear that BLM should have analyzed, in one NEPA document, the full scope of potential impacts resulting from its decision to proceed with a mineral sale, including the mining and production of the mineral estate. EPA believes that this mining/production EIS is prejudiced by the previous EA for sale of the estate, compromising BLM's decisionmaking authority and leaving the agency with fewer unencumbered options on the mineral estate. BLM's piecemealing of these actions conflicts with the intent of NEPA. 3

According to the Soledad Sale EA, the proposed sale was the result of a court order for settlement of a trespass. Although the EA did not specify what alternatives were required by the settlement, it assessed one alternative for two mineral material sales, each with a total of 100 million tons of material. In the EA, therefore, the proposed action encompassed a range

of production from 20 to 200 million tons. Because the EA analyzed only one alternative ranging from 20 million to 200 million tons of material, a true analysis of the differences between alternatives falling within that range (a reasonable range of alternatives) was never conducted. With a more thorough analysis, it is unlikely that the sale of 200 million tons of material over a 20-year period could have been found to have no significant impact. In 1990, however, BLM issued TMC Federal contracts specifically to produce 56.1 million tons of PCC aggregate which would guarantee $28 million in royalties to the Federal Government. It is unclear how these specifications were developed when they were not available a few months earlier during the EA process. The DEIS, based on these unaccountable objectives, now states that the Reduced Quantity Mining Concept Alternative would not meet the requirements of the Federal Contracts objectives for the quantity of material to be mined (p. 2-58). More specific alternatives, such as the proposed alternative, the preferred alternative and the Reduced Quantity Mining Concept Alternative should have been evaluated in a single mineral sale/mining and production NEPA document.

We strongly recommend that, for future mineral sales and leases, BLM conduct thorough NEPA evaluations so as not to lock itself out of reasonable alternatives, mitigation measures, and even no action before the full impact of the project is known. Before conducting a mineral sale, we believe that BLM must rigorously explore and objectively evaluate in one NEPA document all of the alternatives for sale, exploration, and production; thoroughly discuss the impacts of each alternative; and discuss means to mitigate adverse environmental impacts. If the NEPA document reveals adverse significant impacts, BLM would then have several options *before* deciding whether to proceed with the sale. At this point, BLM would still have the option to, among other things, delete certain areas from the sale; include specific necessary mitigation measures (discovered during investigation) as provisions of the sale; specify exploration and/or production actions that would be prohibited; and select no action. 4

Alternatives

The FEIS should describe in detail the design of the conveyor system proposed in the DSEIS, and discuss its potential impacts and necessary mitigation measures. 5

EPA supports the use of reclaimed water for project operations if a source becomes available. We recommend that BLM and TMC commit to pursuing sources of reclaimed water as they become viable in the project area. 6

Air Quality

The DSEIS provides insufficient information regarding the project's potential effects on air quality, and we cannot determine what the preferred project's impacts would be, particularly with respect to National Ambient Air Quality Standards (NAAQS) and conformity. We 7

would object to the project if these uncertainties remain. We recommend, therefore, that additional information be provided in the FEIS with respect to both air quality modeling and project conformity. 7

Air Modeling

EPA has reviewed the revised air quality modeling information provided in the DSEIS, Appendix B "Air Quality Modeling Results," West Coast Environmental, 11/17/99. EPA does not know what the project impacts would be because of several questionable assumptions made in the air quality modeling. The following issues should be addressed in the FEIS in order to determine the potential impacts of the preferred project with respect to NAAQS.

Section 3.1. Model. The model runs in Appendix D of the "Air Quality Modeling Results" (within Appendix B of the DEIS) show that the project location was assumed to be urban, which is questionable given the rural setting; this would tend to lower modeled concentrations (since urban dispersion in the model is larger). More importantly, the area was modeled as flat terrain, which is clearly inappropriate given the complex terrain nearby. This, too, would tend to lower modeled concentrations, possibly by a large amount. 8

Section 3.2.2. Plume Rise. It is unclear why calculations of plume rise from point sources with stacks should be applicable to the volume sources (rock plant and batch plant); their initial height and dispersion should be based on some characteristic of the volume sources themselves and the amount of turbulent mixing near them. 9

Section 3.4. Meteorological Data. There is no indication of whether Lancaster or Newhall (Santa Clarita) station meteorological data are representative of the project site. It is not clear why wind speeds within this canyon would be higher than at the meteorological stations, as assumed. Even if they are, however, that by itself does not guarantee higher concentrations, which also depend on atmospheric stability, wind speed-dependent emission rates, and wind direction relative to nearby terrain. Thus, it is unclear to what extent the model runs represent impacts from the project. 10

Section 3.5. Background Concentrations. It is unclear whether Santa Clarita monitoring data are representative of the project location. Especially for PM10, sources of which have rather localized impacts, monitors should be as site-specific as possible. Even relatively nearby monitors may not be representative. In any case, the claim that Santa Clarita concentrations are higher than at the project location is hard to evaluate without a comparison of the land uses at both the monitor and the project. 11

General Conformity

The DSEIS estimates that emissions of nitrogen oxides (NOx) and volatile organic compounds (VOC) will exceed the applicability limits as specified in 93.153 of the General Conformity Rule [incorporated by reference by South Coast Rule 1901 (64 FR 19916)]. Thus, NOx and VOC emissions from this project are subject to the conformity requirements in Section 93.158. 12

The DSEIS (pp. 2-26 to 2-27) includes an analysis on how the project's NOx and VOC emissions are consistent with the growth and emissions estimates used by the SCAQMD's emissions inventory and also states that the SCAQMD was consulted in the development of this analysis. According to the DSEIS, BLM is trying to show conformity under 93.158(a)(5)(i)(A) which allows projects to conform in ozone nonattainment areas with approved SIPs if "[t]he total of direct and indirect emissions from the action...is determined and documented by the State agency primarily responsible for the applicable SIP to result in a level of emissions which, together with all of the other emissions in the nonattainment (or maintenance) area, would not exceed the emissions budgets specified in the applicable SIP." We do not believe that this criterion has been satisfied yet because the SCAQMD and Southern California Association of Governments (SCAG) have not provided a determination and documentation as specified in 93.158(a)(5)(i)(A). The FEIS and final conformity determination should include the necessary documentation, so that a conformity determination can be made prior to a Record of Decision. 13

Water Resources

The DEIS (p. 3-342) states that no cumulative impact on surface water quality would occur from regulated mining operations. It is unclear, however, whether all drainage from the entire project site would be captured in the seven desilting/debris basins. The facilities design should ensure that contaminants such as dust palliatives, oil and grease, and total suspended solids (TSS) and total dissolved solids (TDS) from project surfaces drain only to the settling ponds.

We recommend that the settling ponds and all diversion channels be adequately designed to withstand at least a 100-year, 24-hour storm without breaching. We understand from discussions with BLM that TMC intends to design desilting/debris basins to a 50-year capital storm standard. The FEIS should describe this event, as well as the 100-year, 24-hour storm event and describe how basins and diversion channels would be designed. 14

In addition, to prevent unauthorized discharges to streams, the conveyor system used to transport material should be equipped with catchments to contain material that falls off of the belt. This should be included in the design and described and discussed in the FEIS. 15

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City of
Santa Clarita

23920 Valencia Blvd.
Suite 300
Santa Clarita
California 91355-2196
Website: www.santa-clarita.com

Phone
(661) 259-2489
Fax
(661) 259-8125

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PALM SPRINGS-SOUTH COAST
RESOURCE AREA

January 4, 2000

Mr. James G. Kenna
Field Manager
Bureau of Land Management
Palm Springs - South Coast Field Office
690 W. Garnet Avenue
North Palm Springs, California 92258

Re: Comments on the Supplement to the Draft Environmental Impact Statement (DEIS) for the Soledad Canyon Sand and Gravel Mining Project OEPC #DEIS 99-57

Dear Mr. Kenna:

Thank you for the opportunity to comment on the Supplement to the Draft Environmental Impact Statement (DEIS) for the Soledad Canyon Sand and Gravel Mining Project proposed by Transit Mixed Concrete. We appreciate the opportunity to work with the Bureau of Land Management (BLM) staff to provide the agency's decisionmakers with a document that accurately describes the potential impacts of the project. This letter reiterates our concerns regarding the defects in the Draft EIS which we feel have not yet been addressed, and explains our concerns with the analysis contained in the Supplement.

Supplement Fails to Address Serious Defects in the DEIS Identified In Our Prior Letter

While we agree with the BLM that a Supplement or a significantly revised DEIS is required for the project, this Supplement fails to address the serious legal inadequacies in the DEIS that we identified in our August 25, 1999, letter to you. Our prior letter identified the following major classes of flaws in the document which have yet to be addressed:

- Our prior letter explained that the DEIS fails to include the necessary information to enable an independent peer review of the many findings and conclusions contained in the DEIS, therefore precluding meaningful public review and comment. The required information that we requested has not been included in the Supplement. 1

- Our prior letter explained that the DEIS contains seriously dated information and relies on inappropriate analytic techniques which render the seismic analysis, the noise analysis, the biological resources assessment, the cultural and palentological resources discussion, the air quality analysis, the traffic analysis, and the pavement analysis inaccurate or invalid. Although the Supplement does contain updated air quality data, there are still serious 2

of Santa Clarita and its residents. However, the Supplement repeats (on pages 1-2 and 1-3) a portion of this inappropriate argument without adding a consideration of the impacts to the City and its residents. 9

We continue to believe that the defects in the DEIS are sufficiently severe and such that curing them will require recirculation of a substantially re-written and updated Revised DEIS.

Supplement is an Insufficient Response to Criticism Raised in Our Prior Letter

The Supplement does attempt to address three of our criticisms of the DEIS:

- The inadequacies and inaccuracies in the air quality analysis;
- The serious lacks in the alternatives analysis; and,
- The apparent case of post-hoc rationalization.

However, the changes either introduce additional inaccuracies into the document, or do not fully address our concerns.

Air Quality Analysis

- The air quality analysis for the project and the remaining alternatives similarly needs to be updated. It is questionable to have a document where the air quality analysis for one alternative uses current information and the analysis for the project and remaining alternatives is based on outdated information. 16

- The conformity analysis contained in the Supplement is questionable. As noted on Page 2-26 of the Supplement, the provisions of 40 CFR 93.158(a) require that:

> . . . one of several conditions be met for an action to be determined to conform. For emissions of ozone or NO_2, Section 93.158(a)(5)(A) states, "The total of direct and indirect emissions for the action is determined and documented by the state agency primarily responsible for the applicable SIP to result in a level of emissions which, together with all other emissions in the nonattainment area, will not exceed the emission budgets in the applicable SIP." 11

The analysis in the Supplement inaccurately assumes that because: (1) the project will produce "1.78 percent of the 2010 PM-10 attributable to Mineral

Processes in the SCAB"; (2) the project is in L.A. County; (3) L.A. County contains A62 percent" of the population in the SCAB; and (4) L.A. County demand is projected at "36 million tons a year;" that (1) demand in the SCAB must be "58 million tons per year;" (2) project production equals "7.25 percent of this estimated demand" but contributes only A1.78 percent of the emissions budget;" and (3) there is therefore consistency.

Rather than prepare an analysis which examines the project's contribution to SCAB emissions as required, based on a true analysis of likely industry output levels in the SCAB due to the operation of existing and proposed mineral processes, the analysis uses a faulty demand/population based calculation, presumably to address the fair argument of an impact which we presented in our prior letter. The analysis is faulty because it: (1) assumes there is a 100% correlation between population and the weight of aggregate produced; (2) that there is no import or export of aggregate produced in the SCAB to or from areas outside the SCAB; (3) that all mineral processes in the District produce emissions in proportion to tonnage at the same rate as the proposed project; and (4) that aggregate is the sole mineral process which needs to be considered in the analysis. Mineral processes are a Group 1 source category according to the AQMP. According to Table 2-4, page III-2-8 of the AQMP, Group 1 sources use industry output as growth factors. There is a category of sources that is population-based, but mineral processes are not part of this Group. Therefore, the analysis should be based on industry output. Table 2-4 would also appear to imply that mining includes all activities covered under SIC codes 10-14. Thus existing and cumulative projects included in these SIC codes should be included in the analysis. We therefore request a proper industry output-based analysis that looks at the effect of the project in combination with all existing and proposed mineral processes within the Air District. 11

- The information presented in Tables 2.2.4-8 and 2.2.4-9, which is the key to the PM-10 conformity analysis contained in the Supplement, is incorrect. The Supplement to the DEIS states that the SCAQMD average PM-10 emissions in tons per day are from Table A-13 (2010 baseline year, pp. III-A-37 - III-A-39), 1997 AQMP. This is the correct reference to use in comparing TMC 2010 PM-10 emissions to the SCAQMD assumed average annual day emissions in the South Coast Air Basin in 2010. However, the numbers provided on Table 2.2.4-8 are not the numbers on Table A-13 of the AQMP. (Table A-13 of the AQMP is attached. It is available also at: http://www.aqmd.gov/aqmp/97aqmp/.) The numbers in the table are an overstatement of the SCAQMD emissions standards. 12

  These overstated SCAQMD emissions figures are used in Table 2.2.4-9 to calculate the percentage of the SCAQMD daily emissions represented by the

proposed alternative. Table 2.2.4-9 thus grossly understates the share represented by the alternative.

Our **Table 1** below provides a recalculation of the percent of the daily emissions represented by the alternative based on the correct values from Table A-13 of the AQMP. **Table 1** also shows the degree to which the figures presented in the Supplement constitute a gross understatement of the alternative's contribution to 2010 PM-10 emissions. Tables 2.2.4-10 and 2.2.4-11 in the Supplement reflect a similar miscalculation of the project's contribution to VOC and NOx emissions.

Table 1
Degree to which the Supplement Severely Understates the Alternative's Share of SCAQMD 2010 PM-10 Daily Emissions (in tons per day)

SCAQMD Category	TMC Phase 2 /1/	SCAQMD Average /2/	TMC Percent /3/	% in SEIS /4/	SEIS Understated By /5/
Mineral Processes	0.05500	1.07	5.1402%	1.7900%	287%
Entrained Road Dust - Paved	0.03520	192.53	0.0183%	0.0060%	305%
Entrained Road Dust - Unpaved	0.00625	52.44	0.0119%	0.0040%	298%
Heavy-Duty Diesel Trucks	0.00975	6.68	0.1460%	0.0400%	365%
Mobile Equipment	0.01000	8.50	0.1176%	0.0600%	196%
Construction and Demolition	0.07700	60.85	0.1265%	0.0600%	211%
Light Duty Passenger	0.00010	4.25	0.0024%	0.0000%	
Fugitive Windblown Dust	0.01220	54.24	0.0225%	0.0690%	33%

Source:
/1/ From Table 2.2.4-8 of the Supplement to the TMC DEIS
/2/ Correct figures from Table A-13 (2010 baseline year, pp. III-A-37 to A-39 in the 1997 AQMP
/3/ Item 1 divided by Item 2
/4/ From Table 2.2.4-9 of the Supplement to the TMC DEIS
/5/ Item 3 divided by Item 4

The TMC Phase II emissions listed in **Table 1** are those provided in the Supplement. Our table necessarily assumes that emissions levels have been correctly calculated. However, given the apparent errors in the calculation of the alternative's contribution to emissions, we would urge that the actual emissions calculations be verified by an independent reviewer, as part of correcting the analysis contained in the document.

Alternatives Analysis

- Our letter explained why the City felt that the DEIS did not comply with the requirements for an EIS alternative analysis as laid out in Forty Questions, Number 5b. The alternatives discussion contained in the Supplement does not sufficiently cure this defect. As noted in the Supplement (page 1-1 and page 3-1), the alternatives analysis contained in the Supplement does not add any new information, it merely restates the discussion of the alternatives contained in the DEIS in a way which is more comparative in form. There remains a gross disparity in the level of analysis performed for the alternatives and the level of analysis performed for the proposed project. This serious discrepancy in the level of detail is of particular concern, given the identification of one of the alternatives as the preferred alternative, and is a clear violation of the intent of NEPA. 13

- The addition of the conveyor mitigation to the Reduced NFSA Alternative is not sufficient to result in a DEIS which contains alternatives which have been designed to reduce and avoid project impacts. Our concerns about the range of alternatives considered remain. 14

- We find it curious that, for the most part, the same mitigation measures apply to the alternatives and to the proposed project. This supports our contention that the alternatives are not designed to be impact reducing. They are really minor variations on the same theme, having similar impacts and requiring the same mitigation measures. Until the defects in the analyses that we have identified have been cured, it will not be possible to design a range of alternatives which comply with NEPA's intent: identification of alternatives which reduce impacts. The document thus fails as a decision-making tool and does not allow for a constructive discussion between the City of Santa Clarita and the BLM regarding possible ways to avoid key impacts, while allowing for a reduced form of the project. Citizens and agencies concerned about impacts are thus left with no option but to advocate denial of the project or any of the alternatives contained in the DEIS. 15

Post Hoc Rationalization

- It would appear that the BLM has responded to our assertion that the DEIS is a case of post hoc rationalization by identifying an alternative as the preferred alternative. This does not eliminate the apparent prejudice in favor of the proposed project that is evidenced by the 381 pages devoted to analysis of the proposed project. If the preferred alternative is in fact substantively different from the proposed project, it deserves a serious analysis, rather than the limited analysis included in the DEIS and the restatement of the brief analysis include in the Supplement for all issues except air quality. 16

New Concerns Raised by the Supplement

- The environmental record for the Soledad Canyon Sand and Gravel Mining Project now includes a preferred alternative with a detailed air quality analysis, and weak analysis of all other issue areas. This needs to be corrected. 17

- The environmental record also includes an out-of-date analysis of the air quality impacts of the proposed project; no attempt has been made to correct the air quality analysis of the proposed project. The analysis of project impacts must be updated. 18

- Appendix A of the Supplement contains portions of letters from the Department of Conservation. Why are only portions of the letters included? 19

  The letter from the Department of Conservation dated April 7, 1999, would appear to point out (on page 3) problems with TMC's reclamation plan, consistent with some of our criticisms of the biological resources section of the DEIS. However, a key page of the letter, page 2, has been omitted and the concerns have not been addressed. Why? We would agree with the Department of Conservation that standards for evaluating the revegetation cover and species diversity must be specified and that they should be based on baseline data collected for the reclamation plan and the DEIS. We would argue that there has been no demonstration in the DEIS that adequate baseline data has been collected. Absent provision of adequate baseline data, it is not possible to judge whether the reclamation plan will adequately mitigate biological resource impacts. Impacts must, therefore, be assumed to remain significant. As detailed in our prior letter, there are a number of reasons to believe the plan will not adequately mitigate impacts.

  The letter also points out problems with Table 3.1.8.1 of the DEIS which have not been addressed in the Supplement, and which are consistent with problems with the sensitive species identification noted in our prior letter. These concerns have yet to be addressed.

  We can only assume that missing page 2 of the letter identified other significant problems with the reclamation plan.

In conclusion, the Supplement to the Draft Environmental Impact Statement has done little to address the very serious problems with the DEIS which the City raised in its prior letter. In addition, the air quality analysis contained in the Supplement raises additional concerns regarding the accuracy and the completeness of the environmental analysis of the proposed project and the alternatives. We would therefore urge the BLM to abandon the existing environmental documentation and to prepare a fresh DEIS which adequately addresses the concerns of the City of Santa Clarita. The existing environmental document is a patchwork of outdated and incorrect information and needs to be completely redone.

Sincerely,

Jeffrey Lambert, AICP
Director of Planning and Building Services

Attachment

cc: Mayor Jo Anne Darcy and City Councilmembers
U.S. Senator Barbara Boxer
U.S. Senator Diane Feinstein
Representative Buck McKeon
State Senator Pete Knight
Assemblyman George Runner
Vince Bertoni, Planning Manager, City of Santa Clarita
Lisa Hardy, Associate Planner, City of Santa Clarita

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TABLE A-13

Average Annual Day Emissions in the South Coast Air Basin
2010 Baseline Year (Tons per Day)

Source Category	TOG	VOC	CO	NOx	SOx	TSP	PM10
Fuel Combustion							
Agricultural	0.04	0.03	0.00	0.00	0.00	0.01	0.01
Oil and Gas Production	3.99	0.56	1.62	1.84	0.01	0.05	0.05
Petroleum Refining	3.96	1.33	7.11	0.08	0.01	3.83	3.65
Other Manufacturing/Industrial	21.38	3.31	17.90	23.95	0.79	1.84	1.80
Electric Utilities	3.67	0.98	2.56	0.19	0.02	0.47	0.47
Other Service and Commerce	14.08	2.58	27.62	7.27	0.21	1.25	1.25
Residential	3.82	1.55	13.78	30.50	0.37	2.78	2.68
Other	1.53	0.48	4.88	0.58	0.06	0.38	0.38
Fuel Combustion	**52.47**	**10.82**	**75.47**	**64.41**	**1.47**	**10.61**	**10.29**
Waste Burning							
Agricultural Debris	0.02	0.01	0.16	0.00	0.00	0.02	0.02
Range Management	0.75	0.41	4.07	0.00	0.00	0.68	0.60
Forest Management	12.36	6.74	96.94	5.05	0.00	12.68	11.16
Incineration	0.33	0.05	0.21	0.42	0.05	0.27	0.13
Other	0.12	0.06	0.44	0.64	0.05	0.30	0.30
Waste Burning	**13.58**	**7.27**	**101.82**	**6.11**	**0.10**	**13.95**	**12.21**
Solvent Use							
Dry Cleaning	10.54	0.13	0.01	0.03	0.00	0.00	0.00
Degreasing	146.40	81.30	0.00	0.00	0.00	0.00	0.00
Architectural Coating	72.58	67.32	0.00	0.00	0.00	0.00	0.00
Other Surface Coating	93.74	86.83	0.24	0.38	0.03	0.87	0.84
Asphalt Paving	0.55	0.55	0.00	0.00	0.00	0.00	0.00
Printing	7.29	7.29	0.02	0.05	0.00	0.04	0.04
Consumer Products	92.31	91.72	0.00	0.00	0.00	0.00	0.00
Industrial Solvent Use	64.02	22.80	0.00	0.00	0.00	0.00	0.00
Other	9.60	4.49	0.00	0.00	0.00	0.02	0.02
Solvent Use	**497.03**	**362.43**	**0.27**	**0.46**	**0.03**	**0.93**	**0.90**

TABLE A-13
(Continued)

Source Category	TOG	VOC	CO	NOx	SOx	TSP	PM10
Petroleum Process, Storage & Transfer							
Oil and Gas Extraction	19.55	11.70	0.00	0.00	0.00	0.00	0.00
Petroleum Refining	12.50	9.16	4.63	0.01	0.01	3.27	2.46
Petroleum Marketing	69.96	22.81	0.00	0.00	0.00	0.00	0.00
Other	2.68	2.24	0.00	0.02	0.00	0.03	0.03
Petroleum Process, Storage & Transfer	**104.69**	**45.91**	**4.63**	**0.03**	**0.01**	**3.30**	**2.49**
Industrial Processes							
Chemical	27.34	18.86	0.04	0.06	0.00	0.65	0.58
Food and Agricultural	4.98	4.05	0.01	0.06	0.00	11.72	11.44
Mineral Processes	1.90	1.68	0.95	0.03	0.00	1.50	1.07
Metal Processes	0.12	0.08	0.06	0.07	0.03	0.98	0.82
Wood and Paper	0.02	0.02	0.01	0.00	0.00	13.86	9.70
Other	1.87	1.32	0.00	0.00	0.00	0.08	0.05
Industrial Processes	**36.23**	**26.01**	**1.07**	**0.22**	**0.03**	**28.79**	**23.66**
Miscellaneous Processes							
Pesticide Application	12.66	12.66	0.00	0.00	0.00	0.00	0.00
Farming Operations	138.34	11.07	0.00	0.00	0.00	29.87	14.23
Construction and Demolition	0.00	0.00	0.00	0.00	0.00	95.07	60.85
Entrained Road Dust - Paved	0.00	0.00	0.00	0.00	0.00	418.54	192.53
Entrained Road Dust - Unpaved	0.00	0.00	0.00	0.00	0.00	85.97	52.44
Unplanned Fires	0.96	0.67	10.02	0.24	0.00	1.02	1.00
Fugitive Windblown Dust	0.00	0.00	0.00	0.00	0.00	108.49	54.24
Waste Disposal	134.64	2.10	0.00	0.00	0.00	5.61	3.93
Natural Sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NOx/SOx RECLAIM	0.00	0.00	0.00	31.76	11.37	0.00	0.00
Other	15.22	7.13	3.07	0.46	0.36	5.79	4.06
Miscellaneous Processes	**301.82**	**33.63**	**13.09**	**32.46**	**11.73**	**750.36**	**383.28**

TABLE A-13
(Concluded)

Source Category	TOG	VOC	CO	NOx	SOx	TSP	PM10
On-Road Vehicles							
Light-Duty Passenger	105.18	96.38	999.08	100.18	2.13	9.08	4.25
Light- and Medium-Duty Trucks	44.28	40.03	527.21	81.30	1.61	4.59	2.14
Heavy-Duty Gas Trucks	6.11	5.56	79.24	22.28	0.42	0.92	0.67
Heavy-Duty Diesel Trucks	17.62	17.12	180.60	153.08	12.49	7.96	6.68
Motorcycles	5.09	4.68	22.55	1.70	0.01	0.11	0.09
Heavy-Duty Diesel - Urban Bus	0.81	0.79	0.76	6.83	0.25	0.06	0.03
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-Road Vehicles	**179.09**	**164.56**	**1809.44**	**365.37**	**16.91**	**22.72**	**13.86**
Other Mobile							
Off-Road Vehicles	49.48	47.51	256.04	6.39	0.04	1.94	1.92
Commericial Boats	0.51	0.49	2.00	10.22	1.71	0.19	0.18
Trains	1.35	1.31	4.10	25.70	1.28	0.49	0.47
Ships	3.24	3.13	4.09	41.84	32.05	4.10	3.91
Aircraft - Government	3.45	2.94	9.04	3.28	0.12	0.77	0.75
Aircraft - Other	16.57	14.37	93.12	19.99	1.32	0.05	0.05
Mobile Equipment	46.77	45.07	918.49	119.16	3.53	8.85	8.50
Utility Equipment	4.79	4.60	48.06	1.15	0.01	0.17	0.17
Other Mobile	**126.16**	**119.42**	**1334.94**	**227.73**	**40.06**	**16.56**	**15.95**
Stationary and Area Sources	**1005.82**	**486.07**	**196.35**	**103.69**	**13.37**	**807.94**	**432.83**
On-Road Vehicles	**179.09**	**164.56**	**1809.44**	**365.37**	**16.91**	**22.72**	**13.86**
Other Mobile	**126.16**	**119.42**	**1334.94**	**227.73**	**40.06**	**16.56**	**15.95**
Total - All Sources	**1311.07**	**770.05**	**3340.73**	**696.79**	**70.34**	**847.22**	**462.64**

L-10

South Coast
Air Quality Management District
21865 E. Copley Drive, Diamond Bar, CA 91765-4182
(909) 396-2000 · http://www.aqmd.gov

BY FAX: JANUARY 26, 2000

January 26, 2000

Mr. James G. Kenna, Field Manager
Palm Springs-South Coast Field Office
Bureau of Land Management
P.O. Box 1260
North Palm Springs, CA 92258

Supplement to the Draft Environmental Impact Statement (SDEIS) for the Proposed Soledad Canyon Sand and Gravel Mining Project; OEPC #DEIR 99-57

The South Coast Air Quality Management District (AQMD) appreciates the opportunity to comment on the above-mentioned document. The AQMD would also like to thank the lead agency for the additional time to submit comments. The following comments are meant as guidance for the Lead Agency and should be incorporated into the Final Environmental Impact Report.

Pursuant to Public Resources Code Section 21092.5, please provide the AQMD with written responses to all comments contained herein prior to the adoption of the Final Environmental Impact Statement. The AQMD would be happy to work with the Lead Agency to address these issues and any other questions that may arise. Please contact Gordon Mize, Transportation Specialist – CEQA Section, at (909) 396-3302, if you have any questions regarding these comments.

Sincerely,

Steve Smith

Steve Smith, Ph.D.
Program Supervisor, CEQA Section
Planning, Rule Development & Area Sources

Attachment

SS:GM

LAC991230-01
Control Number

Post-it® Fax Note 7671	Date 1/26/00	# of pages ▶ 7
To J. Kenna/E. Misquez	From Gordon Mize	
Co./Dept. Bureau of Land Mgt.	Co. SCAQMD	
Phone # 760-251-4810	Phone # 909-396-3302	
Fax # 760-251-4899	Fax # 909-396	

Supplement to the Draft Environmental Impact Statement (SDEIS) for the Proposed Soledad Canyon Sand and Gravel Mining Project: OEPC #DEIR 99-57

- On September 10, 1999, the South Coast Air Quality Management District (SCAQMD) commented on the Draft Environmental Impact Statement (DEIS) dated May 1999 for the Proposed Soledad Canyon Sand and Gravel Mining Project, SCH No. 91111066. Several comments from that letter were addressed in the SDEIS, e.g., numbers four, eight, nine, eleven and thirteen. The remaining comments from the AQMD's September 10, 1999 comment letter were not discussed and still apply. Therefore, the SCAQMD incorporates by reference the September 10, 1999 letter herein. A copy of that comment letter is attached. In the Final EIS, please provide the AQMD with written responses to all remaining comments in that letter and the additional comments that follow.

- In Section 2.1.4 page 2-4 Significance criteria, the SDEIS states, "While the intent of daily criteria set forth by the SCAQMD is ultimately aimed at ensuring attainment of both State and National AAQS, it does not consider the magnitude of individual projects with relation to the projections included in the SIP. Moreover, for purposes of NEPA, the daily limitations included in the SCAQMD (CEQA) Handbook do not apply and a federal proposed action is not considered significant if the estimated emissions from the proposed action have been anticipated in regional and state air quality planning, and are included and conform with the applicable Air Quality Management Plan (AQMP) and State Implementation Plan (SIP) and the project complies with local and state regulations."

  In general, the SCAQMD disagrees with the above statement. The daily thresholds established by the SCAQMD are recommended for use by other lead agencies, including federal lead agencies. Further, it is intended that the daily significance thresholds be applied to all projects, without regard to the magnitude of the individual projects. Because of the magnitude of the air problems in the Basin, especially for ozone and PM10, projects that exceed the SCAQMD daily significance thresholds could hinder progress toward attaining and maintaining all state and federal ambient air quality standards. Finally, the SCAQMD is continuing to evaluate the proposed project to determine whether or not it is included in the applicable SIP and AQMP.

- On page 2-11 of the SDEIS Table E2-2 the far right-hand column is mislabeled. The column should simply be labeled "Emissions."

South Coast
Air Quality Management District
21865 E. Copley Drive, Diamond Bar, CA 91765-4182
(909) 396-2000 · http://www.aqmd.gov

FAXED: SEPTEMBER 10, 1999

September 10, 1999

Ms. Julie Moore
Los Angeles County
Department of Regional Planning
320 West Temple Street
Los Angeles, CA 90012

Draft Environmental Impact Report (DEIR) for the Soledad Canyon Sand and Gravel Mining Project, SCH No. 91111066

Dear Ms. Moore:

The South Coast Air Quality Management District (AQMD) appreciates the opportunity to comment on the above-mentioned document. The following comments are meant as guidance for the Lead Agency and should be incorporated in the Final Environmental Impact Report.

Pursuant to Public Resources Code Section 21092.5, please provide the AQMD with written responses to all comments contained herein prior to the certification of the Final EIR. The AQMD would be happy to work with the Lead Agency to address these issues and any other questions that may arise. Please contact Dr. Charles Blankson, Transportation Specialist – CEQA Section, at (909) 396-3304 if you have any questions regarding these comments.

Sincerely

Steve Smith

Steve Smith, Ph.D.
Program Supervisor, CEQA Section
Planning, Rule Development & Area Sources

Attachment

SS:CB

LAC990421-10
Control Number

Draft Environmental Impact Report (DEIR) for the Soledad Canyon Sand and Gravel Mining Project

1. While construction emissions may be below the daily significance thresholds, according to the discussion on pages 3-161 and 3-162 of the DEIR, the information presented in Table 3.1.7-4 is unclear. Column 2 of the table shows emissions from four different sources, namely heavy equipment, materials-hauling trucks, employee commute, and other sources. Presenting this much information in one column makes it difficult to review the data adequately. It is recommended that to present the information in an easier to read format, Table 3.1.7-4 should be revised by disaggregating the emissions sources into separate columns. 3

2. Table 3.1.7-4 represents a summary of construction emissions from the proposed project. In some cases it is difficult to identify the individual sources in Appendix E2 that contribute to the total construction emissions. It is recommended that a table similar to the tables in Appendix E2 on pages E2-1 and E2-2 be prepared for construction emissions sources. Simply stated, the table would identify each emissions source, emissions factors for each source, relevant parameters such as hours of operation, number of units, and the total emissions for each source. Such a table would facilitate review of the project by the public. 4

3. EMFAC7G emission factors and composite mobile on-road emission factors are included throughout Appendix E2. Here again it is difficult to identify the individual emission factors used in calculating the emissions presented in Table 3.1.7-4. It would facilitate review of the emissions from on-road mobile sources if the lead agency would prepare a table that specifically identifies the following: the on-road mobile source; e.g., automobiles, light-duty trucks, medium-duty trucks, etc.; number of vehicle trips in each category, trip length and totals for each category; and composite emission factors. 5

4. On page 3-164 of the DEIR, there is a projection that the proposed project will generate up to 754 new ADTs on unpaved roads at the site. As a result, the proposed project may be subject to AQMD Rule 403 – Fugitive Dust, requirements for dust control, which could include, for example paving the unpaved roads or other dust control measures. The Final EIR should include an analysis or discussion of whether Rule 403 is applicable to the proposed project. If Rule 403 is applicable, the dust control measures to be implemented should be specifically identified. Finally, any dust control measures required by Rule 403 should be factored into the fugitive dust estimates for this project. 6

5. On page 3-182 of the DEIR it is stated that fugitive dust emissions due to scraper travel over unpaved surfaces will also be controlled using chemical dust suppressants with a control efficiency of over 80 percent. Please specify in the Final EIR how often the suppressants will be applied in order to maintain the projected 80 percent control efficiency. 7

6. It is stated on page 3-183 of the DEIR that the inactive areas will be controlled by dust suppressants with an efficiency in excess of 80 percent. In the Final EIR please specify the type of dust suppressant that is being considered for use as well as the frequency of use since both determine the level of efficiency. 8

7. On page 3-183, it is stated that fugitive emissions from equipment activity in the North Fines Storage Area will be controlled with water spray with a control efficiency in excess of 50 percent. The lead agency should specify in the Final EIR how often and when the water spray would be applied to maintain a control efficiency of 50 percent. 9

8. Regarding the location of sensitive receptors in the project vicinity, it is indicated on page 3-159 of the DEIR that the nearest residence is located approximately 3,000 feet from the processing facility. There are two residences within 1,000 feet east of the facility. There is also a trailer park about 6,000 feet from the processing facility and the community of Agua Dulce is about three miles to the north of the project site. There is no mention of the Stone Crest homes to the north-west of the facility. Given that the Santa Ana winds can move down this canyon at speeds in excess of 25 mph, it is recommended that when those conditions arise, the lead agency include a mitigation measure that requires plant operators to cease all fugitive dust generating activities. 10

9. Section 3.1.7.3 of the DEIR on mitigation measures should be revised to facilitate review by the public. As currently written, it is not clear in some cases what constitutes mitigation. For example, under the subsection "Conveyor Systems" on page 3-181 of the DEIR, it is stated, "The presented values, referring to Table 3.1.7-15, include the use of covered transfer points controlled by negative pressure vented to a bag house augmented by water or surfactant spray in the main plant area." It is unclear whether or not this is a mitigation measure or part of the project description. Further it should be stated how this measure will be enforced. Similarly, under the subsection "Rock and Sand Processing" which states "all permitted dust-producing equipment involved in rock crushing and conveyance must be vented to filters and kept moist using spray bars", it is not clear whether or not this is mitigation or part of the project description. Instead of having two major mitigation categories, AQ1 for construction and AQ2 for operational impacts, it is recommended that the lead agency number each specific mitigation measure so it is clear what constitutes each mitigation measure to distinguish them from non mitigation text. Numbering each of the actions to be undertaken would remove the ambiguities in the text. Please clarify in the Final EIR. 11

10. There is no mention of compliance with federal National Standards of Performance for New Sources (NSPS Subpart 000) Standards for Performance For Nonmetallic Mineral processing Plants. Since the facility is bound by this federal regulation, a mention of compliance or noncompliance is recommended. Further, it should be mentioned in the Final EIR whether or not compliance with this federal regulation is taken into consideration when evaluating air quality impacts. 12

11. All diesel-fired engines should be EPA/ARB certified per the requirements of 40 CFR Part 89. 13

12. When the lead agency develops a mitigation monitoring plan and it is indicated that the AQMD is responsible for monitoring any mitigation measures, the AQMD would like to review the mitigation monitoring plan prior to its approval. 14

*13. The AQMD reviewed the modeling results in the DEIR and offers the following comments. The lead agency used USEPA's ISCST3 model to estimate NO_2 and PM_{10} concentrations for the relevant time periods. The lead agency used adequate grid spacing to identify maximum impacts and appropriate meteorological data from the Newhall station. However, the "NOCALM" model option was not used. The AQMD's modeling results, using the "NOCALM" option, are provided in Tables 1 and 2 below.

Table 1
NO_2 and PM_{10} Impacts for Phase 1
Soledad Canyon Sand and Gravel Mining Project

Pollutant	Averaging Period	Concentration ($\mu g/m^3$)
NO_2	1-Hour	708.91
	Annual	12.654
PM10	4-Hour	175.57
	24-Hour	71.99
	Annual	11.76

Table 2
NO2 and PM10 Impacts for Phase 2
Soledad Canyon Sand and Gravel Mining Project 15

Pollutant	Averaging Period	Concentration ($\mu g/m^3$)
NO_2	1-Hour	1155.26
	Annual	20.67
PM10	4-Hour	267.34
	24-Hour	109.97
	Annual	18.59

The lead agency should re-evaluate whether or not the revised results will have significant adverse effects on the sensitive receptors identified in the DEIR. Furthermore, the high concentrations identified for PM_{10} would likely result in violations of AQMD Rule 403 – Fugitive Dust. This means that the fugitive dust control measures in the DEIR are insufficient to prevent a violation of Rule 403. As a result, additional or enhanced fugitive dust control measures should be identified in the Final EIR. Finally,

the AQMD would be willing to work with the lead agency and project proponent to develop additional fugitive dust mitigation measures and a fugitive dust emission control plan. Please contact Dr. Julia Lester of the AQMD at (909) 396-3162 to assist with the development of the fugitive dust control plan. 15

OPTIONAL FORM 99 (7-90)

FAX TRANSMITTAL # of pages ▶ 8

To Linda Brody	From Elena
Dept./Agency	Phone #
Fax # 949 261 8950	Fax #

NSN 7540-01-317-7368 5099-101 GENERAL SERVICES ADMINISTRATION

C17

HALL & ASSOCIATES
10951 WEST PICO BOULEVARD
THIRD FLOOR
LOS ANGELES, CALIFORNIA 90064-2126
TELEPHONE: (310) 441-8300
FACSIMILE: (310) 474-7083
E-MAIL: HALLFIRM@PRIMENET.COM

LEGAL STAFF
CARLYLE W. HALL, JR.
ANDREW R. HENDERSON
BETHANY A. DREYFUS

PUBLIC INTEREST FELLOW
BRIDGET ROONEY BEIMLER

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RESOURCE AREA

January 8, 2000

VIA FEDERAL EXPRESS AND E-MAIL

James G. Kenna, Field Manager
Palm Springs-South Coast Field Office
Bureau of Land Management
P.O. Box 1260
North Palm Springs, CA 92258
EMisquez@ca.blm.gov

Re: **Comments of SAFE Action For The Environment Inc. on the Draft EIS and Supplement to the Draft EIS Regarding the Proposed Soledad Canyon Sand and Gravel Mining Project**

Dear Mr. Kenna:

This letter is submitted on behalf of SAFE Action For the Environment, Inc. ("SAFE"), a non-profit, community-based organization, concerned about the potentially enormous adverse impacts on Soledad Canyon and on Los Angeles County generally if the proposed Soledad Canyon Sand and Gravel Mining Project (the "Project") is permitted to go forward. This letter addresses SAFE's comments on the Draft Environmental Impact Statement ("DEIS") and Supplement thereto.[1] Additionally, throughout the environmental review process, SAFE has provided both written and oral comments on both the DEIS and the Draft Environmental Impact Report ("DEIR"), all of which are incorporated by reference herein.[2]

Besides discussing the substantial shortcomings that are rampant throughout the environmental documents, this letter comments on problems that SAFE finds in the Project generally. As the Bureau of Land Management ("BLM") doubtless is aware, the Los

[1] Because the Draft EIS is virtually identical to the Draft EIR issued by the Los Angeles County Planning Department, these comments are comments on both environmental documents.

[2] All comments provided by governmental agencies and interested individuals and organizations seeking additional information and otherwise critiquing the DEIS are also incorporated by reference herein.

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IV. THE DEIS DOES NOT ADEQUATELY ANALYZE AND DISCLOSE THE PROJECT'S ENVIRONMENTAL EFFECTS.

An EIS must analyze and disclose a project's environmental effects, fully explaining to its readers its inquiry, analysis and results. *Silva v. Lynn,* 482 F.2d 1282 (1st Cir. 1973). It must provide "environmental full disclosure" to the public, preventing problems and criticisms from being "swept under the rug." *Sierra Club v. Untied States Army Corps of Engineers*, 701 F.2d 1011, 1029 (2d Cir. 1983). A fundamental purpose of an EIS is to disclose a project's environmental consequences. 40 C.F.R. §1502.16. This task cannot be accomplished by mere conclusory statements that a project's impacts will or will not be "significant"; rather, the EIS must describe the full extent of project impacts so that the public and the decisionmakers can evaluate a project's true environmental effects. *Silva v. Lynn,* 482 F.2d 1282 (1st Cir. 1973). An EIS must provide "full and fair discussion of significant environmental impacts" and should especially focus on impacts determined to be significant. 40 C.F.R. §§1502.1, 1502.2(b).

Here, when the DEIS concludes that the TMC Project will not result in significant environmental impacts, it does so without adequate analysis. When the DEIS determines significant impacts will ensue, it nevertheless artificially minimizes the impacts, thereby "sweeping under the rug" the Project's full environmental effects and understating the level of needed mitigation measures.

A. AIR QUALITY EFFECTS.

The DEIS identifies numerous adverse air quality effects of the TMC project as "significant," even after application of all proposed mitigation measures.[16] DEIS, 3-188. Its analysis of these impacts, however, uses basic miscalculations and misapplications of NEPA principles thereby understating these impacts. The DEIS does not evaluate the full amount of material likely to be mined and processed under the permit requested. It improperly understates the extent of the impacts likely to result from the mining and processing of the material that it does consider. It also fails to analyze the relevant health risks associated with Project's air quality impacts.

[16] Although the public waited months for the Supplemental DEIS (the "SDEIS") on air quality issues to be circulated, the SDEIS showed that even the addition of the conveyor-belt to transport fines from the processing area to the NFSA could not bring the Project's air quality impacts below a level of significance. *See* Supplemental DEIS.

1. Artificially Low Project Annual Production Levels.

The DEIS should have based its air quality impacts analyses on production of the full quantities of minerals allowed to be mined and processed daily under the proposed permit, rather than on the quantities that the applicant hypothesizes will be processed annually. Although the problem of evaluating quantities well below the permitted daily level exists throughout the Technical Appendix, it is especially problematic in the DEIS's discussion of PM_{10} particulate dispersion. DEIS Technical Appendix ("Tech. App."), E2. For instance, the DEIS consistently evaluates material throughput levels for Phase 1 rock and sand processing that are far below the quantities permitted daily. Although the permitted level of material allowed to be processed in the primary crushing is 10,800 tons daily during Phase 1, the emissions calculations in the DEIS reflect a throughput of only 7,963 tons daily. DEIS, Tech. App. E2-4. Similarly, for secondary crushing and sorting, the requested permit allows 900 tons per hour of material throughput, while the DEIS calculations only account for 569 tons. DEIS, Tech. App. E2-5. And once again, for a permitted amount of 9,000 tons of aggregate to be loaded into trucks, the DEIS bases its calculations on 7,963 tons daily during Phase 1. DEIS, Tech. App. E2-5. Finally, in calculating PM_{10} particulate emissions from the concrete plant's operations, the DEIS assumes a daily throughput of only 750 cubic yards, whereas the permit would allow them to process fully 4,500 cubic yards each day. DEIS, Tech. App. E2-5-6. Thus, the emissions data throughout the DEIS, particularly in relation to daily PM_{10} emissions, need to be recalculated to account for the fully permitted quantities, rather than the amounts presently utilized as the Project's hypothetical production amounts.

2. Inappropriate Modeling Assumptions.

The DEIS uses inaccurate modeling assumptions for Project air quality impacts. This is well illustrated in the PM_{10} particulate emissions analysis.[17] In discussing PM_{10} dispersion, for instance, the DEIS uses "*urban* dispersion coefficients," despite the fact that the land use classification in the site area is "*rural.*" *See* Piazza Letter, 1, 8. The DEIS also inappropriately applies calculations of PM_{10} dispersion utilizing the "calms processing option" which is not applicable to the site conditions. *Id.* This "calms processing option" has not been approved by the pertinent Air Quality Management District ("AQMD"). Piazza Letter, 2. Further, more according to the U.S.E.P.A., the "calms processing option" is inappropriate in settings where wind speeds are below one meter per second, as here. *Id.* In conditions like those within the South Coast Air Basin, the AQMD applies actual wind speed, or a 1-meter per second value when wind speed falls below that number. *Id.* By utilizing its inappropriate dispersion modeling factor, the DEIS underestimates the Project's

[17] For a more detailed analysis, please see Letter submitted on behalf of Safe Action for the Environment, Inc., by Bill Piazza, Air Quality Dynamics, dated September 10, 1999, attached hereto as Exhibit A, hereinafter referred to as "Piazza Letter."

PM_{10} emissions by fully 16.8% in Phase I and by another 16.3% in Phase II. *Id*; *see also* Attachment C to Piazza Letter.

Additionally, the DEIS erroneously states that there are "few sensitive receptors" in the Project area. DEIS, 3-163–64. Although the residence ¼-mile to the south of the Project and the Rivers End Trailer Park are both mentioned in this section, the DEIS fails to evaluate impacts on the Bee Canyon Mobile Home Park, located immediately north of the Project boundary. The DEIS also does not identify the City of Santa Clarita as an area containing "sensitive receptors," even though the City has residents as close as 3 miles from the Project site. Under proper modeling, significant PM_{10} levels would reach as far as 3.1 miles north of the Project during Phase I and 4.6 miles during Phase II. Piazza Letter, 3. The DEIS must identify all sensitive receptors utilizing the appropriate modeling assumptions. 10

3. Inconsistent Measures of Air Quality Effects.

According to the DEIS, the Project's air quality effects would be "significant" if:

1. SCAQMD daily emissions criteria are exceeded;
2. the Project interferes with attainment of air quality standards by violating or contributing to an existing or projected air quality violation;
3. the Project violates SCAQMD Rule 402, governing nuisance;
4. the Project violates SCAQMD Rule 403, governing control and monitoring of fugitive dust; or 11
5. vehicle trips related to the Project cause localized emissions of CO exceeding state or federal standards.

DEIS, 3-164.

The DEIS uses these "significance" thresholds inappropriately and arbitrarily. For instance, although the DEIS indicates that a "nuisance" consequence from the Project's emissions is an applicable significance threshold under AQMD Rule 402, the DEIS seems to have applied that threshold only to the Project's *construction* phase – the Project phase with the lowest nuisance characteristics. Discussion of the "nuisance" of the numerous malodorous diesel trucks that will travel Soledad Canyon Road and the Antelope Valley Freeway day in and day out, for example, acknowledges that the "whiffs" of diesel exhaust emitted by the construction trucks entering and exiting the site will be adverse effects. DEIS, 3-164. Yet the number of trucks accessing the site during the construction phase will be far less than the 754 daily trips during the Project's operating Phase 1 and the 1,284 during operating Phase 2. DEIS, 3-168–69, 172. The DEIS also provides limited discussion of the "soiling" nuisance potential caused by PM_{10} dust settling on surfaces throughout the area, again only appearing

Response to Comment 2: The analysis of the No Action Alternative, found in Section 3.2.1 of the DEIS, clearly states that the No Action Alternative was found to have fewer impacts than all other alternatives in all but 2 resource areas, flooding and water resources. The preservation of 187 acres of coastal sage scrub/semi desert chapparal and mixed chapparal habitat is specifically mentioned in the Biota section, on page 3-388 of the DEIS. However, the 45-acre existing mine site would not be reclaimed. The DEIS correctly stated that significant impacts would occur if the steep slopes of the quarry were allowed to remain, and if revegetation did not occur.

Response to Comment 3: NEPA requires an evaluation of the comparative effects of a range of reasonable alternatives to a project that would feasibly attain most of the projects objectives (the purpose and need for the project). The objectives of the proposed project are described in Section 2.3.1 of the DEIS and are further discussed in Topical Response PD-2. In developing the objectives and alternatives for the proposed project, the BLM considered not only what was explicitly required by NEPA, but also considered the previous relevant decisions by public agencies that affect the use of the site. An alternative that would consider recreational or agricultural uses for the property would not meet the project objectives.

Response to Comment 4: Nine alternative mining sites were examined when the alternatives were being developed. As described in Section 2.5.1, these alternative sites were not carried forth for detailed analysis because of potentially-significant environmental impacts. Topical Response ALT-1 provides additional information on the analysis of alternative locations in the EIS.

Response to Comment 5: Topical Response LU-3 discusses the relationship between SMARA and local land use planning policies.

Response to Comment 6: Information regarding the site's characterization under the Los Angeles County General Plan and inconsistencies with abutting land use designations are discussed in Topical Response LU-3.

Response to Comment 7: Information regarding the site's characterization under the Santa Clarita Valley Area Plan and inconsistencies with abutting land use designations are discussed in Topical Response LU-3.

Response to Comment 8: Additional information regarding the relationship between SMARA and local land use planning polices is contained in Topical Response LU-3.

Response to Comment 9: ***Air Quality comment.***

Response to Comment 10: ***Air Quality author to add response for use of urban dispersion coefficients.*** As discussed in Appendix B of the DSEIS, the modeling for the air quality analysis in the DSEIS was performed without calms processing. The results from this model are included in the Final EIS. Topical Response AQ-1 further discusses air quality and sensitive receptors.

Response to Comment 11: ***Air Quality Comment.***

Response to Comment 12: ***Air Quality Comment.***

in the DEIS's construction section.[18] DEIS, 3-166. The DEIS must analyze and determine the "nuisance" of Project air quality impacts due to dirty, smelly traffic and other factors, throughout *all* Project phases.

Regarding NO_2 emissions, the DEIS explains that during the Project's construction phase, those emissions "*may* exceed the SCAQMD significance threshold" for that pollutant. DEIS, 3-165 (emphasis added). The NO_2 threshold for daily emissions is stated to be 100 pounds per day, which the Project's predicted 86 pounds per day during the construction phase does not appear to exceed. DEIS, Table 3.1.7-4, 3-166. Yet, footnote 3 to Table 3.1.7-4 explains that SCAQMD also has a "significance" threshold defining an average quarterly value of only 55 pounds per day. The DEIS fails to state whether the NO_2 emissions will exceed that quarterly threshold. An analysis needs to be made regarding whether NO_2 emissions from the Project's construction phase will periodically or consistently exceed the SCAQMD *quarterly* daily limit. 11

4. Inadequate Evaluation of the Project's Inconsistency with the Air Quality Management Program.

Acknowledging that the Project will produce "significant" adverse air emission impacts, the DEIS explains that it must evaluate whether the Project's emissions would conform with the current State Implementation Plan ("SIP") and be consistent with the Air Quality Management Plan (AQMP). DEIS, 3-190. Strangely, the DEIS determines that the Project *would* be consistent with both the SIP and the AQMP. *Id.* This conclusion is, in fact, disproved by the DEIS's own evidence. 12

The DEIS's data shows that the Project does *not* meet the AQMP's first consistency requirement. Specifically, the DEIS claims that "[w]hile ISCST3 dispersion modeling indicates that PM-10 dust will exceed the CAAQS [Ambient Air Quality Standards] and Federal AAQS immediately offsite, the standards will not be violated at proximate receptor locations, nor will the projected levels be measurable at the nearest air quality monitoring

[18] The "soiling" nuisance discussion is another example of the DEIS's inaccurate identification of sensitive receptors. The DEIS concludes that the "soiling nuisance" impact during construction is "potentially adverse but not significant," because the nearest sensitive receptors are 3,000 feet from processing facilities. DEIS, 3-167. But the Rivers End Trailer Park is only 1,000 feet from the Project boundary and only 50 feet from the Project's most traveled roadway; presumably PM_{10} from truck emissions will reach the nearby Trailer Park. Also, without information about the distance the proposed Bee Canyon Trailer Park sits from the processing facilities, it is not clear to the reviewer at all that the "soiling" nuisance is not significant. The DEIS should reexamine the "soiling nuisance" factor taking into consideration all the sensitive receptors including those that will be impacted by PM_{10} dust on their property from Project road use.

stations." DEIS, 3-190. But, the DEIS expressly indicates that the Project will violate air quality standards at the nearest residential area. DEIS, 3-189. The DEIS also explains that the City of Santa Clarita air quality monitoring station may produce an inaccurate (artificially low) measure of air quality impacts from the Project due to the altitude difference between the monitor and the Project site. DEIS, 3-167. Thus, the DEIS's claim that the monitoring sites will not register a violation does not seem to be an accurate indicator of impact.

According to the DEIS, a "significant" air quality effect includes "a significant change in the offsite ambient air concentration." DEIS, 3-190. Because the Project site lies in an area that presently exceeds the applicable California CAAQS for PM_{10}, any "significant change" in PM_{10} particulate concentration would necessarily increase the frequency and severity of existing air quality violations as well as presumably delay timely achievement of standards or interim reductions. DEIS, 3-189. A significant change for PM_{10} particulates for a 24-hour average is 2.5 micrograms per cubic meter.[19] DEIS, 3-188. Since the DEIS explains that Phase 1 and Phase 2 operations will cause downwind concentrations at the maximum exposed residential receptor of 11.51 and 17.74 micrograms per cubic meter (fully 4.6 and 7.1 times the "significant change" standard), the Project will cause a "significant change" in ambient air quality, thereby increasing the frequency and severity of existing air quality violations and delaying timely attainment of any standards or interim reductions. DEIS, Tech. App. E3-15. The DEIS needs to be corrected to set forth an accurate assessment of the Project's air quality impacts and its consistency under the SIP and the AQMP. 12

5. Inadequate Evaluation of Human Health Risks Resulting From the Project's Air Quality Emissions.

The DEIS explains that the California and Federal AAQS are "concerned with the *health effects* of [air] emissions" and are specifically intended to protect "sensitive receptors," which includes the elderly, the very young, asthmatics, the otherwise infirm and those engaging in strenuous work or exercise. DEIS, 3-156–57 (emphasis added), 189–90. Nevertheless, it provides no explanation of the relationship between the Project's air emissions and ensuing health effects. 13

As another DEIS commentor explains, the California Air Resources Board links PM_{10} to "airway conditions, such as asthma and bronchitis" with the PM_{10} "24-hour standard being the "most important [measurement] in addressing acute health effects." Piazza Letter, 4. According to the commentor's calculation based upon the DEIS's data, the lifetime cancer risk for the maximum exposed residential receptor would be fully 3.0 in one hundred thousand during Phase 1 and 5.7 in one hundred thousand in Phase 2. These projected results would exceed by factors of 3 and 5 the Proposition 65 (the Safe Drinking Water and Toxic

[19] For a graphic representation of the contour for PM_{10} dispersion of 2.5 microgram per cubic meter from the Project site, *see* Attachment A to Piazza Letter.

Enforcement Act ("Prop. 65")) cancer risk threshold of 1.0 in one hundred thousand. Piazza Letter, 6-7. In fact, Project emissions will likely exceed the Prop. 65 cancer risk threshold 3.2 miles beyond the Project site during Phase 1 and 5.9 miles during Phase 2. Piazza Letter, 7. The Town of Agua Dulce is only three miles north of the Project site, while some Santa Clarita residents live merely three miles away. DEIS, 3-164. The DEIS must analyze and draw connections between the Project's air quality impacts and the potential health risks borne by nearby residents. 13

B. NOISE IMPACTS.

The DEIS concludes that, after implementation of its recommended mitigation measures, the TMC Project will have no "significant" noise effects. The DEIS's discussion of the Project's noise impacts does not, however, accurately analyze of these impacts nor does it evaluate and propose adequate mitigation measures.

1. Inaccurate Identification of Sensitive Receptors Around Project Site.

a. City of Santa Clarita.

The DEIS states that "[p]otential distant receptors include the town of Agua Dulce." DEIS, 3-123. Agua Dulce's town center, as it is defined in the DEIS, is four miles from the Project site. *Id.* Yet, the DEIS noise section makes no mention of, nor analysis of, noise impacts on residences in the City of Santa Clarita, located even closer to the Project site than Agua Dulce residents – as near as 4,000 feet from the intersection of Soledad Canyon Road and the Antelope Valley Freeway with direct view of the Project site. DEIS, 3-242. The DEIS must evaluate the Project's noise impacts on those nearby residents of Santa Clarita. 14

b. Mobile home parks in Project site vicinity.

The DEIS discusses the Project's operational noise impacts and the transportation noise likely to be inflicted on nearby mobile home parks, but its assumptions regarding those residences' noise sensitivity are inaccurate. The walls of mobile homes are constructed of a far thinner material than conventional housing, providing less of a noise barrier than conventional housing. *See* Letter from George E. Leighton, Noise Control Consultant, dated Sept. 13, 1999, 1 (attached hereto as Exhibit B, hereinafter referred to as "Leighton Letter"). The DEIS should recalculate the Project's noise impacts on these homes using appropriate assumptions. 15

2. Inadequate Analysis of Projected Noise Levels.

a. Natural noise barriers.

Without providing the required explanation of its reasoning, the DEIS makes assumptions about the efficacy of various natural noise barriers, i.e., hills and cut slopes, that 16

The Project's impacts on viewers from Bee Canyon is also inappropriate. DEIS, 3-270. The DEIS states that there would be a "significant" visual impact on Bee Canyon residents, but it reiterates its opinion that "present zoning does not include residential development" in Bee Canyon, thus erroneously implying that this impact is irrelevant and not worthy of mitigation. *Id. See* discussion above, at pages 10-11. 37 38

CONCLUSION

For the foregoing reasons, as well as those presented in the findings of Los Angeles County's Regional Planning Commission on the DEIR, SAFE Action For the Environment urges BLM to deny the TMC Project in its entirety. In the alternative, the Project DEIS should be substantially revised and recirculated to ensure that the issues and concerns discussed above are fully addressed.

Very truly yours,

Carlyle W. Hall, Jr.
Attorney for SAFE Action for the Environment, Inc.

CWH:pmk
cc: Los Angeles County Department of Regional Planning
Attachments

EXHIBIT A

Letter submitted on behalf of
Safe Action for the Environment, Inc.,
by Bill Piazza, Air Quality Dynamics
(Sept. 10, 1999)

AIR QUALITY DYNAMICS

SPECIALIZING IN AIR QUALITY ANALYSIS

September 10, 1999

Safe Action for the Environment
33333 Pewter Road
Agua Dulce, California 91350
Attn: Michael Karbacher

Re: Draft Environmental Impact Report for the Soledad Canyon Sand and Gravel Mining Project: Assessment of Air Quality Impacts

Dear Michael:

In response to your request to assess the adequacy of the air quality element for the above referenced project, the following is provided.

Upon review of the project's technical documentation, numerous deficiencies were noted in the approach and assessment methodology utilized by the applicant. Of relevance is the applicant's underestimation of ambient particulate (PM_{10}) concentrations, their claim that PM_{10} concentrations will not adversely affect local receptors and air toxic emissions are not associated with project operations. These assertions are incorrect and have no merit.

The following is a rebuttal to the applicant's assessment and discussion of the environmental documents technical inadequacy.

USE OF INAPPROPRIATE DISPERSION MODEL PARAMETER

The DEIR documents that operational impacts associated with particulate exposures "cannot be mitigated to a level that is less than significant." As a result, the applicant performed air dispersion modeling "to determine the potential for significant impacts on residential projects" and "on existing proximate receptors (i.e., the dwelling located across Soledad Canyon Road to the south of the site and that the River's End Trailer Park located west of the southwest corner of the site)." Although Air Quality Dynamics agrees with the use of air dispersion models to assess the downwind extent of contaminant emissions and predict relevant airborne concentrations, the applicant invoked the use of the dispersion model's calms processing option. This option is not approved by the South Coast Air Quality Management District (SCAQMD) when utilizing their preprocessed meteorological data. B-1

The U.S. Environmental Protection Agency recommends ignoring the meteorological hours when wind speeds are less than 1 meter per second (m/sec). When applied, however, the

highest potential downwind concentrations are ignored. This guidance is significant within the South Coast Air Basin where the average hourly wind speed is less than 1 m/sec for a significant fraction of the year. To account for this condition, SCAQMD applies the actual wind direction during the hour when the wind speed is less than 1 m/sec, then assumes a 1 m/sec value. This is done without regard to whether the wind speed instrument is recording wind speeds below the instrument's threshold for accuracy. As such, the calms processing routine must be turned off when utilizing SCAQMD's preprocessed meteorological data.

B-1

Use of the SCAQMD data while invoking the clams processing routine, as was done by the applicant, underestimated residential PM_{10} exposures by a much as 16.8 and 16.3 percent for operational phases 1 and 2, respectively. Revised dispersion output files reflecting the applicant's original model design and corrected calms processing option are presented in Attachment C.

INACCURATE ASSESSMENT OF AIR QUALITY MANAGEMENT PLAN CONSISTENCY

In the applicant's consistency determination, two indicators are outlined. Of relevance is the determination of significance that the project "will not result in an increase in the frequency or severity of existing air quality violation or delay timely attainment of air quality violations or the interim emissions reductions specified in the AQMP."

The DEIR correctly notes that "a significant impact is associated with a project if the project causes a significant change in the offsite ambient air concentration." The level of significant change for PM_{10} particulates for a 24-hour average is 2.5 micrograms per cubic meter ($\mu g/m^3$). The DEIR also notes that ambient air quality in the project vicinity is in exceedance of the California Ambient Air Quality Standard (CAAQS) for PM_{10}. As a result, an incremental increase of 2.5 $\mu g/m^3$ over background levels will add to the continued degradation of local air quality and increase the frequency and severity of an existing or projected air quality violation.

B-2

The DEIR appropriately documents that the project will "add to an existing (air quality) violation" for all phases of the project, yet, minimizes this determination by asserting that the project is consistent with the local Air Quality Management Plan (AQMP) "as the standards will not be violated at proximate receptor locations." Air Quality Dynamics is unclear as to the applicant's meaning of "standards." The applicant's dispersion analysis readily indicates that 24-hour concentrations at two residential receptor locations will exceed the 2.5 $\mu g/m^3$

significance threshold. For Phase 1 and Phase 2 operations, the maximum downwind concentrations at the maximum exposed residential receptor were predicted to be 13.44 $\mu g/m^3$ and 20.63 $\mu g/m^3$, respectively. As can be seen, the applicant's "first indicator of consistency" is incorrect as PM_{10} concentrations clearly violate SCAQMD's 24-hour threshold concentration of 2.5 $\mu g/m^3$. Project related emissions are, therefore, predicted to degrade local air quality and increase the frequency and severity of an existing air quality violation. B-2

Attachment A provides a graphical representation of the facility and associated downwind extent of PM_{10} concentrations which meet or exceed the SCAQMD's 24-hour threshold concentration. As noted in the contour diagrams, threshold concentrations are anticipated to extend a maximum of 4947 meters (3.1 miles) during phase 1 and 7421 meters (4.6 miles) for phase 2 operations northwest of the facility fenceline.

POTENTIAL HEALTH RISKS ASSOCIATED WITH PARTICULATE (PM10) EXPOSURE NOT DISCLOSED

Although the DEIR addresses significance and various "standards" by which to evaluate the proposed project, limited information is presented to identify the potential effects of PM_{10} emissions on an exposed population. In correspondence from Michael P. Kenny, Executive Officer, California Air Resources Board to Mary Nichols, U.S. Environmental Protection Agency, it is reported that:

> There is new information on respirable particulate matter from health and ambient monitoring studies. Important studies have been performed since the current federal PM_{10} standards were last established in 1987. These studies consistently find that exposures to ambient levels of PM_{10}, which includes $PM_{2.5}$, adversely impact health. These adverse effects include increased respiratory illness, hospitalizations, and mortality rates.
>
> The health effects data do not point to a clear, no-effects or threshold level for PM (either 2.5 or 10) for these effects. Traditionally and under the federal Clean Air Act, such a no-effects level provides the basis to begin air standards considerations. Once a no-effects or safe level is identified, a margin of safety is added to assure adequate health protection that accounts for uncertainty. The absence of a no-effects level may be because no safe level exists (i.e., there is no threshold below which no effects occur), because methods to develop a safe, no-effects threshold are lacking, or because the studies have not been done that could identify a "safe" level.

B-3

The California Air Resources Board (ARB) additionally reports that PM_{10} is "known to be linked with airway conditions, such as asthma and bronchitis" and contends that the PM_{10} "24-hour standard is the most important (standard) in addressing acute health effects." The ARB continues by stating that:

> When the California Air Resources Board established its PM_{10} standard, it found 50 $\mu g/m^3$ to be a health-protective value. A review of recent findings strongly supports the merit of this determination, but suggests that a 50 $\mu g/m^3$ level provides little, if any, margin of safety.

B-3

As noted above, based on concerns raised by the ARB that there are no established safe levels of exposure and little margin of safety in our current 24-hour standard, the incremental emissions associated with the proposed project clearly present a potential to impact the health of individuals who reside within the local community.

AIR TOXIC IMPACTS WERE INAPPROPRIATELY ASSUMED TO BE INSIGNIFICANT

The DEIR reports that "no toxic air contaminants are associated with the Project", as such, "toxic air emissions will not be addressed." This approach clearly fails to recognize that the ARB has identified particulate emissions from diesel-fired engines as a toxic air contaminant (TAC). The ARB listed diesel particulate as a TAC on August 27, 1998. The ARB's decision to list the contaminant as a TAC followed an exhaustive scientific investigation by ARB staff, the Office of Environmental Health Hazard Assessment and an independent Scientific Review Panel.

In the absence of the applicant's assessment of diesel particulate exposures associated with the facility's operational emissions, Air Quality Dynamics considered it prudent to perform the appropriate health risk assessment.

B-4

To ensure the assessment accurately quantified carcinogenic risk, the analysis utilized all relevant and appropriate procedures presented by the U.S. Environmental Protection Agency and California Environmental Protection Agency. As such, the risk assessment methodologies and related technical approach utilized to quantify the dispersion and downwind extent of diesel particulate emissions is presented in the following discussion.

The analytical methodologies considered in the analysis were designed to determine the likelihood of an adverse health consequence arising from exposure to on-site diesel particulate emissions through the inhalation pathway. As such, the assessment considered all related

aspects of the federal and state risk assessment process. The unique aspects of the assessment process are hazard identification; dose-response assessment; exposure assessment; and risk characterization.

Hazard identification involves a determination of the specific health effects associated with exposure to a chemical compound. The dose-response assessment is designed to characterize the relationship between the amount or dose of a chemical agent and its toxicological effect on the human body. Exposure assessment involves the estimation of a chemical's concentration and the duration of exposure over a given period of time. Risk characterization is the integration and concluding step in the assessment process where information relative to a chemical's toxicity, concentration and length of exposure are combined to provide a quantitative probability of adverse health effects.

Although the process of hazard identification and the dose-response assessment are not explicitly addressed, the determination of a compound's toxicity and the dose required to elicit an adverse health effect are based on human health effects data developed by the Office of Environmental Health Hazard Assessment. As such, the latter steps of the assessment process will be addressed to determine the concentration and duration of the facility's emissions and integrate the resulting values with published toxicity data to produce a numerical estimate of risk. B-4

Exposure Assessment

Knowledge of the chemical's airborne concentration is integral to the characterization of risk and an essential part of the assessment process. To obtain these values, Air Quality Dynamics applied the applicant's assessment methodology used to quantify chronic exposures to nitrogen dioxide (NO_2) from heavy equipment operations. As such, both phase 1 and 2 "residual" particulate emission values (i.e., 18.4 and 35.0 pounds per day) were utilized. The emission rates were then equally divided among four discrete source configurations. This was done to replicate the applicant's assessment protocol presented in the DEIR.

Once the emission rates were identified, predictive modeling or a mathematical simulation to calculate the dispersion of diesel particulates was prepared. Air dispersion modeling is typically used to quantify the downwind extent of both criteria and toxic pollutants generated from an emitting source. To exemplify the viability of this predictive approach, the United States Environmental Protection Agency, Office of Air Quality Planning and Standards (OAQPS) reports that *"modeling is the preferred method"* and *"primary analytical tool"* for assessing emissions generated from new and existing sources.

To assess the impact of these emissions, the Industrial Source Complex Short-Term (ISCST3) model was employed. ISCST3 is an OAQPS preferred model for assessing pollutant concentrations from a wide variety of emission sources (i.e., point, area and line). This model was also utilized by the applicant to assess both mobile and fugitive emissions generated from the project's on-site operations.

Please note that with the exception of an emission rate adjustment from NO_2 to exhaust particulates and modification of the calms processing option to comply with SCAQMD guidance, the exposure assessment was prepared in a manner consistent with the approach utilized by the applicant to assess emissions generated from its on-site heavy equipment operations (i.e., release height, initial sigma values and source coordinates).

Risk Characterization

Carcinogenic compounds are not considered to have threshold levels (i.e., dose levels below which there are no risks). Any exposure, therefore, will have some associated risk. As a result, the State of California has established a threshold of one in one hundred thousand (i.e., 1.0E-5) as a level posing no significant risk for exposures to carcinogens regulated under the Safe Drinking Water and Toxic Enforcement Act (Proposition 65).

Traditionally, health risks associated with exposure to carcinogenic compounds can be defined in terms of the probability of developing cancer as a result of exposure to a chemical at a given concentration. The cancer risk probability is determined by multiplying the pollutant's concentration by its unit risk factor (URF). The URF is a measure of the carcinogenic potential of a chemical when a dose is received through the inhalation pathway. It represents an upper-bound estimate of the probability of contracting cancer as a result of continuous exposure to an ambient concentration of one microgram per cubic meter (μg/m3) over a 70 year lifetime.

22 CCR 12721(c) provides for the risk determination to be based on the assumption of a defined rate of exposure over a 70 year lifetime. This is accomplished by multiplying the level in question by the estimated exposure rate. To assess exposure, the compound's URF must first be converted to an appropriate inhalation cancer potency factor expressed in mg/kg-day. The conversion is derived by the following:

$$\chi \text{ mg/kg-day} \times (1/70) \times (20\ m^3) \times (1.0 \text{ mg} / 1000\ \mu g) = 3.0E\text{-}04$$
$$\chi = 1.05 \text{ mg/kg-day}$$

The cancer potency factor is then multiplied by the contaminant intake (i.e., inhalation dose) expressed in mg/kg-day. To convert airborne concentration estimates to the appropriate inhalation dose value, the following formula was utilized.

$$I = (C \times CR \times EF \times ED) / (BW \times AT)$$

Where:

I	=	intake of chemical via exposure route (mg/kg-day)
C	=	exposure point concentration (mg/m^3)
CR	=	contact rate (m^3/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
BW	=	average body weight over the exposure period (kg)
AT	=	averaging time over which exposure is averaged (days)

For the general population (i.e., residential receptor), an exposure duration of 365 days per year for 70 years, average human body weight of 70 kilograms and nominal breathing rate of 20 cubic meters per day was assumed.

Results of the analysis reveal lifetime cancer risks to be 3.0E-05 (i.e., 3.0 in one hundred thousand and 5.7E-05 (i.e., 5.7 in one hundred thousand) for the maximum exposed residential receptor (MEI). Carcinogenic risks which meet or exceed the one in one hundred thousand value were also predicted to extend beyond the facility fenceline by more than 5138 meters (3.2 miles) during phase 1 and 9500 meters (5.9 miles) for phase 2 operations.

Therefore, in consideration of the levels predicted in the assessment and carcinogenic potential associated with diesel particulate exposures, operational emissions from the facility are predicted to subject individuals to levels in exceedance of the no significant risk level of one in one hundred thousand established under Proposition 65.

Attachment B presents the risk calculation worksheet associated with the above referenced MEI receptor for both project phases. Attachment A provides a graphical representation of the facility and associated downwind extent of carcinogenic risks predicted in the model exercise. Attachment C presents the ISCST3 dispersion model output files.

I trust the preceding discussion and analysis exemplifies the applicant's limited assessment of the project's potential to impact local air quality. Simply, the analysis is deficient and inaccurate in that it fails to identify the project's operational impacts as well as address the generation of toxic compounds associated on-site mobile source activity.

Be advised it was not the intent of Air Quality Dynamics to produce a worst-case assessment, but rather, to examine project impacts based upon the operational characteristics presented by the applicant.

However, there is one consideration not addressed by Air Quality Dynamics relating to the project's surrounding land use designations. The U.S. Environmental Protection Agency and ARB recommend that different dispersion coefficients be used when performing a dispersion analysis for urban and rural land use classifications. A review of DEIR documentation and available zoning records identify land use in the project vicinity as "rural residential" where low to medium density single family dwellings predominate (i.e., 0.5 to 3.3 dwelling units per acre). Under existing regulatory guidance, a dispersion analysis would appropriately incorporate rural dispersion coefficients. This is most relevant as assessments conducted with rural coefficients consistently predict higher ground level concentrations than those which assume an urban design. B-5

Notwithstanding, Air Quality Dynamics consulted with Mr. Tom Chico of the SCAQMD to validate the use of the rural land use classification. Mr. Chico reported that although the land use may be classified as rural, the SCAQMD currently recognizes use of the urban dispersion coefficients for projects located within the South Coast Air Basin. This "default" approach is designed to minimize the agency's regulatory/consultative review of local projects. Although Air Quality Dynamics recognizes SCAQMD's current methodology, it respectively disagrees with limiting a dispersion analysis for the sake of brevity. Air Quality Dynamics will continue to consult with members of the SCAQMD to validate the adequacy of their current protocol and/or revise their approach to compliment existing regulatory guidance.

Please advise as to the disposition of this memorandum and subsequent response by the applicant. I can be reached at (310) 576-5837 should you have any questions or need additional information.

Sincerely,

Bill Piazza

:bp

Attachment A: Graphical Representations / Contaminant Dispersion
Attachment B: Diesel Particulate Exposure / Risk Calculation Worksheet
Attachment C: ISCST3 Dispersion Model Output Files
Attachment D: List of References

Table 2.2.4-8 (Revised): Per Ton Comparison of TMC & SCAQMD District-wide PM-10 Emission Inventories for Base Year 2010 in 1994 AQMP: "Proposed Project - w/ NFSA Conveyor"

SCAQMD Category*	TMC Process(es)	Emissions				
		PM10 (lb/day)		PM10 (tons/day)		
		TMC Phase 1	TMC Phase 2	TMC Phase 1	TMC Phase 2	SCAQMD Avg.
Mineral Processes Subcategories Applicable to Project: Sand and Gravel Excavation and Processing, Aggregate Crushing/Grinding, and Cement Concrete Production.	Conveyor Losses	4.8	8.1	0.0024	0.0041	**1.48**
	Rock Plant Processing	21.9	40.4	0.0110	0.0202	
	Aggregate and Fines Processing	11.0	20.0	0.0055	0.0100	
	Concrete Plant Processing	6.2	6.2	0.0031	0.0031	
	Blasting	17.7	35.3	0.0088	0.0177	
	TOTAL	*61.6*	*110.0*	*0.0308*	*0.0550*	
Entrained Road Dust - Paved	Onsite Truck Movement Over Paved Surfaces	40.8	70.3	0.0204	0.0352	**555.51**
Entrained Road Dust - Unpaved	Onsite Truck Movement Over Unpaved Surfaces	6.7	12.5	0.0034	0.00625	**174.57**
	Scraper Loading, Hauling and Unloading	0.0	0.0	0.0000	0.0000	
	TOTAL	*6.7*	*12.5*	*0.0034*	*0.0063*	
Heavy-Duty Diesel Trucks	Haul Trucks	26.3	19.5	0.0132	0.00975	**27.68**
Mobile Equipment	Heavy Equipment Operation - Combustion	12.5	20.9	0.0063	0.0105	**15.96**
Construction & Demolition	Heavy Equipment Operation (non-combustion)	84.6	153.9	0.0423	0.0770	**132.41**
Light Duty Passenger	Worker Vehicles	0.0	0.1	0.0000	0.0001	**29.94**
Fugitive Windblown Dust	Wind Erosion of Excavation	10.8	10.8	0.0054	0.0054	**17.71**
	Wind Erosion of NFSA	3.2	3.2	0.0016	0.0016	
	NFSA Activity	4.7	7.5	0.0024	0.0038	
	Wind Erosion of Stockpiles	2.9	2.9	0.0015	0.0015	
	TOTAL	*21.6*	*24.4*	*0.0108*	*0.0122*	

* SCAQMD Source Category taken from *Appendix III-A Current and Future Annual Day Emissions in the South Coast Air Basin*, Table 2-13 (2010 baseline year, pp. T-23 - T-24), 1994 AQMP.

Note: The following emission sources from the proposed Soledad Canyon project were not included in this analysis:

Fuel Storage and Transfer
Offsite Electrical Generation

Table 2.2.4-9 (Revised): Percentage Comparison of TMC & SCAQMD District-wide PM-10 Emission Inventories for Base Year 2010 in 1994 AQMP: "Proposed Project - w/ NFSA Conveyor"

SCAQMD Category*	TMC Process(es)		Emissions (% SCAQMD Average)		
			PM10		
			TMC Phase 1	TMC Phase 2	SCAQMD Avg.
Mineral Processes Subcategories Applicable to Project: Sand and Gravel Excavation and Processing, Aggregate Crushing/Grinding, and Cement Concrete Production.	Conveyor Losses		0.16%	0.27%	100%
	Rock Plant Processing		0.74%	1.36%	
	Aggregate and Fines Processing		0.37%	0.68%	
	Concrete Plant Processing		0.21%	0.21%	
	Blasting		0.60%	1.19%	
	TOTAL		*2.08%*	*3.72%*	
Entrained Road Dust - Paved	Onsite Truck Movement Over Paved Surfaces		0.004%	0.006%	100%
Entrained Road Dust - Unpaved	Onsite Truck Movement Over Unpaved Surfaces		0.002%	0.004%	100%
	Scraper Loading, Hauling, and Unloading		0.000%	0.000%	
	TOTAL		*0.002%*	*0.004%*	
Heavy-Duty Diesel Trucks	Haul Trucks		0.05%	0.04%	100%
Mobile Equipment	Heavy Equipment Operation - Combustion		0.04%	0.07%	100%
Construction & Demolition	Heavy Equipment Operation (non-combustion)		0.03%	0.06%	100%
Light Duty Passenger	Worker Vehicles		0.000%	0.000%	100%
Fugitive Windblown Dust	Wind Erosion of Excavation		0.030%	0.030%	100%
	Wind Erosion of NFSA		0.009%	0.009%	
	NFSA Activity		0.013%	0.021%	
	Wind Erosion of Stockpiles		0.008%	0.008%	
	TOTAL		0.061%	0.069%	

* SCAQMD Source Category taken from *Appendix III-A Current and Future Annual Day Emissions in the South Coast Air Basin*, Table 2-13 (2010 baseline year, pp. T-23 - T-24), 1994 AQMP.

Note: The following emission sources from the proposed Soledad Canyon project were not included in this analysis:

Fuel Storage and Transfer
Offsite Electrical Generation

Revised Table 2.2.4-4
Phase 1 PM-10 Emissions for Various Scenarios

Source	Proposed Project - Scraper			Proposed Project - w/NFSA Conveyor					Reduced NFSA Alternative - w/NFSA Conveyor				
	Daily Emissions (lb/day)			Daily Emissions (lb/day)			Schedule	Annual Emissions	Daily Emissions (lb/day)			Schedule	Annual Emissions
	Generated	Control	Residual	Generated	Control	Residual	(day/yr)	(tpy)	Generated	Control	Residual	(day/yr)	(tpy)
Heavy Equip ops	84.6	0%	84.6	84.6	0%	84.6	270	11.42	84.6	0%	84.6	270	11.42
Rock Plant Processing	21.9	n/a	21.9	21.9	n/a	21.9	270	2.96	21.9	n/a	21.9	270	2.96
Conveyor	2.0	n/a	2.0	2.0	n/a	2.0	270	0.27	2.0	n/a	2.0	270	0.27
Aggregate Fines and Loading	11.0	n/a	11.0	11.0	n/a	11.0	270	1.49	11.0	n/a	11.0	270	1.49
Concrete Plant	6.2	n/a	6.2	6.2	n/a	6.2	270	0.84	6.2	n/a	6.2	270	0.84
Trucks on paved roads	407.9	90%	40.8	407.9	90%	40.8	270	5.51	407.9	90%	40.8	270	5.51
Trucks on unpaved roads	17.5	80%	3.5	33.7	80%	6.7	270	0.91	33.7	80%	6.7	270	0.91
Scrapers	692.2	78%	152.3				270	0.00				270	0.00
Replacement Conveyor System				2.8	0%	2.8	270	0.38	2.8	0%	2.8	270	0.38
NFSA Activity	9.4	50%	4.7	9.4	50%	4.7	270	0.63	9.4	50%	4.7	270	0.63
Wind Erosion - Excavation	43.2	75%	10.8	43.2	75%	10.8	365	1.97	43.2	75%	10.8	365	1.97
Wind Erosion - NFSA	12.8	75%	3.2	12.8	75%	3.2	365	0.58	12.8	75%	3.2	365	0.58
Wind Erosion - Stockpiles	11.6	75%	2.9	11.6	75%	2.9	365	0.53	11.6	75%	2.9	365	0.53
Blasting	1.7	0%	1.7	1.7	0%	1.7	104	0.09	1.7	0%	1.7	104	0.09
Heavy Equip - Comb	30.8	82%	5.7	30.8	82%	5.7	270	0.77	30.8	82%	5.7	270	0.77
Haul Trucks - Comb	43.9	40%	26.3	43.9	40%	26.3	270	3.56	43.9	40%	26.3	270	3.56
Elec Gen - Comb	1.2	0%	1.2	1.2	0%	1.2	270	0.16	1.2	0%	1.2	270	0.16
Emp. Commute - Comb	0.0	0%	0.0	0.0	0%	0.0	270	0.00	0.0	0%	0.0	270	0.00
Totals	1397.9		378.8	724.7		232.6			724.7		232.6		
Days Per Year			270										
Tons Per Year			51.1					32.1					32.1

n/a = not applicable (emission calculated using controlled factors)

Revised Table 2.2.4-5
Phase 2 PM-10 Emissions for Various Scenarios

Source	Proposed Project - Scrapers			Proposed Project - w/NFSA Conveyor					Reduced NFSA Alternative - w/NFSA Conveyor				
	Daily Emissions (lb/day)			Daily Emissions (lb/day)			Schedule	Annual Emissions	Daily Emissions (lb/day)			Schedule	Annual Emissions
	Generated	Control	Residual	Generated	Control	Residual	(day/yr)	(tpy)	Generated	Control	Residual	(day/yr)	(tpy)
Heavy Equip ops	153.9	0%	153.9	153.9	0%	153.9	290	22.32	141.7	0%	141.7	290	20.55
Rock Plant Processing	40.4	n/a	40.4	40.4	n/a	40.4	290	5.86	40.4	n/a	40.4	290	5.86
Conveyor	3.0	n/a	3.0	3.0	n/a	3.0	290	0.44	3.0	n/a	3.0	290	0.44
Aggregate Fines and Loading	20.0	n/a	20.0	20.0	n/a	20.0	290	2.90	20.0	n/a	20.0	290	2.90
Concrete Plant	6.2	n/a	6.2	6.2	n/a	6.2	290	0.90	6.2	n/a	6.2	290	0.90
Trucks on paved roads	703.1	90%	70.3	703.1	90%	70.3	290	10.19	703.1	90%	70.3	290	10.19
Trucks on unpaved roads	33.1	80%	6.6	62.6	80%	12.5	290	1.82	62.6	80%	12.5	290	1.82
Scrapers	959.8	78%	211.2				290	0.00				290	0.00
Replacement Conveyor System				5.1	0%	5.1	290	0.74	5.1	0%	5.1	290	0.74
NFSA Activity	15.0	50%	7.5	15.0	50%	7.5	290	1.09	7.0	50%	3.5	290	0.51
Wind Erosion - Excavation	43.2	75%	10.8	43.2	75%	10.8	365	1.97	43.2	75%	10.8	365	1.97
Wind Erosion - NFSA	12.8	75%	3.2	12.8	75%	3.2	365	0.58	9.0	75%	2.3	365	0.41
Wind Erosion - Stockpiles	11.6	75%	2.9	11.6	75%	2.9	365	0.53	11.6	75%	2.9	365	0.53
Blasting	1.7	0%	1.7	1.7	0%	1.7	208	0.18	1.7	0%	1.7	208	0.18
Heavy Equip - Comb	58.4	92%	4.9	58.4	92%	4.9	290	0.71	58.4	92%	4.9	290	0.71
Haul Trucks - Comb	32.5	40%	19.5	32.5	40%	19.5	290	2.83	32.5	40%	19.5	290	2.83
Elec Gen - Comb	1.4	0%	1.4	1.4	0%	1.4	290	0.20	1.4	0%	1.4	290	0.20
Emp. Commute - Comb	0.1	0%	0.1	0.1	0%	0.1	290	0.01	0.1	0%	0.1	290	0.01
Totals	2096.1		563.5	1170.9		363.3			1146.9		346.2		
Days Per Year			290										
Tons Per Year			81.7					53.3					50.7

n/a = not applicable (emission calculated using controlled factors)

Attachment 7

May 9, 2000

Mr. Tim Salt
District Manager
Bureau of Land Management
California Desert District
6221 Box Springs Blvd.
Riverside, CA 92507-0714

Re: Soledad Canyon Sand and Gravel Mining Project

Dear Mr. Salt:

This letter confirms that Transit Mixed Concrete Company, a division of Southdown, Inc. ("TMC"), is committed to implement all Mitigation Measures identified in the Final Conformity Determination for the Soledad Canyon Sand and Gravel Mining Project issued by the Bureau of Land Management (BLM) as necessary conditions for making conformity determinations. These Mitigation Measures are described in the Soledad Canyon Sand and Gravel Mining Project Final Environmental Impact Statement (OEPC #DES99-13). This commitment by TMC is made in order to ensure that the project will conform to the applicable state implementation plan, pursuant to 40 C.F.R. Section 93.160.

Sincerely,

Brian R. Mastin

Brian R. Mastin
Environmental Affairs Manager

APPENDIX E-7

ASSESSMENT OF DIESEL EXHAUST PARTICULATE EMISSIONS

APPENDIX E7
ASSESSMENT OF DIESEL EXHAUST PARTICULATE EMISSIONS
MAY 22, 2000

CARB has established a unit risk factor (URF) of 3.0E-4 $m^3/\mu g$ for particulate matter from diesel-fueled engines *(Hot Spots Unit Risk and Cancer Potency Values*, CARB 6/9/99). The URF is a measure of the carcinogenic potential of a chemical when a dose is received through the inhalation pathway. It represents an upper-bound estimate of the probability of contracting cancer as a result of continuous exposure to an ambient concentration of one microgram per cubic meter ($\mu g/m^3$) over a 70 year lifetime. Proposition 65, the Safe Drinking Water and Toxics Enforcement Act, establishes a threshold of one in one hundred thousand (i.e., 1×10^{-5} or 1.0E-5) as a level posing no significant risk for exposures to carcinogens.

The risk for a receptor at a particular location can be calculated by multiplying the inhalation cancer potency factor (CPF) by the intake of the material via inhalation (I), or:

$$\text{Risk} = \text{CPF} * \text{I} \qquad (1)$$

The CPF is calculated as:

$$\text{CPF} = \text{URF} * 1{,}000\ \mu g/mg * \text{BW} * 1/\text{CR} \qquad (2)$$

Where:

URF = Unit Risk Factor ($m^3/\mu g$)
BW = average body weight (kg)
CR = contact rate (m^3 for air)

Using a body weight of 70 kg, an inhalation contact rate of 20 m^3/day, and the URF of 3.0E-4 $m^3/\mu g$, the CPF for diesel particulates is calculated as:

$$\text{CPF}\ (mg/kg/day)^{-1} = 3.0\text{E-}4\ m^3/\mu g * 1{,}000\ \mu g/mg * (70\ kg) * (1/20m^3)$$
$$\text{CPF}\ (mg/kg/day)^{-1} = 1.05\ (mg/kg/day)^{-1}$$

Intake equations used by Cal/EPA and US EPA are similar and have the general formula shown below (A Review of the CalEPA's Risk Assessment Practices, Policies, and Guidelines; CalEPA, 10/96):

$$\text{I} = (\text{C} * \text{CR} * \text{EF} * \text{ED}) / (\text{BW} * \text{AT}) \qquad (3)$$

Where:

I = intake of a chemical via exposure route, mg/kg/day
C = exposure point concentration, mg/m^3 for air
CR = contact rate, m^3/day for air

EF = exposure frequency, days/year
ED = exposure duration, years
BW = average body weight over the exposure period, kg
AT = averaging time, period over which exposure is averaged, days

For this assessment, the exposure point concentration is the average concentration at a receptor location based on annualized emissions for the Project, and the exposure duration is 20 years, the life of the Project. Values for the other parameters are 20 m^3/day for the contact rate, 365 days/year for the exposure frequency, 70 kg for body weight and 25,550 days (70 years x 365 days/year) for averaging time. The average daily emissions are calculated as the annualized emissions divided by 365 days.

Based on the risk assessment equations and parameters discussed above, a concentration of 1.17E-4 mg/m^3 will result in a risk exposure of 1 in 100,000 or 1.0E-5.

$$I = (1.17E\text{-}4\ mg/m^3 * 20\ m^3/day * 365\ days/year * 20\ years) / (70\ kg * 25{,}550\ days)$$
$$= 9.55E\text{-}6\ mg/kg/day$$

$$Risk = 1.05\ (mg/kg/day)^{-1} * 9.55E\text{-}6$$
$$= 1.00E\text{-}5$$

The modeling methods presented in Appendix E3 were used to model diesel exhaust particulate emissions for the facility. Based on this modeling, it was determined that facility diesel exhaust particulate emissions of 1,735 lb/yr or less will result in concentrations at residential receptors of less than 1.17E-4 mg/m^3.

With the implementation of mitigation measure AQ5, as shown in Tables E2-1 and E2-2, diesel exhaust particulate emissions for the Project site will be less than 1,735 lb/year for both Phase 1 and Phase 2. Therefore, residual impacts will be less than the Proposition 65 threshold of 1 in 100,000 level posing no significant risk for exposures to carcinogens.

APPENDIX F

BIOLOGY

APPENDIX F1

PLANT SPECIES LIST

APPENDIX F1 - PLANT SPECIES LIST FOR THE SITE AND ADJACENT RIVER CORRIDOR

Scientific Name	Common Name
* = non-native species	
ANACARDIACEAE	**SUMAC FAMILY**
Schinus molle	Peruvian pepper tree *
Toxicodendron diversilobum	poison oak
APIACEAE	**CARROT FAMILY**
Lomatium lucidum	shiny lomatium
Lomatium urticulatum	common lomatium
ASCLEPIADACEAE	**MILKWEED FAMILY**
Asclepias californica	California milkweed
Asclepias fascicularis	narrow-leaved milkweed
ASTERACEAE	**SUNFLOWER FAMILY**
Artemisia californica	California sagebrush
Artemisia douglasiana	mugwort
Baccharis salicifolia	mulefat
Brickellia californica	California brickelbush
Centaurea melitensis	tocalote *
Chaenactis glabriuscula	yellow pincushion
Chamomilla suaveolens	pineapple weed
Chrysothamnus sp.	rabbit brush
Coreopsis bigelovii	Bigelow's coreopsis
Corethrogyne filaginifolia var. *filaginifolia*	tomentose cudweed aster
Encelia actoni	brittlebush
Eriophyllum confertiflorum	golden yarrow
Ericameria linearifolia	linear-leaved goldenbush
Helianthus nuttallii ssp. *nuttallii*	Nuttall's sunflower
Lepidospartum squamatum	scale broom
Malacothrix glabrata	desert dandelion
Silybum marianum	milk thistle *
Stephanomeria pauciflora	wire-lettuce
Xanthium strumarium	cocklebur *
BETULACEAE	**BIRCH FAMILY**
Alnus rhombifolia	white alder
BORAGINACEAE	**BORAGE FAMILY**
Amsinckia mensiesii var. *intermedia*	fiddleneck
Cryptantha intermedia	cryptantha
Plagiobothrys sp.	popcorn flower

Scientific Name	Common Name
* = non-native species	
BRASSICACEAE	**MUSTARD FAMILY**
Brassica nigra	black mustard *
Brassica rapa	field mustard *
Descurainia pinnata	tansy mustard
Erysimum capitatum	western wallflower
Rorippa nastursium-aquaticum	yellow cress
Sisymbrium orientale	hare's ear cabbage *
Thysanocarpus laciniatus	lace-pod
CACTACEAE	**CACTUS FAMILY**
Opuntia basilaris var. *basilaris*	long-jointed beavertail cactus
CAPPARACEAE	**CAPER FAMILY**
Isomeris arborea	bladderpod
CAPRIFOLIACEAE	**HONEYSUCKLE FAMILY**
Lonicera interrupta	chaparral honeysuckle
Sambucus mexicana	Mexican elderberry
CHENOPODIACEAE	**GOOSEFOOT FAMILY**
Chenopodium album	lamb's quarters *
Chenopodium botrys	feather geranium *
Salsola tragus	russian thistle *
CONVOLVULACEAE	**MORNING GLORY FAMILY**
Calystegia macrostegia	finger-leaved morning glory
Calystegia piersonii	Pierson's morning glory
CRASSIFOLIACEAE	**STONECROP FAMILY**
Dudleya lanceolata	lance-leaved dudleya
CUSCUTACEAE	**DODDER FAMILY**
Cusuta californica	California dodder
CUCURBITACEAE	**GOURD FAMILY**
Brandegea bigelovii	brandegea
Marah macrocarpus	wild cucumber
CUPRESSACEAE	**CYPRESS FAMILY**
Juniperus californica	California juniper
DIPSACACEAE	**TEASEL FAMILY**
Dipsacus fullonum	Fuller's teasel*
EPHEDRACEAE	**EPHEDRA FAMILY**
Ephedra californica	California ephedra
ERICACEAE	**HEATH FAMILY**
Arctostaphylos sp.	manzanita

Scientific Name	Common Name
* = non-native species	
EUPHORBIACEAE	**SPURGE FAMILY**
Chamaesyce polycarpa	sand mat
FABACEAE	**PEA FAMILY**
Lotus corniculatus	birdsfoot lotus *
Lotus scoparius	deerweed
Lupinus hirsutissimus	stinging lupine
Lupinus sparciflorus	Coulter's lupine
Medicago sativa	alfalfa *
Melilotus officinalis	sweet clover *
FAGACEAE	**BEECH FAMILY**
Quercus berberidifolia	California scrub oak
GERANIACEAE	**GERANIUM FAMILY**
Erodium cicutarium	red-stemmed storksbill *
Erodium sp.	filaree *
HYDROPHYLLACEAE	**WATERLEAF FAMILY**
Emmenanthe penduliflora	whispering bells
Eriodictyon crassifolium	thickleaf yerba santa
Eriodictyon trichocalyx ssp. *trichocalyx*	hairy yerba santa
Eucrypta chrysanthemifolia var. *chrysanthemifolia*	eucrypta
Nemophila menziesii	baby blue-eyes
Phacelia distans	common phacelia
Phacelia fremontii	Fremont's phacelia
Phacelia minor	wild canterbury-bell
Phacelia parryi	Parry's phacelia
Pholistoma auritum	blue fiesta flower
LAMIACEAE	**MINT FAMILY**
Salvia apiana	white sage
Salvia columbariae	chia
Salvia mellifera	black sage
Trichostema lanatum	woolly blue curls
LILIACEAE	**LILY FAMILY**
Bloomeria crocea	golden stars
Calochortus ssp. *clavatus*	club-haired Mariposa lily
Calochortus ssp. *gracilis*	slender Mariposa lily
Dichelostemma pulchellum	blue dicks
Yucca whipplei ssp. *parishii*	Our Lord's candle
MALVACEAE	**MALLOW FAMILY**
Malacothamnus marrubioides	bush mallow

Scientific Name	Common Name
* = non-native species	
MYRTACEAE	**MYRTLE FAMILY**
Eucalyptus sp.	eucalyptus *
NYCTAGINACEAE	**FOUR O'CLOCK FAMILY**
Mirabilis californica	wishbone bush
ONAGRACEAE	**EVENING PRIMROSE FAMILY**
Camissonia californica	evening primrose
Clarkia bottae	punchbowl clarkia
PAPAVERACEAE	**POPPY FAMILY**
Argemone munita	chocolate prickly poppy
Dendromecon rigida	bush poppy
Eschscholzia californica	California poppy
PLATANACEAE	**SYCAMORE FAMILY**
Platanus racemosa	western sycamore
POACEAE	**GRASS FAMILY**
Achnatherum coronatum	crested stipa
Arundo donax	giant reed *
Avena barbata	slender oat *
Avena fatua	wild oat *
Bromus diandrus (=Bromus coronata)	common ripgut grass *
Bromus modritensis ssp. *rubens*	foxtail chess *
Bromus tectorum	cheat grass *
Melica californica	California melic
POLEMONIACEAE	**PHLOX FAMILY**
Gilia capitata	ball gilia
Gilia sp.	gilia
Linanthus sp.	linanthus
Linanthus cf. *dianthiflorus*	ground pink
POLYGONACEAE	**BUCKWHEAT FAMILY**
Chorizanthe staticoides	common Turkish rugging
Eriogonum davidsonii	Davidson's buckwheat
Eriogonum elogatum var. *elongatum*	long-stemmed buckwheat
Eriogonum fasciculatum ssp. *fasciculatum*	California buckwheat
Eriogonum fasciculatum ssp. *foliolosum*	interior flat-topped buckwheat
Eriogonum maculatum	buckwheat
Polygonum lapathifolium	willow weed *
Rumex crispus	curly dock *
PORTULACACEAE	**PURSLANE FAMILY**
Claytonia perfoliata	miner's lettuce

Scientific Name	Common Name
* = non-native species	
PTERIDACEAE	**BRAKE FAMILY**
Pellaea andromedaefolia	coffee fern
RANUNCULACEAE	**CROWFOOT FAMILY**
Delphinium parishii	Parish's larkspur
RHAMNACEAE	**BUCKTHORN FAMILY**
Ceanothus crassifolius	heavy-leaf California lilac
Ceanothus leucodermis	whitebark lilac
Rhamnus ilicifolia	holly-leaf redberry
ROSACEAE	**ROSE FAMILY**
Adenostoma fasciculatum	common chamise
Cercocarpus betuloides	California mountain mahogany
Prunus ilicifolia	holly-leaved cherry
RUBIACEAE	**MADDER FAMILY**
Galium angustifolium	chaparral bedstraw
SALICACEAE	**WILLOW FAMILY**
Populus fremontii ssp. *fremontii*	western cottonwood
Salix exigua	lance-leaved willow
Salix lucida ssp. *lasiandra*	shining willow
Salix lasiolepis	arroyo willow
SCROPHULARIACEAE	**FIGWORT FAMILY**
Mimulus guttatus	seep monkey flower
Mimulus aurantiacus	monkey flower
Verbascum thapsus	common mullein *
SELAGINELLACEAE	**SPIKE-MOSS FAMILY**
Selaginella bigelovii	Bigelow's spike-moss
Selaginella eremophila	clubmoss
SOLANACEAE	**NIGHTSHADE FAMILY**
Datura wrightii	jimsonweed
Nicotiana glauca	tree tobacco *
Solanum umbelliferum	blue witch
TAMARICACEAE	**SALTCEDAR FAMILY**
Tamarix ramosissima	saltcedar *
TYPHACEAE	**CATTAIL FAMILY**
Typha latifolia	broad-leaved cattail
URTICACEAE	**NETTLE FAMILY**
Urtica dioica ssp. *holosericea*	hoary nettle
Nomenclature as per Hickman 1993	

APPENDIX F2

WILDLIFE SPECIES LIST

APPENDIX F2 - WILDLIFE SPECIES LIST FOR THE PROJECT SITE AND ADJACENT RIVER CORRIDOR

KEY

Occurrence: OBS - Observed; EXP - Expected; REP - Reported; POSS - Of possible occurrence; POSS? - Remotely possible

Habitat: B - Chaparral, coastal sage scrub and other scrub habitats; H - Altered, or disturbed areas; R - River; W - Woodland and riparian habitats

Class	Family	Species Name	Common Name	Occurrence/ Habitat
INSECTS	Papilionidae	*Papilio rutulus rutulus*	Western tiger swallowtail	OBS/W
	Pieridae	*Anthocaris sara sara*	Sara orange-tip	OBS/B
		Pieris protodice	Common white	OBS/H
		Pieris rapae	Cabbage butterfly	OBS/H
	Danaidae	*Danaus plexippus*	Monarch	OBS/W
	Nymphalidae	*Cynthia cardui*	Gabb'scheckerspot	OBS/B
		Limenitis lorquini lorquini	Lorquin's admiral	OBS/W
		Nymphalis antiopa antiopa	Mourning cloak	OBS/W
	Riodinidae	*Apodemia mormo virgulti*	Behr's metalmark	OBS/B
	Lycaenidae	*Atlides halesus corcorani*		OBS/W
		Callophrys affinis perplex	Great purple hairstreak	OBS/B
		Incisalia augustus iriodes	Southern bramble hairstreak	OBS/B
		Mitoura siva juniperaria	Western elfin	OBS/B
		Strymon melinus pudica	Grey hairstreak	OBS/B
		Lycaena hellioides	Gorgon copper	OBS/W
		Brephidium exilis	Pigmy blue	OBS/B
		Icaricia acmon	Lupine blue	OBS/W
		Philotes sonorensis		OBS/B
	Hesperidae	*Erynnis funeralis*	Funeral duskywing	OBS/W
BONY FISHES	Poecilliidae	*Gambusia affinis*	mosquito fish	OBS/R
	Gasterosteidae	*Gasterosteus aculeatus williamsoni*	unarmored three spine stickleback	OBS/R
	Cyprinidae	*Gila orcutti*	arroyo chub	OBS/R
	Catostomide	*Catostomus santaanae*	Santa Ana sucker	OBS/R

KEY

Occurrence:		Habitat:	
OBS - Observed	POSS - Of possible occurrence	B - Chaparral, coastal sage scrub and other scrub habitats	
EXP - Expected	POSS? - Remotely possible	H - Altered, or disturbed areas	
REP - Reported		R - River	
		W - Woodland and riparian habitats	

Class	Family	Species Name	Common Name	Occurrence/ Habitat
REPTILES	Iguanidae	*Sceloporus occidentalis*	western fence lizard	OBS/B,W
		Uta stansburiana	side-blotched lizard	OBS/B
		Phrynosoma coronatum blainvillei	San Diego horned lizard	POSS/sandy openings in B
	Scincidae	*Eumeces skiltonianus*	western skink	POSS/B,W
	Teiidae	*Cnemidophorus tigris*	western whiptail	EXP/W,B
	Anguidas	*Gerrhonotus multicarinatus*	southern alligator lizard	POSS/W
	Boidae	*Lichanura trivirgata*	rosy boa	POSS/B
	Golubridae	*Coluber constrictor mormon*	yellow-bellied racer	EXP/B,W
		Masticophis flagellum piceus	red coachwhip	EXP/W,B
		Masticophis lateralis	California whipsnake	POSS/B
		Pituophis melanoleucus	gopher snake	EXP/ALL
		Lampropeltis getulus	common kingsnake	EXP/B,W
		Hypsiglena torquata klaberi	San Diego night snake	POSS/B,W
	Viperidae	*Crotalus mitchelli*	speckled rattlesnake	POSS/B
		Crotalus viridis helleri	southern Pacific rattlesnake	EXP/B,W
BIRDS	Charadriidae	*Charadrius vociferus*	killdeer	OBS/W
	Cathartidae	*Cathartes aura*	turkey vulture	OBS/ALL
	Accipitridae	*Elanus leucurus*	black-shouldered kite	POSS?/W,B
		Buteo jamaicensis	red-tailed hawk	OBS/B,W
		Aquila chrysaetos	golden eagle	EXP/B,W
	Falconidae	*Falco sparverius*	American kestrel	OBS/B
	Phasianidae	*Callipepla californica*	California quail	OBS/B
	Columbidae	*Columba fasciata*	band-tailed pigeon	EXP/W
		Columba livia	rock dove	OBS/H
		Zenaida macroura	mourning dove	OBS/ALL

KEY

Occurrence: OBS - Observed; EXP - Expected; REP - Reported; POSS - Of possible occurrence; POSS? - Remotely possible

Habitat: B - Chaparral, coastal sage scrub and other scrub habitats; H - Altered, or disturbed areas; R - River; W - Woodland and riparian habitats

Class	Family	Species Name	Common Name	Occurrence/ Habitat
BIRDS (Continued)	Cuculidae	*Geococcyx californianus*	roadrunner	EXP/B
	Tytonidae	*Tyto alba*	barn owl	POSS/W
	Strigidae	*Otus asio*	screech owl	POSS/W
		Bubo virginianus	great horned owl	POSS/W
	Caprimulgidae	*Phalaenoptilus nuttallii*	common poorwill	POSS/B
	Apodidae	*Chaetura vauxi*	Vaux's swift	POSS/B
		Aeronautes saxatalis	white-throated swift	POSS/B
	Trochilidae	*Calypte anna*	Anna's hummingbird	OBS/B,H
	Picidae	*Melanerpes lewis*	Lewis' woodpecker	POSS?/W
		Colaptes auratus	northern flicker	EXP/W
		Picoides nuttallii	Nuttall's woodpecker	POSS?/W,B
		Melanerpes formicivorus	acorn woodpecker	EXP/W
		Sphyrapicus nuchalis	red-naped sapsucker	POSS?/W,B
	Alcedinidae	*Ceryle alcyon*	belted kingfisher	OBS/W
	Tyrannidae	*Tyrannus verticalis*	western kingbird	OBS/B
		Myiarchus cinerascens	ash-throated flycatcher	POSS/W
		Sayornis nigricans	black phoebe	POSS/W
		Sayornis saya	Say's phoebe	EXP/B
		Empidonax difficilis	Pacific slope flycatcher	POSS/W
		Contopus sordidulus	western wood pewee	POSS/W,B
	Hirundinidae	*Stelgidopteryx serripennis*	Northern rough-winged swallow	OBS/B,W
	Corvidae	*Aphelocoma coerulescens*	scrub jay	EXP/W,B,H
		Corvus corax	common raven	OBS/B
		Corvus brachyrhynchos	common crow	EXP/B
	Paridae	*Parus inornatus*	plain titmouse	EXP/W,B
	Aegithalidae	*Psaltriparus minimus*	bushtit	OBS/B

KEY

Occurrence: OBS - Observed; EXP - Expected; REP - Reported; POSS - Of possible occurrence; POSS? - Remotely possible

Habitat: B - Chaparral, coastal sage scrub and other scrub habitats; H - Altered, or disturbed areas; R - River; W - Woodland and riparian habitats

Class	Family	Species Name	Common Name	Occurrence/ Habitat
BIRDS (Continued)	Troglodytidae	*Troglodytes aedon*	house wren	EXP/W,H
		Thryomanes bewickii	Bewick's wren	OBS/W,B
		Salpinctes obsoletus	rock wren	OBS/B
	Mimidae	*Mimus polyglottos*	mocking bird	OBS/B
		Toxostoma redivivum	California thrasher	EXP/B
	Muscicapidae	*Turdus migratorius*	American robin	OBS/B,W,H
		Catharus ustulatus	Swainson's thrush	POSS?/W
		Chamaea fasciata	wrentit	POSS/B
		Sialia mexicana	western bluebird	OBS/W,B
		Polioptila caerulea	blue-gray gnatcatcher	POSS/W,B
		Polioptila californica	California gnatcatcher	POSS?/B
		Regulus calendula	ruby-crowned kinglet	POSS/W
	Bombycillidae	*Bombycilla cedrorum*	cedar waxwing	POSS/B,H
	Ptilogonatidae	*Phainopepla nitens*	phainopepla	POSS/W
	Laniidae	*Lanius ludovicianus*	loggerhead shrike	OBS/B
	Sturnidae	*Sturnus vulgaris*	starling	OBS/H,W
	Emberizdae	*Vermivora celata*	orange-crowned warbler	POSS?/W
		Vermivora ruficapilla	Nashville warbler	POSS/B,W
		Dendroica petechia	yellow warbler	POSS/W
		Dendroica nigrescens	black-throated gray warbler	POSS/W
		Dedroica coronata	yellow-rumped warbler	OBS/B,W
		Dedroica townsendi	Townsend's warbler	POSS/W
		Wilsonia pusilla	Wilson's warbler	EXP/W,B
		Geothlypis trichas	Yellowthroat	OBS/W
		Passer domesticus	house sparrow	EXP/H
		Sturnella neglecta	western meadowlark	OBS/B

KEY

Occurrence: OBS - Observed; EXP - Expected; REP - Reported; POSS - Of possible occurrence; POSS? - Remotely possible

Habitat: B - Chaparral, coastal sage scrub and other scrub habitats; H - Altered, or disturbed areas; R - River; W - Woodland and riparian habitats

Class	Family	Species Name	Common Name	Occurrence/ Habitat
BIRDS (Continued)	Emberizdae (Continued)	*Icterus cucullatus*	hooded oriole	POSS?/W,H
		Icterus galbula	northern oriole	POSS/W,H,B
		Euphagus cyanocephalus	Brewer's blackbird	POSS/H
		Molothrus ater	brown-headed cowbird	OBS/ALL
		Piranga ludoviciana	western tanager	POSS/W,H
		Pheucticus melanocephalus	black-headed grosbeak	EXP/W,B
		Passerina amoena	Lazuli bunting	POSS/B,W
		Pipilo erythrophthalmus	rufous-sided towhee	POSS/W,B
		Pipilo crilssalis	California towhee	EXP/B
		Chondestes grammacus	lark sparrow	POSS/B
		Aimophila ruficeps	rufous-crowned sparrow	POSS/B
		Junco hyemalis	dark-eyed junco	OBS/W
		Zonotrichia leucophrys	white-crowned sparrow	EXP/ALL
		Melospiza melodia	song sparrow	POSS/B
	Fringillidae	*Carpodacus mexicanus*	house finch	OBS/H,W,B
		Spinus tristis	American goldfinch	EXP/W,B
		Spinus psaltria	lesser goldfinch	OBS/ALL
		Carduelis lawrencei	Lawrence's Goldfinch	OBS/W
MAMMALS	Didelphiidae	*Didelphis virginiana*	Virginia opossum	POSS/H,W
	Soricidae	*Notiosorex crawfordi*	gray shrew	EXP/B
	Vespertilianidae	*Myotis californicus*	California myotis	POSS/B (cliffs), H (buildings)
		Eptesicus fuscus	big brown bat	POSS?/W
	Vespertilionidae	*Lasiurus cinereus*	hoary bat	POSS?/W
		Antrozous pallidus	pallid bat	POSS?/W
	Procyonidae	*Procyon lotor*	raccoon	POSS/W,H

KEY

Occurrence: OBS - Observed; EXP - Expected; REP - Reported; POSS - Of possible occurrence; POSS? - Remotely possible

Habitat: B - Chaparral, coastal sage scrub and other scrub habitats; H - Altered, or disturbed areas; R - River; W - Woodland and riparian habitats

Class	Family	Species Name	Common Name	Occurrence/ Habitat
MAMMALS (Continued)	Mustelidae	*Mephitis mephitis*	striped skunk	EXP/ALL
	Comidae	*Canis latrans*	coyote	OBS/ALL
		Urocyon cinereoargenteus	gray fox	EXP/B,W
		Lynx rufus	bobcat	POSS/B,W
	Felidae	*Felis concolor*	mountain lion	POSS?/B,W
	Sciuridae	*Spermophilus beecheyi*	California ground squirrel	OBS/H,B
	Geomyidae	*Thomomys bottae*	valley pocket gopher	OBS/W,H,B
	Heteromyidae	*Dipodomys agilis*	Pacific kangaroo rat	POSS/B
	Cricetidae	*Peromyscus maniculatus*	deer mouse	EXP/ALL
		Peromyscus boylii	brush mouse	POSS/B
		Neotoma fuscipes	dusky-footed woodrat	POSS/W,B
	Muridae	*Rattus norvegicus*	Norway rat	EXP/H
		Mus musculus	house mouse	EXP/H
	Leporidae	*Lepus californicus*	blacktail	EXP/ALL
	Cervidae	*Odocoileus hemionus*	muledeer	EXP/ALL

Shaded species were observed during survey.

APPENDIX F3

VEGETATIVE COVER BASELINE

APPENDIX F3 - SOLEDAD CANYON BASELINE VEGETATION STUDY

F3.1 INTRODUCTION

The goal of reclamation is to duplicate, as closely as possible, the principal parameters of the vegetation that were present prior to project impacts. At the same time, the performance of any reclamation effort must be assessed in comparison to standards or success criteria that are feasible to attain. Therefore, while it is generally acknowledged that a natural ecosystem is composed of many interacting parameters, the number of parameters that can be used as realistic standards for reclamation is relatively small. It is assumed that through careful selection of the parameters to be measured, other important characteristics of the ecosystem which correlate with the measured parameters are also represented. Plant species richness, vegetative cover, and plant density are variables readily measured in the field and are specified for use as standards in reclamation standards for California (State Mining and Geology Board, 1992). Species richness is a measure of species diversity and relates to the complexity of an ecosystem. Cover and density are parameters which relate to the physical structure of an ecosystem and utilization of the system by wildlife.

The purpose of this study is to quantify characteristics of the existing vegetation in the impact area, prior to project impacts. These data will be used to establish standards by which to compare reclaimed sites with pre-project conditions. Following the sections on methodology and results, the last section of the report discusses recommendations regarding the use of the data as standards for reclamation.

Prior to this study, botanical assessments and sensitive species surveys of the project area were conducted (Chambers Group, 1991). A generalized vegetation map was prepared, which showed the impact area to be dominated by a mixture of coastal sage scrub and semi-desert chaparral, and to a lesser extent by mixed chaparral and transition zones between mixed chaparral and coastal sage scrub. The topography is complex, and there is a corresponding complexity or intermix of coastal sage scrub and chaparral communities. Local variation in slope aspect, slope gradient, the location of the site in a transitional area between coastal sage scrub and desert habitats, and the presence of some burned areas are all factors that contribute to the vegetation complexity of the study area. Consequently the habitat designations used in prior studies and for the purposes of this report should be viewed in a very general sense, with the recognition that there is high spatial complexity within each of these habitat types.

F3.2 METHODOLOGY

F3.2.1 Field Sampling

On March 19, 1992, preliminary sampling was conducted to determine the minimum size of each sampling unit and the number of sampling units that would be needed to adequately represent a habitat. Inclement weather conditions at this time prevented extensive preliminary sampling,

but indicated that a sampling unit (transect) of 60 square meters (sq m) area would be satisfactory for sampling shrubs. Within each transect, herbs were subsampled in quadrats. Further sampling was conducted during the period April 7 through April 11. This period was scheduled to coincide with the peak of the growing season for most species in order to maximize the number of species (species richness) that could be detected, especially annuals.

On all but the steepest slopes, i.e. on all but the south-facing slopes in the proposed mining area, each transect was 30 meters long and 2 meters wide. On the steep slopes, where walking and direct measurement of all plants would be too treacherous, the shape of the transect was modified to a rectangle of 10 meters (extending downslope) by 6 meters (extending along the top of the slope). In these cases, the vegetation parameters were estimated from a distance at the top of the slope, using individual plants closest to the observer as reference units.

Table F3-1 summarizes the sampling parameters that were measured. Selection of the sampling locations was the result of two considerations: representation of all major habitats in proportion to their area or extent that they would be impacted by the project, and safe access for sampling. A total of 39 locations were sampled. In increasing order of area that would be impacted by the project, this total includes eight samples of coastal sage scrub/mixed chaparral, eleven samples of mixed chaparral, and twenty samples of coastal sage scrub/semi-desert chaparral. Table F3-2 lists the sample sizes used in this study. For study purposes, a small area consisting of 4 acres of coastal sage scrub was grouped with the coastal sage scrub/mixed chaparral habitat type.

F3.2.2 Data Analysis

In addition to summarizing the parameters that were measured, Table F3-1 provides examples of how the calculations were conducted. Each analysis treated the herb and shrub strata separately because herbs and shrubs are distinct components of the flora that should be treated and evaluated separately in reclamation. The sums, averages, and standard errors were calculated either manually on a calculator or generated by a standard statistics package (SYSTAT, Systat Inc., Evanston, IL), depending on the size of the data set.

F3.3 RESULTS

This section presents two types of data analyses, each of which serves a different purpose. The first analysis combines all of the transect and habitat data together to provides the reader with an overview of the vegetation on the site. This analysis is only for information purposes, to provide a basis for comparing the general characteristics of the vegetation on the project site to those on other sites that the reader may be familiar with. The second analysis recognizes the different plant associations of the site, and is the analysis which should form the basis for reclamation standards.

Table F3-1

SUMMARY OF METHODOLOGY

Parameter	Unit of Measure	Sample Unit	Method of Measurement	Example
Average species richness in shrub and herb strata	percent	Shrubs: Transects Herbs: Quadrats within transects	Count number of species averaged over all transects in all habitats and for each habitat.	Number of herb species in transect = 20 Total area sampled in transect = 20 square meters (sq m) Species richness = 20/20 = 1 per sq m
Average plant density, all species, in shrub and herb strata	number of individuals per sq m	same as above	Count number of individuals, divide by area of transect (shrubs) or combined areas of quadrats; averaged over all transects in all habitats and for each habitat.	Number of shrubs in transect = 50 Total area of transect = 60 sq m Density of shrubs = 50/60 = 0.8 per sq m
Average plant cover, all species, in shrub and herb strata	percent	same as above	Shrubs: Crown-diameter method - measure two diameters of canopy, D1 and D2, of each shrub; calculate cover using formula: $((D1 + D2)/4)^2 \times \pi$. Add cover values for all shrubs, divide by transect area; multiply by 100 to obtain percent. Averaged over all transects in all habitats and for each habitat. Herbs: Direct observation in cases of extensive, homogenous cover, crown-diameter method where species occurrence is scattered.	Shrubs: D1 of chamise individual = 0.4 m; D2 of same individual = 0.5 m; cover for this individual = 0.16 sq m Values for all shrubs combined = 40 sq m Transect area = 60 sq m Cover = 40/60 x 100% = 66.7% Herbs: Cover by direct observation = 20 sq m Total area of quadrats sampled within transect = 24 sq m Cover = 20/24 x 100% = 83.3%
Average relative plant cover, each species, in shrub and herb strata	percent	same as above	Same as average plant cover, except values for each species relativized.	Cover by *Bromus* = 2 sq m Total herb cover = 20 sq m Relative percent cover of *Bromus* = 2/20 x 100% = 10%

Table F3-2

SAMPLE SIZES

Impact Area (Excavation plus North Fines) = 187 acres Total Number of Transects = 39 Overall Transect Density = one transect every 4.8 acres Area Per Quadrat = 4 sq m in 30 m x 2 m transects = 15 sq m in 10 m x 6 m transects (used on steep slopes ≥45°
Sampling By Habitat
Coastal Sage Scrub/Mixed Chaparral Total Area of Habitat in Project Area = 24 Number of Transects = 8 Transect Density = one transect every 3 acres
Mixed Chaparral Total Area of Habitat in Project Area = 35 Number of Transects = 11 Transect Density = one transect every 3 acres
Coastal Sage Scrub/Semi-Desert Chaparral Total Area of Habitat in Project Area = 128 Number of Transects = 20 Transect Density = one transect every 6 acres

F3.3.1 Site Overview

Table F3-3 shows the summary statistics for the impact area as a whole, and Table F3-4 provides a full species list, with presence or absence by habitat type. In general the site can be said to be dominated by herbs, with sparse distribution of shrubs. However, patches of high shrub density are present, especially in the mixed chaparral habitat discussed in the next section. Herb diversity is an order of magnitude higher than for shrubs, a finding that is probably not unusual in this kind of open vegetation.

Table F3-3

EXISTING VEGETATION, ENTIRE IMPACT AREA

	Herbs	Shrubs
Note: Values are averages over all transects, with one standard error of the mean in parentheses.		
Species Richness, per sq m	0.17 (.007)	.088 (.005)
Density, per sq m	353.83 (37.50)	.63 (.05)
Average Absolute Percent Cover (± s.e.m.)	71.74 (4.14)	27.20 (2.70)

F3.3.2 Habitat Analysis

Tables F3-5 and F3-6 provide the statistics by habitat type for the herb and shrub components of the vegetation, respectively. A full statistical analysis of the data was beyond the scope of this study, but the standard error values shown in parentheses indicate the extent to which values for the averages are truly different from one another. Space did not permit listing all species with extremely low relative cover values, but these can be found in the full species list (Table F3-4). To facilitate interpretation, the relative cover values are given in rank order, beginning with the most dominant species. However, the reader should note that the apparent difference in rank order of species dominance between the habitat types is probably not statistically significant except in a few cases.

Herb diversity, density, and absolute cover does not vary substantially between habitat types. This is a reflection of the substantial variability between transects or microhabitats within each habitat. Perhaps the best parameter that distinguishes each habitat is the particular mix of the most dominant four or five species, in terms of relative cover. For example, California melic grass (*Melica californica*) is prominent in coastal sage scrub/mixed chaparral and mixed chaparral, but sparse in coastal sage scrub/semi-desert chaparral. Common cryptantha (*Cryptantha intermedia*) is common in mixed chaparral but sparse in coastal sage scrub/mixed chaparral.

Table F3-4

PLANT SPECIES LIST - BASELINE VEGETATION SURVEY SOLEDAD CANYON

Scientific Name	Common Name	Coastal Sage Scrub/ Mixed Chaparral	Mixed Chaparral	Coastal Sage Scrub/Semi-Desert Chaparral	
				Southeast to West Facing Slopes	Northwest to East Facing Slopes
APIACEAE	**CARROT FAMILY**				
Lomatium utriculatum	Foothil Lomatium				X
ASTERACEAE	**SUNFLOWER FAMILY**				
Artemisia californica	Coastal Sagebrush	X	X	X	X
Chrysothamnus sp.	Rabbit Brush	X	X	X	X
Coreopsis bigelovii	Bigelow's Coreopsis	X	X	X	X
Encelia actoni	Tomentose Cudweed Aster	X			
Eriophyllum confertiflorum	Brittle-Bush	X	X	X	X
Helianthus nuttallii ssp. *nuttallii*	Golden Yarrow				X
Lessingia filaginifolia var. *filaginifolia*	Nuttall's Sunflower			X	
Malacothrix glabrata	Desert Dandelion	X		X	X
Silybum marianum	Milk Thistle	X	X	X	X
Stephanomeria pauciflora	Wire-Lettuce	X	X	X	X
Unidentified composite			X		
BORAGINACEAE	**BORAGE FAMILY**				
Amsinckia menziesli var. *intermedia*	Fiddleneck		X	X	
Cryptantha intermedia	Popcorn Flower	X	X	X	X
BRASSICACEA	**MUSTARD FAMILY**				
Brassica nigra	Black Mustard	X	X	X	X
Brassica rapa	Field Mustard	X	X	X	
Erysimum capitatum	Western Wallflower	X	X		X
Rorippa nastursium-aquaticum	Yellow Cress	X	X	X	
Thysanocarpus laciniatus	Lace-Pod	X	X	X	X
CACTACEAE	**CACTUS FAMILY**				
Opuntia basilaris var. *basilaris*	Beavertail	X			
CAPRIFOLIACEAE	**HONEYSUCKLE FAMILY**				
Lonicera interrupta	Chaparral Honeysuckle	X			
CONVOLVULACEA	**MORNING GLORY FAMILY**				
Calystegia piersonii	Pierson's Morning Glory	X	X	X	
CRASSULACEAE	**STONECROP FAMILY**				
Dudleya lanceolata	Lance-Leaved Dudleya	X			X
CUCURBITACEAE	**GOURD FAMILY**				
Brandegea bigelovii	Brandegea	X			

Table F3-4

PLANT SPECIES LIST - BASELINE VEGETATION SURVEY SOLEDAD CANYON

Scientific Name	Common Name	Coastal Sage Scrub/ Mixed Chaparral	Mixed Chaparral	Coastal Sage Scrub/Semi-Desert Chaparral	
				Southeast to West Facing Slopes	Northwest to East Facing Slopes
ERICACEAE	**HEATH FAMILY**				
Acrtostaphylos sp.	Manzanita		X		
EUPHORBIACEAE	**SPURGE FAMILY**				
Chamaesyce polycarpa	Sand Mat			X	
FABACEAE	**PEA FAMILY**				
Lotus corniculatus	Birdsfoot Lotus			X	
Lotus scoparius	Deerweed	X	X	X	X
Lupinus hirsutissimus	Stinging Lupine	X		X	X
Lupinus sparciflorus	Coulter's Lupine			X	
Melilotus officinalis	Yellow Sweet Clover	X	X	X	
FAGAGEAE	**BEECH FAMILY**				
Quercus berberidi folia	Scrub Oak	X	X	X	
GERANIACEAE	**GERANIUM FAMILY**				
Erodium cicutarium	Storksbill	X	X	X	X
HYDROPHYLLACEAE	**WATERLEAF FAMILY**				
Emmenanthe penduliflora	Whispering Bells	X	X	X	
Eriodictyon crassifolium	Hickery Yerba Santa	X	X		
Eriodictyon trichocalyx ssp. *trichocalyx*	Hairy Yerba Santa	X	X		
Eurcypta chysanthemifolia var. *chrysanthemifolia*	Eucrypta	X			
Nemophila menziesii	Baby-Blue Eyes		X		
Phacelia distans	Common Phacelia	X		X	
Phacelia fremontii	Fremont's Phacelia	X	X		
Phacelia minor	California Bells		X		
Pholistoma auritum	Blue Fiesta Flower				
LAMIACEAE	**MINT FAMILY**				
Salvia columbariae	Chia	X	X	X	X
Salvia mellifera	Black Sage	X	X	X	X
Trichostema lanatum	Woolly Blue Curls		X		X
LILIACEAE	**LILY FAMILY**				
Bloomeria crocea	Golden Stars			X	
Dichelostemma pulchella	Blue Dicks	X	X	X	X
Yucca whippleii	Our Lord's Candle	X	X	X	
MALVACEAE	**MALLOW FAMILY**				
Unidentified Malvaceae					X

Table F3-4

PLANT SPECIES LIST - BASELINE VEGETATION SURVEY SOLEDAD CANYON

Scientific Name	Common Name	Coastal Sage Scrub/ Mixed Chaparral	Mixed Chaparral	Coastal Sage Scrub/Semi-Desert Chaparral	
				Southeast to West Facing Slopes	Northwest to East Facing Slopes
NYCTAGINACEAE	**FOUR-O'CLOCK FAMILY**				
Mirabilus californica	Wishbone Bush		X	X	X
PAPAVERACEAE	**POPPY FAMILY**				
Dendromecon rigida	Tree Poppy				X
Eschscholzia californica	California Poppy		X		
POACEAE	**GRASS FAMILY**				
Achnatherum coronatum	Crested Stipa		X	X	X
Avena barbata	Slender Oat		X	X	
Bromus madritensis ssp. *rubens*	Red Brome	X	X	X	X
Melica californica	California Melic	X	X	X	X
POLEMONIACEAE	**PHLOX FAMILY**				
Linanthus sp.				X	
Linanthus dianthiflorus	Ground Pink	X	X		X
POLYGONACEAE	**BUCKWHEAT FAMILY**				
Chorizanthe staticoides	Turkish Rugging			X	X
Eriogonum fasciculatum ssp. *fasciculatum*	Wild Buckwheat	X	X	X	X
Eriogonum fasciculatum ssp. *foliolosum*	Interior Flat-Top Buckwheat	X	X	X	X
PORTULACACEAE	**PURSLANE FAMILY**				
Claytonia perfoliata	Miner's Lettuce	X			
RHAMNACEAE	**BUCKTHRON FAMILY**				
Ceanothus crassifolius	Hoary-Leaf California Lilac	X	X	X	
Rhamnus ilicifolia	Holly-Leaf Redberry	X			
ROSACEAE	**ROSE FAMILY**				
Adenostoma fasciculatum	Chamise	X	X	X	X
Cercocarpus betuloides	California Mountain Mahogany			X	
RUBIACEAE	**MADDER FAMILY**				
Galium angustifolium	Narrow-Leaf Bedstraw	X	X	X	
SELAGINELLACEAE	**SELAGINELLA FAMILY**				
Selaginella eremophila	Spike Moss				X
SOLANACEAE	**NIGHTSHADE FAMILY**				
Solanum umbelliferum	Blue Witch			X	

Table F3-5

EXISTING HERBACEOUS VEGETATION, BY HABITAT TYPE

	Coastal Sage Scrub/Mixed Chaparral		Mixed Chaparral		Coastal Sage Scrub/Semi-Desert Chaparral					
					All Slope Aspects		Southeast to West Facing Slopes		Northwest to East Facing Slopes	
Note: Values are averages over all transects in each habitat, with one standard error of the mean in parenthesis.										
Species Richness per m²	0.20 (.01)		0.15 (.01)		0.17 (.01)		0.17 (.03)		0.16 (.01)	
Plant Density per m²	544.02 (61.35)		363.96 (51.30)		272.18 (55.29)		211.18 (90.74)		292.51 (68.08)	
Absolute Cover All Species (percent)	83.38 (7.16)		61.29 (7.41)		72.83 (6.12)		70.24 (13.95)		73.69 (7.01)	
Relative Cover Each Species (percent)	*Melica californica*	32.51 (11.99)	*Bromus madritensis* ssp. *rubens*	30.55 (10.32)	*Bromus madriensis* ssp. *rubens*	41.10 (5.52)	*Bromus madritensis* spp. *rubens*	43.51 (6.45)	*Bromus madrintesis* spp. *rubens*	33.84 (10.98)
	Bromus madritensis ssp. *rubens*	19.66 (6.90)	*Melica californica*	24.90 (8.48)	*Erodium cicutarium*	20.37 (5.03)	*Erodium cicutarium*	21.69 (6.17)	*Melica californica*	16.60 (10.80)
	Brassica nigra	9.11 (6.05)	*Cryptantha intermedia*	15.78 (5.89)	*Cryptantha intermedia*	10.25 (2.81)	*Cryptantha intermedia*	10.77 (3.56)	*Erodium cicutarium*	16.41 (8.51)
	Erodium cicutarium	7.32 (2.81)	*Erodium cicutarium*	11.40 (5.32)	*Coreopsis bigelovii*	6.30 (2.98)	*Mirabilis californica*	5.99 (2.54)	*Avena barbata*	9.06 (7.67)
	Linanthus dianthiflorus	6.98 (3.06)	*Calystegia personii*	4.23 (2.68)	*Melica californica*	4.98 (2.99)	*Coreopsis bigelovii*	5.70 (3.70)	*Cryptantha intermedia*	8.69 (3.97)
	Brandegea bigelovii	5.74 (3.31)	*Phacelia distans*	3.73 (2.37)	*Mirabilis californica*	4.49 (1.98)	*Salvia columbariae*	3.26 (1.09)	*Coreopsis bigelovii*	8.10 (4.87)
	Coreopsis bigelovii	4.72 (2.42)	*Silybum marianum*	3.37 (1.45)	*Salvia columbariae*	2.45 (.87)	*Melilotus officianalis*	1.59 (1.09)	*Malacothrix glabrata*	2.26 (1.37)
	Dichelostemma pulchella	3.48 (1.70)	*Brassica rapa*	1.99 (1.99)	*Silybum marianum*	2.43 (.41)	*Solanum umbelliferum*	1.27 (.93)	*Achnatherum coronatum*	2.0 (2.0)
	Claytonia perfoliata	2.35 (2.09)	*Dichelostemma pulchella*	1.44 (.88)	*Avena barbata*	2.29 (2.0)	*Brassica nigra*	1.12 (.66)	*Linanthus dianthiflorus*	1.94 (1.26)
	Mirabilis californica	2.05 (2.05)	*Brassica nigra*	1.30 (.65)	*Melilotus officinalis*	1.19 (.82)	*Melica californica*	1.11 (.69)	Remaining species are ≤0.39	
	Silybum marianum	1.19 (.43)	*Achnatherum coronatum*	1.03 (.90)	*Solanum umbelliferum*	0.95 (.70)	*Phacelia minor*	0.84 (.78)		
	Cryptantha intermedia	1.16 (.71)	*Linanthus dianthiflorus*	0.65 (.45)	*Brassica nigra*	0.84 (.50)	*Silybum marianum*	0.57 (.55)		
	Stephanomeria pauciflora	1.09 (1.09)	Remaining species are ≤0.13		*Linanthus dianthiflorus*	0.70 (.37)	Remaining species are ≤0.31			
	Thysanocarpus laciniatus	1.04 (1.04)			*Achnatherum coronatum*	0.64 (.51)				
	Remaining species are ≤0.31				*Phacelia minor*	0.63 (.58)				
					Malacothrix glabrata	0.56 (.39)				
					Helianthus nutallii ssp. *nutallii*	0.51 (.51)				
					Emmenanthe penduliflora	0.48 (.03)				
					Remaining species are ≤0.23					

Table F3-6

EXISTING SHRUB VEGETATION, BY HABITAT TYPE

	Coastal Sage Scrub/Mixed Chaparral		Mixed Chaparral		Coastal Sage Scrub/Semi-Desert Chaparral					
					All Slope Aspects		Southeast to West Facing Slopes (95°-270°)		Northwest to East Facing Slopes (275°-90°)	
Note: Values are averages over all transects in each habitat, with one standard error of the mean in parenthesis.										
Species Richness per m²	0.10 (.01)		0.10 (.007)		0.08 (.007)		0.08 (.008)		0.09 (0.1)	
Plant Density per m²	0.56 (.127)		0.84 (.09)		0.53 (.05)		0.53 (.24)		0.55 (.08)	
Absolute Cover All Species (percent)	42.19 (5.76)		35.92 (4.39)		17.0 (2.63)		15.95 (3.03)		20.14 (5.62)	
Relative Cover Each Species (percent)	*Quercus berberidifolia*	32.9 (10.7)	*Salvia mellifera*	32.6 (7.61)	*Encelia actoni*	3.45 (7.20)	*Encelia actoni*	38.0 (8.26)	*Quercus berberidifolia*	44.0 (19.6)
	Ceanothus crassifolius	14.4 (10.1)	*Artemisia californica*	21.3 (5.58)	*Eriogonum fasciculatum foliolosum*	12.2 (4.08)	*Eriogonum fasciculatum*	14.5 (5.12)	*Encelia actoni*	24.1 (15.2)
	Artemisia californica	10.8 (4.65)	*Quercus berberidifolia*	14.4 (8.24)	*Salvia mellifera*	11.9 (3.60)	*Lotus scoparius*	11.3 (4.18)	*Salvia mellifera*	20.9 (11.5)
	Lotus scoparius	6.3 (2.45)	*Eriogonum fasciculatum foliolosum*	6.3 (2.57)	*Eriogonum fasciculatum*	11.3 (4.80)	*Eriogonum fasciculatum fasciculatum*	10.3 (5.61)	*Eriogonum fasciculatum fasciculatum*	14.1 (10.2)
	Eriogonum fasciculatum fasciculatum	6.3 (3.20)	*Yucca whipplei*	6.3 (2.91)	*Lotus scoparius*	9.9 (3.39)	*Salvia mellifera*	8.9 (2.87)	*Eriogonum fasciculatum foliolosum*	5.8 (4.89)
	Eriodictyon crassifolium	5.5 (5.47)	*Adenostoma fasciculatum*	5.1 (2.88)	*Yucca whipplei*	7.0 (2.63)	*Yucca whipplei*	7.6 (3.39)	*Lotus scoparius*	5.7 (5.5)
	Eriogonum fasciculatum foliolosum	4.8 (4.42)	*Arctostaphylos* sp.	5.1 (5.10)	*Quercus berberidifolia*	4.4 (3.8)	*Malacothamnus densiflorus*	2.6 (2.63)	*Yucca whipplei*	5.1 (3.14)
	Salvia mellifera	4.6 (2.13)	*Lotus scoparius*	4.1 (2.19)	*Artemisia californica*	2.9 (1.64)	*Adenostoma fasciculatum*	2.2 (1.45)	*Artemisia californica*	5.1 (3.74)
	Encelia actoni	4.6 (4.57)	*Ceanothus crassifolius*	2.2 (1.95)	Unidentified Malvaceae	2.0 (2.0)	*Artemisia californica*	2.2 (1.84)	Remaining species are each <1%	
	Yucca whipplei	2.5 (2.52)	*Mirabilis californica*	1.1 (1.11)	*Adenostoma fasciculatum*	1.7 (1.10)	*Cercocarpus betuloides*	1.8 (1.8)		
	Lonicera interrupta	2.3 (1.13)	*Eriophyllum confertiflorum*	0.9 (.66)	*Cercocarpus betuloides*	1.3 (1.32)	Remaining species are each <1%			
	Eriophyllum confertiflorum	1.3 (.81)	Remaining species are each <0.5%		Remaining species are each <1%					
	Remaining species are each <1%									

Shrub diversity does not vary substantially between habitat types, but shrub density is substantially higher in mixed chaparral. This habitat is distinguished from the coastal sage scrub/mixed chaparral habitat primarily by the relatively higher cover by chamise (*Adenostoma fasciculatum*). Cover is substantially less in the coastal sage scrub/semi-desert chaparral habitat, a reflection of the sparse distribution of shrubs on the south-facing slopes. It should be pointed out that junipers are present in this habitat but do not appear on the table because they were too sparsely distributed to be included in the transects. However, while their cover is low overall, they probably represent an ecologically significant portion of the flora.

F3.4 DISCUSSION AND RECOMMENDATIONS

By convention, proper statistical comparison of the data presented in this report and data collected on reclaimed sites should be conducted using the raw data files. Reclamation standards (State Mining and Geology Board, 1992) specify that the analysis be conducted to at least an 80 percent confidence level. The sample sizes or number of transects to be used on the reclaimed sites will depend on the amount of variability found on those sites. However, unlike the usual situation encountered in statistics courses where one tries to minimize the possibility of a type 1 error (rejecting the null hypothesis when it is true), sampling effort on the reclaimed sites should be such as to minimize the possibility of a type 2 error (accepting the null hypothesis when it is false). In other words, sample sizes on the reclaimed sites should be such as to minimize the possibility of a statistical analysis finding the reclaimed sites to be the same as baseline conditions, when in fact they are different. A power analysis, provided in standard statistical textbooks, can facilitate selection of the proper sample size to use.

While this study examined the vegetation in terms of three habitat types, representation of all three types is unlikely to be feasible to attain in the reclamation effort. Substantial changes from present topography and associated physical parameters such as slope aspect, slope gradient, and soil composition will affect the type of habitat that can be successfully reclaimed. Therefore, it is recommended that only the data for coastal sage scrub/mixed chaparral and coastal sage scrub/semi-desert chaparral (all slope aspects) be used for reclamation standards. Results of data analysis for different slope aspects in coastal sage scrub/semi-desert chaparral habitat should be considered in the development of the planting design, but for the reasons stated above it would be unrealistic to expect reclamation to duplicate the parameter values according to present slope aspects.

The data presented in this report indicate the parameters that are likely to be most useful in comparing vegetation on the reclaimed sites with the baseline data for each habitat type. These are the parameters for which substantial differences between habitat types were found. Parameters for which there is already substantial variability in nature will be difficult to analyze statistically. The rationale here is that parameters for which there is already significant variability in the habitat will require a substantial reduction in the standard error value. Otherwise, statistical comparison of the reclaimed sites and baseline conditions will always show revegetation "success", regardless of how poorly the reclaimed sites are actually performing. However, the sampling effort needed for a substantial reduction in standard error may be infeasible or uneconomical to attain.

This discussion should not be interpreted as dismissing the ecological importance of the all the parameters that were measured, but rather as a recommendation for the most efficient strategy of data analysis. All of the parameters measured in this study should also be measured on the reclaimed sites, in accordance with regulations (State Mining and Geology Board, 1992). But based on the above reasoning, we would expect that the parameters that will be most important to the statistical analysis will be the following. For shrubs, absolute cover of all species combined should be useful, as well as relative cover of the top four or five dominant species. Statistical comparison of cover values for those species which are important for species diversity but have low cover values and are patchy in their distribution under natural conditions will be difficult (if not impossible) to compare on the reclaimed sites. For herbs, diversity and relative cover should be useful parameters. As in the case of shrubs, only relative cover values of the top four or five dominant species would be expected to prove useful.

F3.5 REFERENCES

Chambers Group, Inc.

1991 Results of a Biological Survey for a Proposed Sand and Gravel Extraction Operation in Soledad Canyon. Submitted to Transit Mixed Concrete Company, Azusa, California.

State Mining and Geology Board

1992 Reclamation Standards Regulations. State of California, Resources Agency, Department of Conservation. Issued July 1.

APPENDIX F4

LETTER REPORT ON SENSITIVE PLANT SPECIES 1994

Chambers Group, Inc.
Environmental Consultants • Scientists • Planners • Engineers

MEMORANDUM

DATE: October 7, 1994

TO: Brian Mastin, Transit Mixed Concrete

FROM: Jane Mallory, Botanist

SUBJECT: Sensitive Plant Surveys

Plant surveys to gather floristic baseline data, plant community, and sensitive species information were conducted by biologists from Chambers Group, Inc., on the project site on April 9 and 10, 1990; May 14 and 15, 1990; May 1, 1992; and May 9, 1994.

A reconnaissance/sensitive species survey was performed in 1990, and preliminary information regarding plant communities, common species, and sensitive species present was gathered. Prior to this survey, the records of the California Natural Diversity Data Base (CNDDB), the California Native Plant Society (CNPS) Inventory of Rare and Endangered Vascular Plants of California (Smith and Berg 1988), and a previous study of the project site (Pearson 1989) were reviewed, and a list of sensitive plant species with some potential to occur onsite was compiled. During this survey, no state or federally listed plant species were observed. The timing of the surveys coincided with the flowering times or vegetative states of the sensitive species considered. However, in the case of several species, the survey year was not considered optimal due to the very dry conditions, and subsequent surveys for Peirson's morning glory (*Calystegia peirsonii*), Santa Monica Mountains dudleya (*Dudleya cymosa* ssp. *ovata*), San Gabriel Mountains dudleya (*Dudleya densiflora*), and short-joint beavertail cactus (*Opuntia basilaris* var. *brachyclada*) were deemed necessary.

A 1992 survey was conducted primarily to confirm the presence or absence of the sensitive dudleyas, morning glory, and beavertail cactus within the zone of impact. This survey confirmed that the Santa Monica Mountains dudleya, San Gabriel Mountains dudleya, and the short-joint beavertail cactus were not present onsite. Identification difficulties primarily due to an inadequate key and incorrect habitat information about the available flora at the time (Munz 1974) necessitated a final survey for Peirson's morning glory.

During the final directed sensitive species survey in 1994 and with use of a more definitive key (Hickman 1993), populations of Peirson's morning glory and two species of mariposa lily (not

Corporate Office: 16700 Aston Street (92714) • P.O. Box 57002 (92619-7002) • Irvine, California • (714) 261-5414 • Fax: (714) 261-8950
Inland Empire Regional Office: Riverside, California • **Northern California Regional Office:** Sacramento, California

previously recorded as having occurred in the area) were located at the base of slopes and in drainages within the northwestern portion of the project site. Peirson's morning glory and slender mariposa lily (*Calochortus clavatus* var. *gracilis*) are both Federal Category 2 Candidate Species ("...threat and/or distribution data are insufficient to support listing"). The third species located was the club-haired mariposa lily (*Calochortus clavatus* ssp. *clavatus*), a watch list plant of the CNPS. This species is also under recommendation by CNPS for evaluation and protection under the California Environmental Quality Act (CEQA).

All three populations occur in a portion of the project site that is out of the projected impact zone. Voucher specimens of each species were collected, their identification confirmed by a botanist at Rancho Santa Ana Botanical Garden (RSABG), Claremont, CA, and deposited in the RSABG herbarium.

A previously recorded large population (over 1,000 individuals) of slender-horned spineflower (*Dodecahema leptoceras*), a state and federally listed endangered species, was confirmed in the alluvial wash within Bee Canyon, offsite of the northwestern portion of the project site. Likewise, this population occurs well away from any projected impact area.

Hickman, J.C. (editor)
1993 *The Jepson Manual, Higher Plants of California.* University of California Press, Berkeley, CA.

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1989 Focused Survey for Endangered Species at Soledad Canyon. Report to Transit Mixed Concrete.

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APPENDIX F5

SUMMARY OF STICKLEBACK SURVEY REPORTS

APPENDIX F5

SUMMARY OF UNARMORED THREESPINE STICKLEBACK HABITAT MONITORING IN SOLEDAD CANYON NEAR LANG, CALIFORNIA

BACKGROUND

Transit Mixed Concrete's proposed surface mining operations in Soledad Canyon are located adjacent to and upstream from a portion of unarmored threespine stickleback (*Gasterosteus aculeatus williamsoni*) proposed critical habitat in the Santa Clara River near Lang, California. This section of proposed critical habitat was defined and designated "B1" in the 1977 Unarmored Threespine Stickleback Recovery Plan (Sasaki et al. 1977) and "D" in the updated recovery plan (USFS 1985). To ensure that Transit Mixed Concrete's proposed mining operations do not have any negative impact on the proposed critical habitat of this endangered fish species, baseline water quality data and general stream conditions have been collected and evaluated on a regular basis by Chambers Group, Inc., since early 1990 to the present.

Initial reconnaissance of unarmored threespine stickleback habitat in the project vicinity was conducted by Dr. David Soltz of California State University, Long Beach and Dr. Noel Davis of Chambers Group on April 9 and May 5, 1990. The reach of the Santa Clara River examined extended from immediately adjacent to the proposed Transit Mixed Concrete operations to below the River's End Trailer Park. The purpose of these first two surveys was to determine the general suitability of this section of stream as unarmored threespine stickleback habitat. Following completion of these initial surveys, scientists from Transit Mixed Concrete and Chambers Group met with Shoken Sasaki of the California Department of Fish and Game (CDFG) and leader of the Unarmored Threespine Stickleback Recovery Team. As a result of this meeting, permanent sites were selected and a baseline water quality monitoring program was initiated.

DESCRIPTION OF PERMANENT MONITORING STATIONS

On July 18, 1990, the streambed downstream from Transit Mixed Concrete's proposed surface mining operations was surveyed to select permanent water quality monitoring sites. Personnel on this survey included Brian Mastin of Transit Mixed Concrete and Dr. Noel davis and Eric Rhodes of Chambers Group. The stream was surveyed from the Pole Canyon Fault (where the first surface water was encountered on this date) to a point several hundred feet from the River's End Trailer Park. Sites were selected to include representative habitats along the section of the Santa Clara River, which contains surface water during the dry season. A total of six permanent monitoring sites were selected and designated P-1 through P-6 as shown on Figure 1. General descriptions of each of these stations are presented in Table 1.

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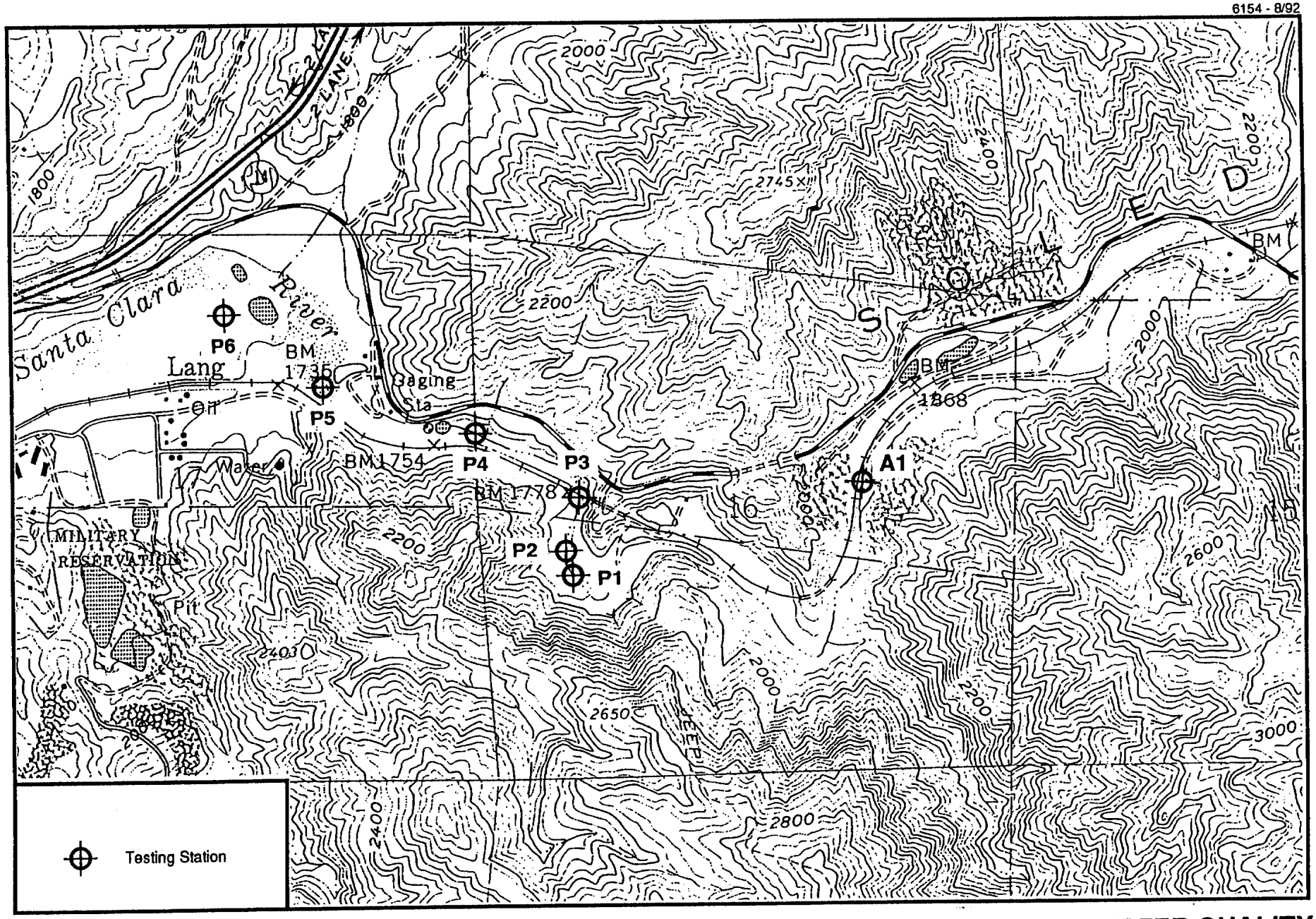

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PERMANENT WATER QUALITY SAMPLING SITES

F re 1

Table 1

GENERAL DESCRIPTIONS OF PERMANENT MONITORING STATIONS

Station	Description
P-1	Intersection of stream with Pole Canyon Fault. First surface water encountered during downstream traverse in July 1990.
P-2	Approximately 200 feet downstream from P-1 near some offroad vehicle tracks.
P-3	Directly underneath the railroad bridge (at the "old" gaging station location).
P-4	A large manmade pond behind an earthen dam near the "new" gaging station
P-5	Directly across from the River's End Trailer Park.
P-6	Several hundred feet downstream from the River's End Trailer Park.

While the general locations of these stations have remained constant during subsequent monitoring efforts, the streambed has been considerably altered by episodic flooding. In some cases, the floods cut new channels and the original stations no longer receive surface flow. Perhaps the greatest changes occurred in the vicinity of Station P-4, where floods in early 1993 completely obliterated the earthen dam and pond. In such cases, the stations were reestablished as close as possible to the former location.

On September 11, 1992, a new upstream station (A-1) was added to the permanent monitoring network. This station is located at the C.A. Rasmussen railroad track and stream crossing as shown on Figure 1. The station was dry at the time of establishment, but previously sustained surface flow for several months following the rainy season.

Occurrence of Surface Water in Soledad Canyon and Consequent Water Quality Implications

The seasonal and annual cycles of precipitation and the general occurrence and movement of surface water and groundwater in Soledad Canyon greatly influence the overall quality of the surface water as measured at the various permanent monitoring stations. Factors controlling the ultimate water quality in the vicinity of the proposed surface mining facilities include the types of geologic materials contacted, subsurface residence time (if any), source of water including subsurface versus direct stormwater runoff, and the works of man.

Long-term average annual precipitation within the contributory watersheds above the proposed surface mining operations range from approximately 8 to 23 inches, with direct precipitation on the property averaging approximately 16 inches annually. As shown on Figure 2, more than 90 percent of the annual rainfall occurs between November and April. The greatest monthly rainfall occurs in January, February, and March (averaging 2.76, 2.89, and 2.73 inches, respectively). The 3 months with the lowest average rainfall are June, July, and August, (averaging only 0.03, 0.02, and 0.14 inch, respectively.)

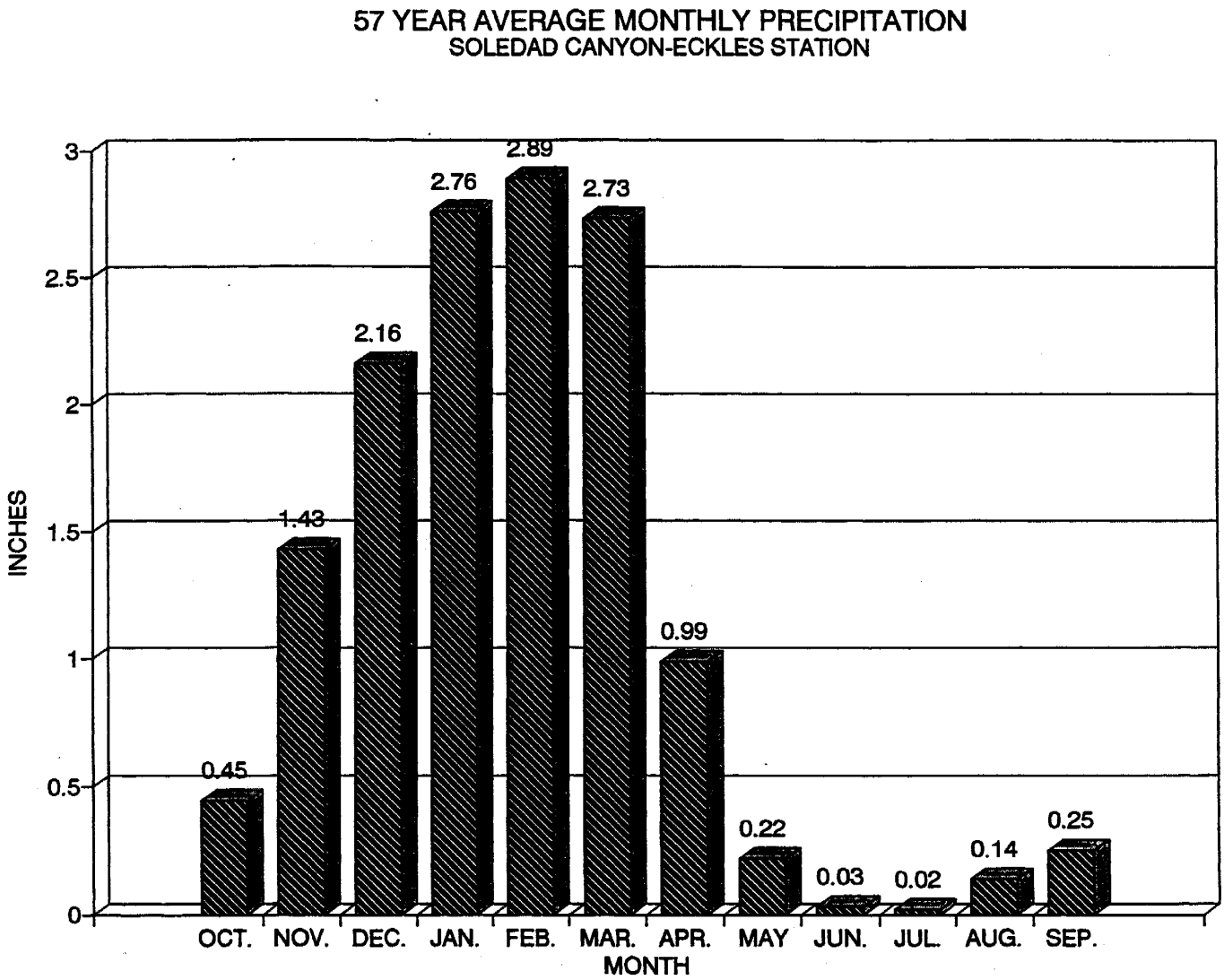

57 YEAR AVERAGE MONTHLY PRECIPITATION
SOLEDAD CANYON-ECKLES STATION
INCHES
3
2.5
2
1.5
1
0.5
0
0.45
1.43
2.16
2.76
2.89
2.73
0.99
0.22
0.03
0.02
0.14
0.25
OCT.
NOV.
DEC.
JAN.
FEB.
MAR.
APR.
MAY
JUN.
JUL.
AUG.
SEP.
MONTH

Figure 2

The most characteristic precipitation station in the vicinity of the subject reach of the Santa Clara River is the Soledad-Eckles Rainfall Station 405 (A and B) located approximately 3 miles upstream (east) of the proposed mining operations (GWSI 1992). For the period of record since the permanent unarmored threespine stickleback habitat monitoring stations were established in July 1990, annual rainfall in the vicinity of the proposed surface mining operations has generally reflected the long-term average annual distribution of precipitation, with February and March being the wettest months (Figure 3). Based on Soledad-Eckles Rainfall Station records, both the 1990-91 and 1991-92 water years produced above average annual rainfall, (14.8 and 23.8 inches, respectively).

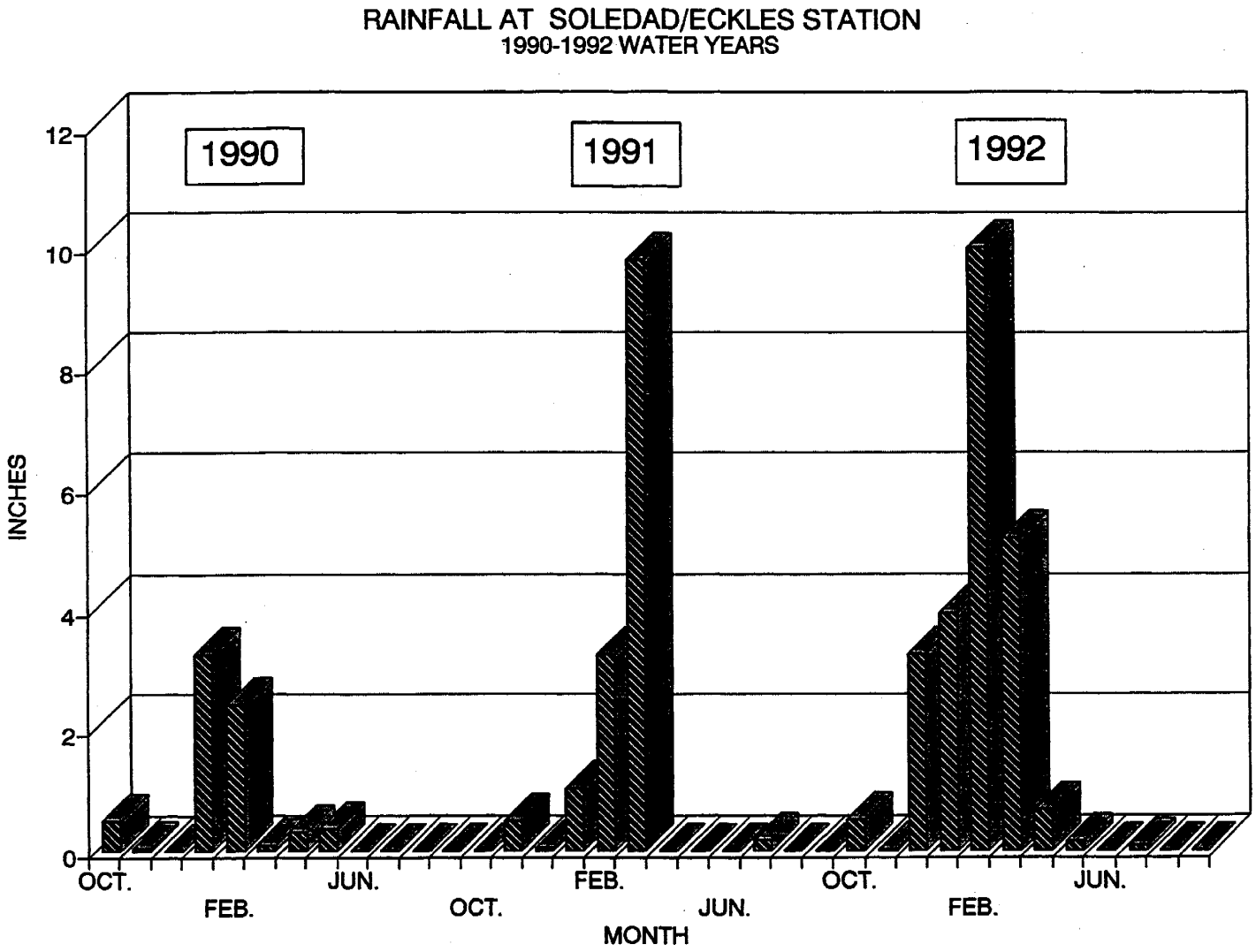
Surface flow in the Santa Clara River in the vicinity of the proposed mining operations is derived from in the Acton watershed as well as from direct precipitation within Soledad Canyon. During the wetter months, surface flow is continuous throughout the subject reach of the river and the underlying alluvium is fully saturated. However, during the dry summer season, various portions of the river are dry whereas other reaches are flowing. The occurrence of surface flow is controlled by the subsurface configuration of the alluvium and hardrock boundary that either force underflow to the surface or allow surface water to infiltrate and contribute to groundwater flow (GWSI 1992).

Following the rainy season, both surface and subsurface flows in the Santa Clara River Valley are sustained by subsurface flows from the Acton drainage area, groundwater storage within the valley alluvium, and from local tributary drainages (GWSI 1992). Thus, at a given time, surface water along the subject reach of the river may be derived from direct surface runoff, rising groundwater, or a combination of surface and subsurface sources, depending on the time of the year, and the localized hydrologic conditions. Considering these potential sources of the surface water along the subject reach of the Santa Clara River, seasonal fluctuations in water quality would be anticipated.

RESULTS OF BASELINE WATER QUALITY MONITORING

After the permanent habitat monitoring locations were established, the stations were sampled on a monthly basis from August 1990 through May 1991. Following the flood flows in the Santa Clara River during the 1991-1992 season, additional habitat surveys have been conducted at regular intervals to the present. At each station, the maximum stream depth and water quality parameters including temperature, electrical conductivity (EC), dissolved oxygen concentration (DO), and pH were recorded. Since September 11, 1992, total dissolved solids (TDS) concentrations have also been measured at each station.

Results of the monthly habitat monitoring program are presented by station in Tables 2 through 8. While the period of water quality monitoring has been too brief to draw definitive conclusions, seasonal trends have been generally reflected at most of the stations. A brief summary of these trends for each parameter measured is included below.


RAINFALL AT SOLEDAD/ECKLES STATION
1990-1992 WATER YEARS
1990
1991
1992
INCHES
0
2
4
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JUN.
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MONTH

Figure 3

Table 2

SUMMARY OF UNARMORED THREESPINE STICKLEBACK HABITAT MONITORING STATION P-1

Date	Depth (cm)	Temperature (°C)	Cond. (mmhos)	O2 (ppm)	pH (units)	TDS (ppm)
07/18/90	3.8					
08/27/90	19.0	18.0	700	2.5	6.8	
09/25/90	7.0	33.0	530	2.0	6.8	
10/31/90	Dry					
11/28/90	Dry					
12/29/90	Dry					
01/30/91	Dry					
02/25/91	Dry					
03/30/91		11.5	510	8.4	8.1	
04/20/91	15.5	14.0	590	8.7	8.4	
05/19/91	22.0	15.0	450	5.5	7.8	
05/07/92		16.2		8.6		
09/11/92	23.0	18.0	550	4.2	7.7	310
10/15/92	14.0	19.5	650	5.0	8.1	330
12/23/92	17.0	9.5	550	7.0	8.4	260
01/20/93	78.0	10.5	335	9.0	7.9	150
03/30/93	40.0	14.0	390	8.15	7.1	220
06/21/93	25.0	25.5	630	8.4	8.5	300
08/03/93	20.0	20.0	500		7.5	280

Table 3

SUMMARY OF UNARMORED THREESPINE STICKLEBACK HABITAT MONITORING STATION P-2

Date	Depth (cm)	Temperature (°C)	Cond. (mmhos)	O2 (ppm)	pH (units)	TDS (ppm)
07/18/90	6.3					
08/27/90	9.0	18	690	6.3	7.2	
09/25/90	Dry					
10/31/90	Dry					
11/28/90	Dry					
12/29/90	Dry					
01/30/91	Dry					
02/25/91	Dry					
03/30/91	27.0	12.0	400	8.6	8.2	
04/20/91	18.0	14.0	590	8.6	8.4	
05/19/91	6.0	15.0	450	6.1	7.8	
05/07/92						
09/11/92	18.0	18.0	650	4.2	7.8	320
10/15/92	12.0	19.5	690	7.2	8.2	340
12/23/92	18.5	10.5	575	7.0	8.4	270
01/20/93						
03/30/93	27.0	14.5	445	8.15	7.8	220
06/21/93	20.4	25.0	630	8.4	8.5	300
08/03/93						

Table 4

SUMMARY OF UNARMORED THREESPINE STICKLEBACK HABITAT MONITORING STATION P-3

Date	Depth (cm)	Temperature (°C)	Cond. (mmhos)	O2 (ppm)	pH (units)	TDS (ppm)
07/18/90	12.7					
08/27/90	Dry					
09/25/90	Dry					
10/31/90	Dry					
11/28/90	Dry					
12/29/90	Dry					
01/30/91	Dry					
02/25/91	Dry					
03/30/91	20.0	12.0	520	8.8	8.3	
04/20/91	9.0	14.0	420	9.6		
05/19/91	10.0	15.0	470	7.3	8.1	
05/07/92		16.4		7.9		
09/11/92	7.5	17.9	650	4.6	7.8	315
10/15/92	16.0	18.5	700	4.6	8.1	330
12/23/92	14.0	11.2	490	6.0	8.4	280
01/20/93	50.0	10.5	340	8.9	8.0	160
03/30/93	30.0	15.0	465	8.15	7.7	220
06/21/93	35.0	25.0	630	7.5	8.3	300
08/03/93	17.05	20.3	510		7.2	280

Table 5

SUMMARY OF UNARMORED THREESPINE STICKLEBACK HABITAT MONITORING STATION P-4

Date	Depth (cm)	Temperature (°C)	Cond. (mmhos)	O2 (ppm)	pH (units)	TDS (ppm)
07/18/90	17.8					
08/27/90	28.0	18.0	710	4.5	7.0	
09/25/90	28.0	23.0	500	3.0	7.0	
10/31/90	19.0	16.01	720	3.3	7.5	
11/28/90	18.5	13.0	610	2.8	7.9	
12/29/90	19.0	13.0	650	2.7	7.6	
01/30/91	12.0	12.0	600	3.8	7.6	
02/25/91	12.0	14.0	550	4.2	7.7	
03/30/91	21.0	13.0	550	8.7	8.1	
04/20/91	15.0	15.0	450	8.5	8.3	
05/19/91	16.0	16.0	490	7.8	8.1	
05/07/92		17.5		7.8		
09/11/92	69.0	17.9	650	3.5	7.8	330
10/15/92	69.0	18.5	650	4.1	8.2	380
12/23/92	16.0	12.0	600	6.5	8.4	280
01/20/93		11.5	340	9.5	8.1	160
03/30/93	35.0	15.5	475	8.15	7.6	220
06/21/93	200.0+	24.5	630	7.7	8.5	300
08/03/93						

Table 6

SUMMARY OF UNARMORED THREESPINE STICKLEBACK HABITAT MONITORING STATION P-5

Date	Depth (cm)	Temperature (°C)	Cond. (mmhos)	O2 (ppm)	pH (units)	TDS (ppm)
07/18/90	17.8					
08/27/90	19.0	19.0	750	7.2	7.4	
09/25/90	16.0	22.0	510	6.4	7.8	
10/31/90	15.5	16.0	720	7.5	7.9	
11/28/90	18.5	13.0	680	7.4	8.1	
12/29/90	18.0	13.0	650	7.4	7.6	
01/30/91	17.0	13.0	650	7.6	8.0	
02/25/91	14.0	15.0	600	7.2	8.0	
03/30/91	28.0	15.0	590	8.1	8.2	
04/20/91		15.0	480	8.7	8.4	
05/19/91	16.0	19.0	550	5.4	8.1	
05/07/92		18.5		8.2		
09/11/92	18.0	19.0	750	6.6	8.0	380
10/15/92	18.0	18.5	650	7.0	8.2	340
12/23/92	25.0	12.5	650	7.4	8.6	300
01/20/93		12.0	350	9.4	8.0	165
03/30/93	30.0	16.0	485		7.6	230
06/21/93	51.0	24.5	670	8.7	8.4	310
08/03/93	49.0	22.0	650		8.5	310

Table 7

SUMMARY OF UNARMORED THREESPINE STICKLEBACK HABITAT MONITORING STATION P-6

Date	Depth (cm)	Temperature (°C)	Cond. (mmhos)	O2 (ppm)	pH (units)	TDS (ppm)
07/18/90	8.9					
08/27/90	16.0	21.0	520	9.8	7.8	
09/25/90	17.0	22.0	500	8.6	7.5	
10/31/90	18.0	16.0	700	8.5	8.3	
11/28/90	17.0	12.0	620	8.7	8.5	
12/29/90	17.5	12.0	650	9.2	8.4	
01/30/91	15.5	12.5	600	9.5	8.4	
02/25/91	16.0	15.0	700	9.2	8.4	
03/30/91	33.0	15.0	600	8.0	8.2	
04/20/91	19.0	16.0	480	10.5	8.6	
05/19/91	14.0	20.0	590	9.5	8.4	
05/07/92		18.8		8.4		
09/11/92	12.0	22.0	780	10.4	8.1	380
10/15/92	15.0	21.0	800	9.0	8.6	380
12/23/92	35.0	12.4	640	8.6	8.7	300
01/20/93	30.0	13.0	345	8.8	7.9	170
03/30/93	23.0	16.5	500	8.35	7.4	240
06/21/93	30.0	24.0	700	8.8	8.1	310
08/03/93						

Table 8

SUMMARY OF UNARMORED THREESPINE STICKLEBACK HABITAT MONITORING STATION A-1

Date	Depth (cm)	Temperature (°C)	Cond. (mmhos)	O2 (ppm)	pH (units)	TDS (ppm)
11/28/90	Dry					
12/29/90	Dry					
01/30/91	Dry					
02/25/91	Dry					
03/30/91						
04/20/91						
05/19/91						
05/07/92						
09/11/92	Dry					
10/15/92	Dry					
12/23/92	15	12.3	640	9.4	8.7	290
01/20/93		10.5	335	9.3	8.1	160
03/30/93	16.0	13.5	405	7.85	8.6	180
06/21/93	37.0	21.5	670		8.15	290
08/03/93	35.0	26.0	435		7.4	330

Temperature

As might be expected, surface water temperature is highly related to the season, with the highest recorded temperatures occurring in the summer and the lowest temperatures during the winter months. The lowest recorded temperatures of approximately 9.5 to 11° Centigrade (C) were observed in December. The highest recorded temperatures ranged from approximately 20°C in the upstream stations (P-1 through P-3) to 22°C in the lower stations (P-4 through P-6).

Dissolved Oxygen

The solubility of air in water at 0°C and atmospheric pressure is approximately 29 milligrams/liter (mg/L) and approximately 10 mg/L of this represents the oxygen portion. Solubility of oxygen in water decreases with higher temperature, becoming almost zero at the boiling point. DO concentrations were generally highest (in excess of 9.0 ppm) at all stations immediately following major precipitation events during the peak wet season in March and April. Heavy rains in December 1992 and January 1993 also resulted in high DO concentrations. The greatest fluctuations in DO concentrations occurred in the upstream stations (P-1 through P-4), while oxygen concentrations in P-5 and P-6 were consistently above 6 ppm. Thus, the downstream reach below P-5 would be most suitable as permanent stickleback habitat due to the high year-round DO concentrations in the water.

Hydrogen Ion Concentration (pH)

Water is said to be either acidic or basic (alkaline) depending on the relative concentration of hydrogen ions. The pH range is from 0 to 14, with a pH of 7.0 at 77° Fahrenheit (F) indicating a neutral solution in which the H^+ and OH^- ions are of equal concentration. The pH of the surface water at the various stations was slightly basic (approximately 8.0), relatively stable, and independent of any seasonal effects. A very slight increase in pH at the downstream stations is suggested by the data, although this may be within the instrument error range.

Electrical Conductivity

The concentration of TDS is sometimes indirectly measured in terms of the electrical conductivity (EC) of a water. The EC of water varies almost directly with the amount of dissolved minerals. However, the EC of solutions of different minerals is not the same. The electrolytic capacity of a natural water is a function of the number of moles of each ion and the electrical charge of the ion. Therefore, no simple relationship between TDS and EC exists, (although for most waters EC multiplied by a factor of 0.55 to 0.75 gives a reasonable estimate of TDS).

The EC of surface water measured at the various stations normally ranged from approximately 400 to 700 micromhos (mmhos) depending on the season. The lowest EC readings generally occur immediately following the spring rains, when streamflow is largely derived from direct surface runoff. For example, extremely low readings of 335 to 350 mmhos were recorded at

the stations immediately following the heavy rains of January 1993. During the dry season, EC tends to rise as a greater portion of the streamflow is derived from rising groundwater and as a result of the evapotranspirative concentration of salts.

Total Dissolved Solids

It is the total amount of TDS in water that determines whether it is considered fresh or saline. It is recommended that drinking water contain no more than 500 ppm of dissolved solids, although water with up to 1,000 ppm is often used if no other source is available. Water with less than 1,000 ppm of TDS is fresh, from 1,000 to 10,000 is brackish; and 10,000 to 100,000 ppm is saline. Water containing greater than 100,000 ppm TDS is classified as a brine.

Although measurement of TDS concentrations at the permanent habitat stations has only been conducted for the last 4 months, (beginning in September 1992), the close relationship between EC and TDS is clearly demonstrable on the individual station graphs. Typical TDS concentrations have ranged from 270 to 380 ppm. In correlation with the EC readings, extremely low TDS concentrations ranging from 150 to 170 ppm were recorded at the stations following the heavy rains and consequent direct floodwater runoff during the rains of January 1993.

QUALITATIVE OBSERVATIONS AT THE PERMANENT HABITAT STATIONS

In addition to the quantifiable water quality parameters described above, qualitative observations of habitat suitability and any changes in the surrounding riparian corridor have been noted on a monthly basis at each permanent station. On the basis of these observations, several important conclusions can be drawn. During dry periods such as the 1990-1991 water year, the upstream portion of the stream from Transit Mixed Concrete's proposed operations (A-1) to the Pole Canyon Fault (P-1) is likely to dry up shortly after the end of the wet season (in May or June). During these dry periods, the river reach extending from P-1 to slightly above the large pond at station P-4 also generally dries up in the late summer or fall. For example, in October of the 1990-91 water year, there was no surface water at Stations P-1, P-2, or P-3, and the first standing water was encountered approximately 200 m upstream from the large pond. The large pond (P-4) also becomes increasingly stagnant in the fall and winter months of dry years. In contrast, the river reach below the pond has continual flows even during relatively dry years.

Thus, regardless of water quality, the entire stream reach from Station A-1 to slightly upstream from the pond at station P-4 may be seasonally dry; therefore, the only permanent habitat is below the pond in the vicinity of the River's End Trailer Park. However, during periods of high flow, the full length may serve as a conduit for sticklebacks between the upstream populations near the Soledad Campground and downstream populations near the River's End Trailer Park.

One final conclusion that can be drawn from the qualitative records at each of the stations is that this reach of the Santa Clara River is highly dynamic, with even moderate flood flows scouring and depositing the alluvial fill, modifying the distribution of riparian vegetation, and altering the

surficial/subsurface hydrologic flow regimes. The runoff from the storms of early 1993 alone scoured the streambed to depths as great as 6 to 8 feet in the vicinity of the former large pond (at P-4), and to a lesser extent along the entire stream reach. The course of the stream within the confines of the alluvial floor was dramatically altered in many locations by these storms.

CONCLUSIONS

A total of seven permanent unarmored threespine stickleback habitat water quality monitoring stations have been established on the Santa Clara River in the vicinity of the proposed Transit Mixed Concrete's Soledad Canyon surface mining facility. To ensure that Transit Mixed Concrete's mining operations do not have any negative impact on the proposed critical habitat of this endangered fish species, baseline water quality data and general stream conditions have subsequently been collected and evaluated on a regular basis by Chambers Group since July 1990. Based on quantitative and qualitative results from these continuing monitoring efforts, the following conclusions have been derived:

- The stickleback habitat along the subject reach of the stream is highly dynamic and subject to frequent modification following even relatively moderate flood events.

- The seasonal and annual cycles of precipitation greatly influence the observed surface water quality at all stations.

- Observed variations in water quality are in part due to the different sources of surface water. During the wetter months, streamflow is largely derived from direct floodwater runoff and flow is continuous throughout the subject reach of the river and the underlying alluvium is fully saturated. However, during the summer and fall seasons, upstream portions of the river are dry and both surface and subsurface flows in the Santa Clara River Valley are sustained by subsurface flows from the Acton drainage area, groundwater storage within the valley alluvium, and from local tributary drainages.

- Stations A-1, P-1, P-2, and P-3 were dry in the summer months and would therefore appear to be unsuitable as long-term stickleback habitat, although the area remains an important conduit between upstream and downstream stickleback populations. During the fall of the relatively dry 1990-1991 season, water in the large pond at station P-4 became stagnant and appeared to be unsuitable as stickleback habitat.

- Sustained year-round streamflows below the former pond (at station P-4) in the vicinity of the River's End Trailer Park provide the only permanent, moderately good stickleback habitat.

- Water temperature is highly related to the seasons, with highest temperatures in the summer and lowest temperatures in the winter. Temperatures ranged from lows of approximately 11°C to highs of approximately 20°C in the upper stations (P-1 through P-3) and 22°C in the lower stations (P-4 through P-6).

- The pH of the surface water at various stations was relatively stable and slightly basic (approximately 8.0) and independent of any seasonal effects.

- DO concentrations ranged from more than 9.0 to 2.0 ppm. In general, the dissolved oxygen concentrations fluctuated greatly at the upstream stations (P-1 through P-4), whereas oxygen concentrations in P-5 and P-6 were consistently above 6 ppm. Thus, the downstream reach below P-5 would be most suitable as permanent stickleback habitat due to the high year-round DO concentrations in the water.

- The EC of surface water at the various stations normally ranged from approximately 400 to 700 mmhos depending on the season. The lowest EC readings generally occurred immediately following the spring rains, when streamflow is largely derived from direct surface runoff. During the dry season, EC tends to rise as a greater portion of the streamflow is derived from rising groundwater, and as a result of the evapotranspirative concentration of salts. In general, sticklebacks are osmotically tolerant.

- A close relationship exists between measured EC and TDS concentrations at all stations. Typical TDS concentrations have ranged from 270 to 380 ppm. In correlation with the EC readings, extremely low TDS concentrations ranging from 150 to 170 ppm were recorded at the stations following the heavy rains and consequent direct floodwater runoff during the rains of January 1993. The quantity and quality of dissolved solids often determines the variety and abundance of biota in a given aquatic situation. According to laws of osmosis and diffusion, the water balance, or osmoregulation, of plants and animals is governed by this environmental density factor and by the physiological adaptations of the organisms to it. Dissolved solids also influence the nature of the community due to this supply of nutrients and other important materials. The only source of nutritionally important ions available to phytoplankton is the reservoir of matter dissolved in the water. The nature of the aquatic animal community is, of course, dependent on the kinds and quantity of phytoplankton as well as algae and aquatic vascular plants.

  Seasonal variation in rainfall and surface runoff, and the geochemical nature of the drainage basin, strongly influence the composition of waters of small streams.

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APPENDIX F6

HABITAT PROTECTION PLAN

DRAFT

HABITAT PROTECTION PLAN

FOR SOLEDAD CANYON

SAND AND GRAVEL MINING PROJECT

Prepared for:

TRANSIT MIXED CONCRETE

Prepared by:

CHAMBERS GROUP, INC.
17671 Cowan Avenue, Suite 100
Irvine, California 92614
(714) 261-5414

JANUARY 1998

DRAFT
HABITAT PROTECTION PLAN
FOR SOLEDAD CANYON
SAND AND GRAVEL MINING PROJECT

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SECTION 1 - INTRODUCTION

1.1 PROJECT DESCRIPTION

In 1990, the U.S. Department of Interior, Bureau of Land Management (BLM), entered into contracts with Transit Mixed Concrete Company (TMC). These contracts allowed for the mining of up to 56 million tons of sand and gravel from lands adjacent to Soledad Canyon Road, in the lower Soledad Canyon area of the County of Los Angeles.

The proposed TMC project calls for the mining of a conglomerate rock formation along a ridge adjacent to the Santa Clara River. The project site has been previously mined by others for about 20 years, which has resulted in the disturbance of approximately 45 acres of the hillside. The existing mining site has not been reclaimed and is scheduled to be mined and reclaimed by TMC. TMC's proposed project calls for the mining of an additional 115 acres, as well as for the establishment of processing facilities and the backfilling of excess natural fines on the site. TMC's project would use water pumped from wells using the underflow of the Santa Clara River. However, all other project operations would be located north of Soledad Canyon Road and out of the Santa Clara River floodplain.

TMC is engaged in the project permitting process, and an Environmental Impact Report (EIR) is being prepared for the project. A primary concern of the EIR is the possible environmental impacts to the habitat of an endangered fish, the unarmored threespine stickleback (*Gasterosteus aculeatus williamsoni*), which exists in the Santa Clara River near the project site. Specifically, permanent unarmored threespine stickleback habitat is located downstream of the mining site within a locality described as "B_1" in the original *Recovery Plan for Unarmored Threespine Stickleback* (Sasaki et al. 1977) and "Zone D" in the *Revised Unarmored Threespine Stickleback Recovery Plan* (U.S. Fish and Wildlife Service [USFWS] 1985).

This Habitat Protection Plan identifies the possible threats to the habitat of the B_1 population of unarmored threespine stickleback that might result from implementation of the Project. The plan describes the project monitoring and mitigation measures that are designed to protect that unarmored threespine stickleback habitat.

1.2 APPLICABLE LAWS AND REGULATIONS

This Habitat Protection Plan is designed to serve as part of the conferencing process pursuant to Section 7 of the federal Endangered Species Act. Such conferencing is required between the USFWS and a federal agency whenever a major federal action potentially may jeopardize the existence of any threatened or endangered species. The conferencing is with the BLM, and the applicant is TMC. The BLM has designated TMC as a nonfederal representative to conduct informal conferencing and prepare the Biological Assessment and this Habitat Protection Plan.

The species being considered is the unarmored threespine stickleback. TMC's proposed quarry operation is located upstream from, and adjacent to, the portion of unarmored threespine stickleback essential habitat near Lang designated "B_1" in the 1977 *Unarmored Threespine Stickleback Recovery Plan* (Sasaki et al. 1977) and "Zone D" in the Revised Unarmored Threespine Stickleback Recovery Plan (USFWS 1985). This area is the farthest downstream portion of the Soledad Canyon essential habitat (see Figure 1).

The Soledad Canyon Zone of essential habitat is described as follows:

> An area of land and water in Los Angeles County, with the following components (San Bernardino meridian): Santa Clara River within T4N, R13W and R14W, beginning at a point 1.4 miles (2.3 kilometers [km]) upstream in Soledad Canyon from the community of Lang, at the downstream end of the area called River's End Park, at 34°26'7"N, 118°21'15"W, thence extending upstream approximately 8.5 miles (13.7 km) to its confluence with Arrastre Canyon, at a point located about 0.6 of a mile (1 km) southwest of Los Angeles County Rehabilitation Camp, thence upstream in Arrastre Canyon approximately 0.8 of a mile (1.4 km) to 34°26'7"N, 118°11'51"W (USFWS 1985).

The essential habitat is specifically described to include the following ecological units:

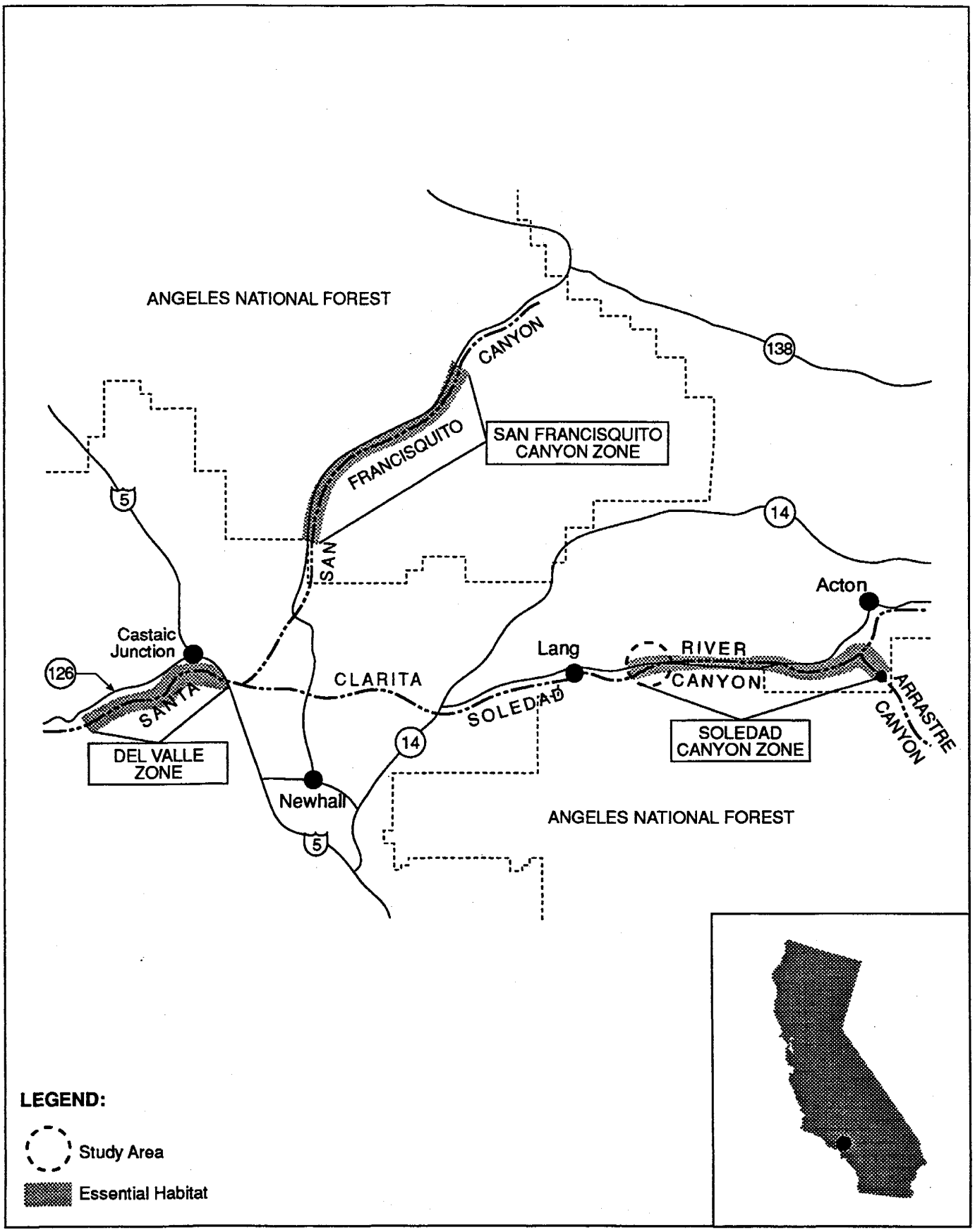
1. Permanently Flowing Habitats: These form permanent refugia and their locations are described below. Deterioration of water quality, biological resources (e.g., aquatic vegetation, prey species), or calm water for nesting sites may adversely affect the unarmored threespine stickleback.

2. Temporarily Flowing Habitats: In late fall, the aquatic habitats extend dramatically and sticklebacks move into these newly submerged areas. The effect of stickleback reproduction in temporary habitats on total population growth is unknown. These areas may also serve as dispersal routes between permanent habitats harboring unarmored threespine stickleback populations.

The essential habitat extends laterally from the streambed to include associated floodplain that supports or is capable of supporting riparian vegetation under natural conditions.

In 1980, all of the areas designated as essential habitat for the unarmored threespine stickleback in the *Unarmored Threespine Stickleback Recovery Plan* (Sasaki et al. 1977) were proposed as critical habitat (Federal Register 45: 76012). Official designation of critical habitat is still pending (C. Brown, USFWS, personal communication 1993).

Designation of an area as critical habitat has legal implications that designation of essential habitat does not have (Ray Bramsfield, USFWS, personal communication). Essential habitat describes important habitat but does not in itself have any legal ramifications. Designation of critical habitat allows the USFWS to take "reasonable and prudent measures" and consider "reasonable and prudent alternatives" that it believes are necessary to minimize impacts to the critical habitat. However, unarmored threespine stickleback is currently listed as a state and federal endangered species. Therefore, any habitat of unarmored threespine stickleback is also



Not to Scale

N

SOURCE: Chambers Group, Inc.

ESSENTIAL HABITAT FOR UNARMORED THREESPINE STICKLEBACK IN THE COUNTY OF LOS ANGELES

Figure 1

protected from major modifications, or degradation, where such modification actually kills or injures unarmored threespine stickleback by significantly impairing essential behavioral patterns including breeding, feeding, or sheltering.

1.3 GOALS AND OBJECTIVES OF HABITAT PROTECTION PLAN

It is the objective of this plan to protect the permanent habitat of the B_1 population of unarmored threespine stickleback from significant project-related habitat modification or degradation. While the overall habitat quality for the unarmored threespine stickleback in the surveyed area is highly variable due to the effects of storms and droughts, the reach of river downstream of the Project is moderately good habitat, with year-round surface flows of water. It is the objective of this plan to minimize project impacts to maintain a sufficient quantity of river flow of suitable quality water to this permanent habitat of the B_1 population of unarmored threespine stickleback.

SECTION 2 - BIOLOGICAL SETTING

2.1 UNARMORED THREESPINE STICKLEBACK HABITAT REQUIREMENTS

Unarmored threespine sticklebacks make their nests in places in the streambed where there is ample vegetation and a gentle flow of water (Sasaki et al. 1977). Young fish tend to be found at the shallow edges of streams in areas of dense vegetation. Adults are found in all areas of the stream, but they tend to gather in areas of slower moving or standing water. In places where water is moving rapidly, adults tend to be found behind obstructions or at the edge of the stream, especially under the edge of algal mats. According to the Revised Unarmored Threespine Stickleback Recovery Plan (USFWS 1985) the best habitat is a small clean pond in the stream with a constant flow of water through it. These habitats have been found to support the highest density of unarmored threespine stickleback.

Unarmored threespine sticklebacks, like most native southern California freshwater fishes, are adapted to the highly variable environmental conditions of southern California rivers and streams. These conditions include years of violent winter stormflow, such as occurred in the winter of 1993, in which the course of the streambed can be dramatically altered as well as years of drought in which sections of stream become completely dry during the summer and fall. Unarmored threespine sticklebacks can reproduce rapidly whenever conditions are suitable. Sections of streambed that are only wet seasonally following years of high or normal flow can thus still have importance to the population because young produced in these areas during the spring can disperse to the sections of stream that are permanently wet (Ray Bramsfield, USFWS, personal communication).

Much is still unknown about the exact habitat requirements of the unarmored threespine stickleback. The need to conduct additional studies to better understand these requirements is specifically identified in the *Revised Unarmored Threespine Stickleback Recovery Plan* (USFWS 1985).

2.2 UNARMORED THREESPINE STICKLEBACK HABITAT IN THE VICINITY OF THE PROJECT

From 1990 to the present, TMC has employed fisheries biologists from Chambers Group, Inc. (Chambers Group) to evaluate and monitor unarmored threespine stickleback habitat in the vicinity the project site. Based on the general knowledge of the unarmored threespine stickleback and on the specific surveys in the vicinity conducted by Chambers Group, the Santa Clara River in the area of the proposed mining operation supports both permanently flowing and temporarily flowing (periodically dry) unarmored threespine stickleback habitat. The quality of the habitat in the survey area is variable, and unarmored threespine stickleback are adapted to such variability, including flood flows during the winter and spring. In July 1990, six permanent stations were selected as representative of a range of habitat types along a portion of the stream that is adjacent to and downstream of the project. Figure 2 shows the location of the sampling

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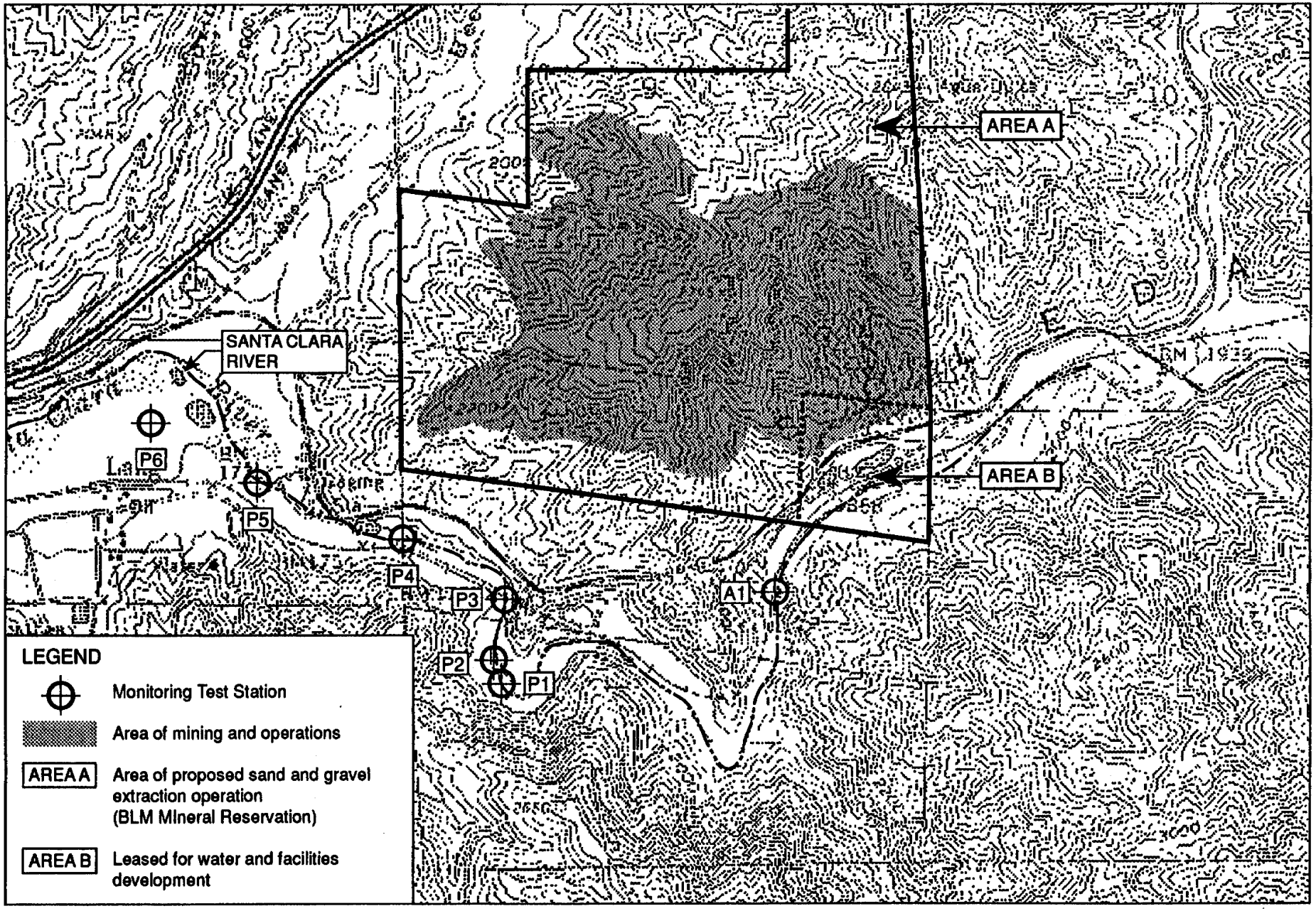

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Source: Chambers Group, Inc.

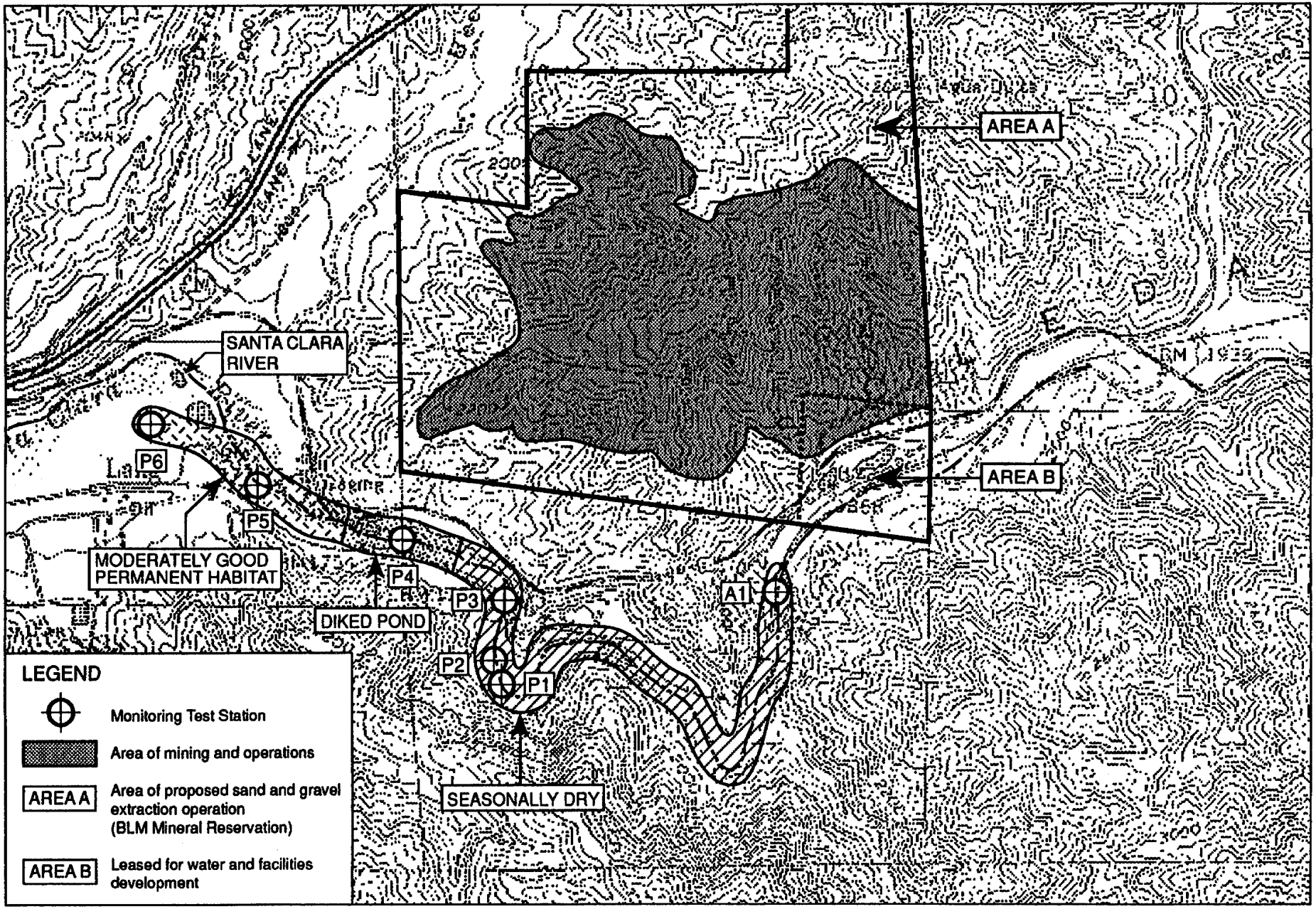
PERMANENT HABITAT QUALITY SAMPLING SITES
Figure 2

stations. Sampling at these stations has been conducted from 1990 through 1993. Measurements for the monitoring program include depth, temperature, electrical conductivity, dissolved oxygen content, pH, and total dissolved solids. Descriptive evaluations were also made of each site at the time the sampling was conducted. More recent additions to the sampling program include estimates of water velocity and streamflow.

Of the six permanent sites (P1 through P6) previously mentioned, sampling between July 1990 and May 1991 showed that the upstream stations (P1 through P3) were subject to drying during drought conditions. The downstream stations (P4 through P6) remained consistently wet over the entire sampling program since its beginning in 1990. Station P4 depth ranged from 12 to 69 centimeters (cm), temperature from 11.5 to 23°C, and the minimum dissolved oxygen was 2.7 parts per million (ppm). The water velocity appears to be negligible and the pond is subject to very dense vegetation. The low level of dissolved oxygen (physiological stress in the stickleback is expected to occur at 2.0 ppm) and the lack of flow make this pond unlikely stickleback habitat.

The best consistently wet stickleback habitat is downstream of Station P4, in the vicinity of the River's End Trailer Park near Station P5 and downstream to Station P6. Station P5 water depth ranged from 14 to 28 cm, temperature from 12 to 22°C and minimum dissolved oxygen of 6.4 ppm. Station P6 water depth ranged from 8.9 to 35 cm, temperature from 12 to 22°C and minimum dissolved oxygen of 8.0 ppm. Figure 3 shows the habitat description based on habitat quality and permanent or temporary flowing water.

Based on the results over the period of the surveys, the most appropriate unarmored threespine stickleback habitat existed downstream of the River's End Trailer Park between sampling Stations P4 and P5. This habitat has been judged to be moderately good habitat, while the balance of the habitat is marginal either because of low oxygen content, or it becomes seasonally dry.



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Source: Chambers Group, Inc.

UNARMORED THREESPINE STICKLEBACK HABITAT DESCRIPTION

Figure 3

SECTION 3 - POTENTIAL THREATS TO UNARMORED THREESPINE STICKLEBACK FROM THE PROJECT

Three potential threats to unarmored threespine stickleback are identified in the Biological Assessment (Chambers Group 1994). These potential threats are excess siltation in the Santa Clara River, uncontrolled discharges into the river, and uncontrolled groundwater pumping from the underflow of the river. The following sections summarize these threats.

3.1 EXCESS SILTATION

TMC's Project will cause increased surface disturbance of rock formations and soils at elevations above the river. If mining operations were to be conducted without siltation controls, the mining operations could increase the rate of surface erosion at the mining site dramatically and subsequently increase the rate of sedimentation within the essential habitat of unarmored threespine stickleback.

The unarmored threespine stickleback recovery plan identifies increased siltation as a possible threat to the species. The plan cites the potential for habitat destruction from increased flow of silt from the watershed that can cover the bottom of pools with fine sediment or complete fill in the pools. Other concerns include the possibility that increased siltation could interfere with reproduction by covering eggs or that feeding could be interfered with because sticklebacks are sight feeders.

3.2 TOXIC SPILLS AND DISCHARGES

Because of the limited geographical distribution of unarmored threespine stickleback populations, the unarmored threespine stickleback Recovery Team is concerned that an upstream toxic spill into the Santa Clara River could cause catastrophic extirpation of the populations in the Santa Clara River. *The Stickleback Emergency Contingency Plan* (USFWS 1985) has identified "zones of influence" as an aid to Response Team Leaders. The Project is located adjacent to and upstream of the B_1 population in Zone D. This zone has a low potential for significant loss of unarmored threespine stickleback because there is a small amount of habitat in this most downstream portion of habitat that would be impacted by a spill. However, there is a high potential for toxic contamination because of the close proximity of the railroad to the river in this area.

Although the extensive use of toxic chemicals is not planned for the Project and the project is not an in-stream mining operation, the resumption of mining activity at the project site could increase the possibility of toxic spills such as fuel. If such a spill could escape from project secondary containment structures and desilting debris basins, an uncontrolled discharge could flow into the Santa Clara River and pollute the essential habitat of the B_1 population of unarmored threespine stickleback.

3.3 GROUNDWATER REMOVAL

The revised Recovery Plan for Unarmored Threespine Stickleback (USFWS 1985) specifically identifies uncontrolled pumping of groundwater, especially during dry years, as a threat to the stickleback. Uncontrolled pumping could result in four problems for unarmored threespine stickleback. Lowered groundwater could lead to reduced rate of flow, oxygen depletion, increase in temperature fluctuations, and drying of algal mats and other vegetation at pool edges in which stickleback nests are constructed.

The proposed TMC project will use water pumped from the underflow of the Santa Clara River. Uncontrolled pumping during the dry seasons of low rainfall years could adversely impact the B_1 population by reducing the quality of the permanent habitat because of low flows, low oxygen levels, and high temperatures.

SECTION 4 - ALTERNATIVES ANALYSIS

Several alternatives to the Project were considered to reduce or eliminated the potential for impacts to unarmored threespine stickleback. The following section summarizes the alternatives to the Project that were considered over the course of planning and permitting the project.

4.1 NO PROJECT ALTERNATIVE

The No Project Alternative would retain the project site in its current land use, which includes an existing quarry and stockpiles. No further mining would occur onsite, and no reclamation of the existing site would be implemented. Therefore, the current uncontrolled erosion and stormwater runoff from the site would continue into the Santa Clara River with no mitigation. No water would be used by the project for mining operations; therefore, the potential threat to unarmored threespine stickleback habitat from groundwater removal would be removed.

Additionally, the proposed site is considered by state and federal agencies as an important source of aggregate material for the Los Angeles Basin. In order to continue supplying sand and gravel to the Los Angeles Basin, alternative supplies would have to be located in the Palmdale-Littlerock area of northern Los Angeles County. This would necessitate longer distances to bring material to the market area and would hasten the depletion of the reserves of the alternate production area. Longer haul distances for aggregate product would result in greater impacts to air quality and traffic resources in the region.

4.2 ALTERNATIVE PROJECT SITES

Alternative sites were examined as possible sources of sand and gravel prior to the selection of the Project. Reasons that these sites were not further considered, include lack of ability to obtain permits, excessive distance from the market, excessive expense, and land use conflicts, as further described below. Alternative sites examined included locations in western San Bernardino County, northern Riverside County, southern Orange County, and the Antelope Valley area of Los Angeles County. The following findings led to rejection of these sites:

- Western San Bernardino County sites were rejected primarily because of the inability to obtain permits. Barriers to procurement of permits included the habitat destruction of endangered species and conflicting land uses.

- A northern Riverside County site was rejected because of excessive royalty requirements, excessive processing costs, and questionable material quality.

- A southern Orange County site was rejected because of excessive development costs, excessive overall environmental impacts, and impacts to cultural resources.

- Several site in Antelope Valley were rejected because of excessive distance from TMC's primary market, which would result in increased air quality and traffic impact.

4.3 ALTERNATIVE WATER SOURCE

Several alternative methods of obtaining water for use at the site have been studied. These include the following:

- **Use of Imported or Reclaimed Water** - No pipelines have been constructed near the TMC site. Therefore, this alternative would require construction of a pipeline of several miles plus negotiations with water agencies to obtain improved or reclaimed water. This alternative would not be cost feasible based on the lease and operations costs. This alternative would also create substantial impacts associated with pipeline construction. The proposed Rio Dulce development has identified a wastewater treatment plant site east of the Project. However, it is not known if and when this treated water would be available.

- **Use of Groundwater Resources** - Other than the Santa Clara River source proposed by TMC, there are no other available groundwater resources at the site.

- **Hauling of Water** - Hauling of water via truck would substantially increase air quality, safety, and traffic impacts. The cost would also make the Project infeasible.

Using an alternate water source would reduce impacts associated with the Santa Clara River and the unarmored threespine stickleback habitat. Presently, no alternative source exists or is feasible to use at the proposed site. If an alternate source of water could be acquired and depending on the means of providing the water to the site, other resource areas would have increased impacts. If water were trucked to the site impacts would be increased to traffic, noise, and air quality. Additional short-term impacts to biota, traffic, noise, and air quality would result from construction of a reclaimed water pipeline if a source could be found.

SECTION 5 - MITIGATION MEASURES FOR POTENTIAL PROJECT IMPACTS

5.1 MITIGATION FOR EXCESS SILTATION

In preparation of the EIR, extensive surface drainage and flood control analyses have been completed for the proposed project. Pre-project conditions, during-project conditions for various phases of mining, and post-project conditions have been analyzed. The location and size of desilting/debris basins have been identified. The locations and sizes of erosion control devices such as V-ditches, culverts, and drop-inlet structures have been determined.

Additionally, reclamation and revegetation plans for disturbed land surfaces have been detailed. The reclamation process has been assured through the posting of a $1.4 million Performance and Reclamation Bond. This bond was made payable to BLM as well as the State of California Division of Mines and Geology and the County of Los Angeles.

TMC proposes to mitigate potential impacts to the B_1 population of unarmored threespine stickleback through a program of controlled mining practices including the construction and maintaining of desilting/debris basins and erosion control devices. Accumulations of silt will be periodically removed from the basins and placed into compacted earthen fill areas that will be subsequently revegetated. Concurrent reclamation and revegetation will occur on all disturbed areas that are being permanently abandoned. All of the above activity will be conducted in conformance with the procedures outlined in the EIR.

5.2 MITIGATIONS FOR TOXIC SPILLS AND DISCHARGES

During development of the overall project plans, specific plans were developed for Storm Water Pollution Prevention (West Coast Environmental 1993a) and Spill Prevention Control and Counter Measures (West Coast Environmental 1993b). These plans detail construction requirements for tanks and secondary containment structures, as well as inspection and operating procedures that minimize the potential for spills and leaks that would result in pollution of storm waters, groundwater, or river water.

TMC proposes to mitigate the potential for toxic spills and discharges through implementation of the Storm Water Pollution Prevention Plan, and the Spill Prevention Control and Counter Measures Plan.

5.3 UNARMORED THREESPINE STICKLEBACK HABITAT MONITORING PROGRAM SURFACE AND GROUNDWATER

TMC proposes to implement a multifaceted unarmored threespine stickleback habitat monitoring program. This program would consist of the combined efforts of assessing local rainfall

amounts, predicting surface flows based upon rainfall amounts, measuring surface flows, measuring subsurface water elevations, and monitoring habitat quality.

Water resources in the project vicinity have been evaluated extensively by a variety of means. Precipitation patterns have been analyzed, surface flows have been measured, underflow water elevations have been monitored, and aquifer storage has been characterized based on seismic exploration and physical well tests (GWS 1993). Surface and subsurface flows of the river were determined giving consideration to annual cycles and year to year variability. The surface flows are typically variable with very large flows during winter storm months and with gradually declining flows through the summer and fall. Underflows also gradually decline annually but remain relatively constant when compared to surface flows. Underflows in this reach of river are the source of sustained surface flows in the permanent unarmored threespine stickleback habitat between stations P4 and P5 during the dry seasons. Valid statistical correlations were found to exist between annual precipitation measurements and measured surface flows. Dry season surface flows can be predicted based on the preceding wet season precipitation amounts (GWS 1993).

Surface water flows were measured at gaging stations near lang between the years of 1949 to 1989. In recent years, the gaging stations have been inoperative. TMC proposes to resume surface flow measurements during the life of the project (20 years).

TMC and its lessor, the C.A. Rasmussen Company, installed four monitoring wells on Rasmussen property in 1989. Law/Crandall Inc. has monitored the water levels of the Santa Clara River underflow for TMC since 1989. TMC proposes to continue underflow monitoring during the life of the project.

A primary monitoring concern is that groundwater pumping not lower the water level in the permanent unarmored threespine stickleback habitat. This downstream section of the river is of great concern because it is the only part of the habitat that is capable of supporting sticklebacks on a regular basis (Chambers Group 1991, 1994). As previously discussed, the rest of the streambed upstream from the pond and the Pole Canyon Fault is either seasonally dry or has low oxygen levels (see Section 2.2). The proposed monitoring program will ensure that the permanent stickleback habitat in the stream is not degraded as a result of groundwater pumping. If the habitat quality is threatened, groundwater pumping will be adjusted or curtailed, as necessary.

TMC proposes to continue and refine the ongoing quality assessment of unarmored threespine stickleback habitat. Recent observations after the flood flows of the 1992-1993 storm show that the river and subsequently the stickleback habitat is dynamic. Therefore, the exact location of permanent habitat may vary from year to year. The following plan outlines the procedures for habitat monitoring over the life of the project.

5.3.1 Determination for Initiation of Habitat Quality Monitoring

Each season, monitoring will take place along the reach of river from the area where surface flows originate (just upstream from P4) to just below P6 (see Figure 3). Three years of

monitoring have shown that this reach of the river supports unarmored threespine stickleback habitat during the low flow periods, even during a prolonged drought.

Monitoring will begin each season when the reach of the Santa Clara River between Bear Creek and the Pole Canyon Fault near P1 dries (see Figure 3). This reach dries only in low to normal rainfall years when impacts to unarmored threespine stickleback habitat potentially could occur from TMC pumping from the river underflow. Monitoring will not take place in years with high precipitation and year around flow throughout the reach from Bear Creek to the Pole Canyon Fault.

5.3.2 Monitoring Protocol

In years when the aforementioned reach dries, aerial photos of the monitoring reach will be used to provide the base for mapping of the monitoring reach. Each monitoring year, information on both natural changes to the streambed and manmade streambed alterations at River's End Trailer Park will be recorded, and the perennial riparian vegetation will be mapped.

The aerial photo and map will be verified by field inspection, and the following information will be gathered along the entire monitoring reach:

- description/photo documentation of perennial riparian vegetation,
- description of pool formation,
- description of emergent and aquatic vegetation,
- description of River's End Trailer Park streambed alteration, and
- survey for unarmored threespine stickleback individuals along the monitoring reach.

After the initial description of the monitoring reach has been completed, monitoring stations will be established for the remainder of each season. Additionally, monitoring will take place at the Forest Service Campground upstream of the project to serve as a control site. The following methods will be used to establish monitoring stations:

1. If River's End Trailer Park has not altered the streambed, then monitoring stations will be set up every 100 meters (m) along the monitoring reach from the springs near Station P4 to Station P6.

   However, if River's End Trailer Park has altered the stream, then monitoring stations will be established every 50 m from just below the trailer park alteration to Station P6. Additionally, measurements will be taken (1) at the springs just upstream of the inlet to the ponding produced by the streambed alteration, and (2) at the outlet from River's End Trailer Park. These measurements will be taken to assure that a determination of effect can be made to separate TMC pumping from the streambed alterations of the river in this area.

2. An area of the river will be established for monitoring at the Forest Service Campground. This monitoring reach should have a similar gradient to the downstream

project monitoring reach. Monitoring stations will be established as a control in known unarmored threespine stickleback habitat.

Monitoring stations will be identified by GPS (Global Positioning System) coordinates to enable exact location. At the initiation of monitoring during the dry season, monthly sampling at the stations will be conducted using transects across the river and will consist of measuring the following parameters:

1. Flow: three measures will be taken across the stream from the mid-point and half the distance to the banks of the stream on either side. At each point, three measures will be taken and averaged. The flow measurement will be taken with a pigmy flow meter or other equivalent equipment.

2. Depth: three measures as outlined for the flow measurements above.

3. Oxygen: five measures will be taken across the stream from the mid-point, half the distance to the banks and either at the edge of the emergent vegetation or the edge of the streambanks, whichever is found at the monitoring location.

4. Temperature: three measures as outlined for the flow measurements above.

5.3.3 Action Levels

Action levels will be used to initiate management of the mining operation to reduce or stop pumping of the underflow from the river. Any combination of two or more of the following levels of the average measured parameters for the monitoring reach that do not simultaneously occur at the control site upstream of the project area will result in the initiation of management of the operations to reduce or cease water pumping:

1. mean temperature of stream is above 27°C,

2. mean oxygen level below 3.0 mg/L,

3. decrease of 25 percent or more of mean water depth at both the outer edge and mid-point of stream compared with the previous measurement, and

4. decrease in flow of 25 percent or more from the previous measurement and the difference in the change in flow is significantly different (using standard statistical methods at the .05 level) from the changes at the control site.

Overall, the action levels represent a conservative approach to protecting the quality of the unarmored threespine stickleback habitat. Figure 4 compares the limits of stickleback tolerance for each habitat parameter with the proposed action level for each parameter.

Figure 4

COMPARISON OF UNARMORED THREESPINE STICKLEBACK HABITAT REQUIREMENTS AND MONITORING PLAN ACTION LEVELS

Habitat Parameter	Observed Habitat Requirement	Action Level
Water Temperature Upper Limit	30.5 - 34.6°C[1]	27.0°C
Oxygen Level Lower Limit	2.0 mg/L[2]	3.0 mg/L
Decrease in Stream Depth	15 - 32%[3]	25%
Streamflow	<0.1 m/sec[4]	*

[1] Feldmeth and Baskin 1976; Baskin 1974; Sasaki et al. 1977
[2] Sasaki et al. 1977
[3] Chambers Group observations of Santa Clara River B4 UTS population as recorded in Tables 3.2.4-2 through 3.2.4-8 of this Biological Assessment.
[4] Joyce 1989
* UTS prefers to nest in vegetation at the edge of shallow pools that have a gentle streamflow; however, no exact correlation exists between habitat and streamflow. Therefore, the action level for streamflow is a 25-percent decrease in flow that is significantly different (.05 level) compared to the UTS habitat at the upstream control site.

Measured natural drop in depth over a 1-month period in the proposed monitoring reach showed a range of between 15 to 32 percent. Therefore, coupled with the other habitat measurements listed above, a decrease in 25 percent or more of mean water depth is a reasoned approach to arrive at an action level. Although unarmored threespine stickleback prefer to nest in shallow pools with very gentle streamflows, there are no exact data on the lower limit of streamflow above no flow at all. The USFS guidelines describe streamflows between 0 and 0.1 m/sec as optimum for unarmored threespine stickleback breeding habitat (Joyce 1989). Therefore, the action level for streamflow is based on a statistical comparison with the upstream habitat control site if streamflows decrease by 25 percent or more from the previous monitoring measurement.

The potential impact to unarmored threespine stickleback from the pumping of water from the alluvium of the Santa Clara River will be in the dry months (July through October) of normal to drought years. Therefore, the primary breeding period for the unarmored threespine stickleback from April through June will likely not be effected. The action levels proposed for the monitoring program will ensure that pumping for the mining operation does not effect unarmored threespine stickleback breeding habitat during the secondary breeding period from September through October. Because the unarmored threespine stickleback are less sensitive to changes in their habitat than are their nests, and because the action levels are designed to ensure that the nests are protected. The general habitat of the B_1 population will be protected as well.

Action levels will be based on two or more mean levels for the monitoring reach that do not simultaneously occur at the control site. Because one habitat parameter (action level) could vary for many reason between the monitoring and control sites rather than just from project pumping, it is reasonable to base the project response on the comparison of two action levels. Differences in shading from streambank vegetation could cause variation in temperature measurements at the control and monitoring sites, or differences in aquatic plant productivity could cause varying O^2 levels at the control and monitoring sites. Simple stochastic processes unrelated to project pumping could cause single-use habitat parameter to vary significantly (at the 0.5 level) from the control site to the monitoring site. Using two action levels to trigger project water management will ensure that the project will not be responsible for every dynamic process that occurs in the habitat. Nor will the condition of two action levels jeopardize the quality of the habitat of the B_1 population of unarmored threespine stickleback because the actions levels represent a conservative approach to maintain the species habitat requirements.

5.3.4 Response and Action Plans

TMC will respond to changes in the measured habitat parameters for the B_1 population of unarmored threespine stickleback that are attributable to TMC's proposed project as determined from comparing the monitoring reach to the control site as described in Section 5.3.3. When two or more action levels of the average measured parameters do no simultaneously occur at the control site, TMC will regulate pumping or stop pumping from the Santa Clara River alluvium. Water flows will be regulated through a controlled program of subsurface flow removal and habitat monitoring so that there is no threat to the continued existence of the B_1 population of the unarmored threespine stickleback.

Although a lag time will exist between actual cessation of project pumping of the alluvium and the recharge of the alluvium, hydrogeologic tests indicate that the alluvium is transmissive and that there will be a constant subsurface flow in the alluvium (see Section 3.3.2.2). Therefore, recharge of the alluvium and the downstream unarmored threespine stickleback habitat may be rapid once pumping is regulated or stopped. Time-draw down pump tests showed an almost immediate recovery response of the alluvium in the vicinity of the wells (WTI 1989). However, because a relationship exists between precipitation and recharge of underflow of the Santa Clara River, contingency operations to manage the mining project could be planned well in advance of the critical dry months based on each wet season's total rainfall. In the event of a below average rainfall year, aggregate production can be adjusted as much as practicable so that production is increased in the wet season and reduced in the dry season, thereby reducing water consumption in the dry season. Some management of concrete production may also be practical. Truck washing can be minimized. Some of the excess fines from the dry screening of the mining operation can be stockpiled, temporarily deferring or eliminating the need for water used in compacting fines into earthen fills. The use of water for dust suppression can be minimized while the use of dust palliatives can be increased, thereby requiring less total water consumption for dust suppression. Recycling of process wash waters can be maximized. Alternate sources of water for temporary use during dry spells can be sought. Pumping and production will be stopped temporarily, if necessary, to assure the quality of the permanent stickleback habitat.

5.3.5 Plan Review

The monitoring, response, and action plans will be subject to review by TMC and the resource agencies as mining proceeds. Factors such as the interval of monitoring and the number of monitoring stations may be adjusted after the initial monitoring seasons are analyzed and reviewed with the resource agencies.

5.4 INVASIVE PLANT REMOVAL

An additional measure to protect the habitat is the annual removal of giant reed (*Arundo donax*) from riparian areas adjacent to and downstream of the mining site. The U.S. Forest Service (USFS) has a plan to control giant reed in the Angeles Forest portion of the Santa Clara River near the Project (S. Batista, personal communication 1994). TMC proposes to coordinate with the USFS to remove giant reed from non-Forest land along the river from the Project site to the permanent stickleback habitat just below River's End Trailer Park. Because this plant is invasive and uses a large amount of water, removal of giant reed from the river will improve the riparian and stream habitat for sensitive fish species, including the unarmored threespine stickleback. Removal of giant reed will also conserve water for the native riparian vegetation and sensitive aquatic wildlife species.

The removal operation would consist of an annual survey to document giant reed vegetation on non-Forest land from just above the junction of Agua Dulce Creek and the Santa Clara River to the permanent stickleback habitat at Station 6 just below River's End Trailer Park. Removal operations would be contingent on receiving permission from property owners in the area.

After areas of giant reed are located each year, plants will be cut, and the stems/stumps will be sprayed immediately with a glyphosate-type herbicide (i.e., Roundup). The cut vegetation will be removed from the river corridor and will be shredded and disposed of at a landfill or burned. The cut and spray operation will be conducted in late summer or early fall when the plants will be near the end of the growing season and the herbicide will be more likely to be transported to the roots.

The removal operation will be coordinated each year with the USFS at the Angeles National Forest, and a letter report summarizing the annual operation will be sent to USFS each year for the duration of the Project.

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APPENDIX F7

SOUTHWESTERN POND TURTLE SURVEY REPORT

SURVEY FOR THE SOUTHWESTERN POND TURTLE, *Clemmys marmorata pallida*, IN SOLADAD CANYON ALONG THE SANTA CLARA RIVER

LOS ANGELES COUNTY, CALIFORNIA

Prepared for:

Chambers Group, Inc.
16700 Aston Street
Irvine, California 92714

Contact: Mr. Scott Rowland
Senior Wildlife Biologist

Prepared by:

Robert H. Goodman Jr.
1830 West Arrow Route #52
Upland, California 91786
Phone: (909) 985-9861

July 1994

INTRODUCTION

A survey for the southwestern pond turtle, *Clemmys marmorata pallida*, was conducted in Soledad Canyon along the Santa Clara River. The purpose of this survey was to determine presence or absence of this native turtle in relationship to future river alterations by the Transit Mixed Concrete company.

The western pond turtle, *Clemmys marmorata*, is presently a state species of special concern, a designation used by the California Department of Fish and Game (CDFG) to signify taxa it considers to warrant monitoring due to population declines (CDFG 1991). The turtle is also a category 2 federal candidate, which includes taxa that are being considered for listing by the United States Fish and Wildlife Service (USFWS) as threatened or endangered, but for which insufficient data are available to support a listing at this time.

On 29 January 1992, the Portland office of the USFWS received a petition to list the western pond turtle under the provisions of the Endangered Species Act. On 5 October 1992, the USFWS published the 90-day finding indicating that the petition presented sufficient information to indicate that listing may be warranted and initiated the formal review process to determine if the species will be proposed for listing. Unfortunately, on 11 August 1993, the USFWS published their findings on the pond turtle in the *Federal Register* and found that the turtle did not meet either definition of an endangered or a threatened species at this time.

Though the western pond turtle was not listed as an endangered or threatened species, the CDFG did change its fishing regulations (01 January 1994) on the number of pond turtles one could have in possession at any given time. The take number went from 2 individuals to a 0 take. With this in mind, special permits (Memorandum Of Understanding, MOU) are needed in order to study this animal. I have acquired an MOU, which allows me to catch, process, and release western pond turtles. This MOU is valid until December 1997.

SITE LOCATION

The survey area is approximately a 1.5 mile section of the Santa Clara River in Soledad Canyon starting ~ ¼ mile upstream of the Transit Mixed Concrete company continuing downstream to ~ ¼ mile downstream of the trailer park. This section of the Santa Clara River is characterized as a sandy, narrow stream that contains sections of above ground water and sections of underground water. The vegetation found along the river includes mulefat, *Baccharis salicifolia*, willow (*Salix spp.*), fremont cottonwood, *Populus fremontii*, broad-leaved cattail, *Typha latifolia*, and the exotic giant reed, *Arundo donax*. Some of the emergent plants include green algae (*Chlorophyta*) and water cress, *Rorippa nasturtium-aquaticum*.

SITE CHARACTERIZATION

The southwestern pond turtle is known to occur in the lower Santa Clara River (Goodman), but "pond turtle habitat" in the survey area was minimal. The most promising site was the pond located next to the trailer park, which is a damned section of the river. The pond is ~150 meters long, ~10-40 meters wide, and between .05-1.5 meters deep. Cattails, willows and mulefat are the most dominate vegetation with the cattails allowing for good refugium if pond turtles are present. The rest of the river is marginal "pond turtle habitat" at best.

SURVEY METHODS AND MATERIALS

The survey area was examined in the field by Robert H. Goodman Jr. and Scott Rowland on July 6th, 7th, and 8th 1994. The weather conditions during the surveys where sunny and hot with air temperature ranging from 28°C to 36°C and water temperatures ranged from 17.5°C to 26°C.

The July 6th survey was a reconnaissance survey from 0900 to 1600 hours and covered the entire 1.5 mile survey area. During this initial reconnaissance survey, potential pond turtle habitat (refugium) was investigated by feeling with bare hands into and under rocks, vegetation, undercut banks, cracks, and crevices in search of hiding turtles. Binoculars were also used from a distance to locate basking turtles. In addition, possible pond turtle habitat was noted for future trapping.

On the 7th, 1400 hours, funnel (pond turtle) traps made nylon were set where probable pond turtle habitat exist. A total of 10 traps were set (shown on MAP #1) along the survey area. Five were set in the river and the other five were set in the trailer park pond. All traps were baited with sardines and left over night.

On the 8th, 0600 hours, the traps were checked for turtles. If turtles were present, carapace length in millimeters from the first marginal scute to the twelfth marginal scute is taken along with total weight in grams. All turtles would then be sexed, have a number notched into their marginal scutes with a file, and finally released at capture site.

RESULTS

After a day of reconnaissance and a night of trapping, no southwestern pond turtles were observed or captured in the immediate vicinity of the Transit Mixed Concrete company. Because no turtles were captured or seen during the reconnaissance and trapping period, I feel confident that no pond turtles are present in the survey area and that two additional days of trapping would not be necessary.

African clawed-frogs, *Xenopus laevis*, were seen and captured throughout the survey

area. In fact, a total of 43 clawed frogs were captured and disposed of during the reconnaissance survey and the night of trapping. A table of all reptiles, amphibians, and fish seen during the survey is provided in Table #1. A table of possible sensitive reptiles and amphibians is provided in Table #2.

In addition to the clawed frogs, 15 common carp, *Cyprinus carpio*, were captured at the last trapping site #5 in the river.

DISCUSSION

Even though no southwestern pond turtles were seen or captured during the survey, the fact that they are found in the lower Santa Clara River leaves the possibility that the turtle may be present. None the less, with the presence of the unarmored threespine stickleback, *Gasterosteus aculeatus williamsoni*, a federally listed endangered species, the safety precautions used to save this fish may indirectly be applied to the turtle. Hence, by protecting the habitat for which the stickleback is found, you protect the habitat in which you may find southwestern pond turtles.

RECOMMENDATIONS

The following are recommended measures to mitigate for adverse effects caused by the river alterations.

- Though no turtles were found in the survey area, other sensitive reptiles and amphibians may be present. For instance, the two-striped garter snake, *Thamnophis hammondii*, another state species of special concern and a category 2 federal candidate, is also found in the lower Santa Clara River and may be present in the survey area. Surveys for this snake should be done along with trapping. Trapping can be done with minnow traps places in suitable habitat, like water cress.

- African clawed frog eradication is highly recommended for the survey area. This can be done with seine nets, funnel traps, and minnow traps. The african clawed frogs captured can be sacrificed and donated to Cal Poly, Pomona where the gut contents can be analyzed.

Table #1: Reptiles, amphibians, and fish observed during the survey in Soledad Canyon along the Santa Clara River.

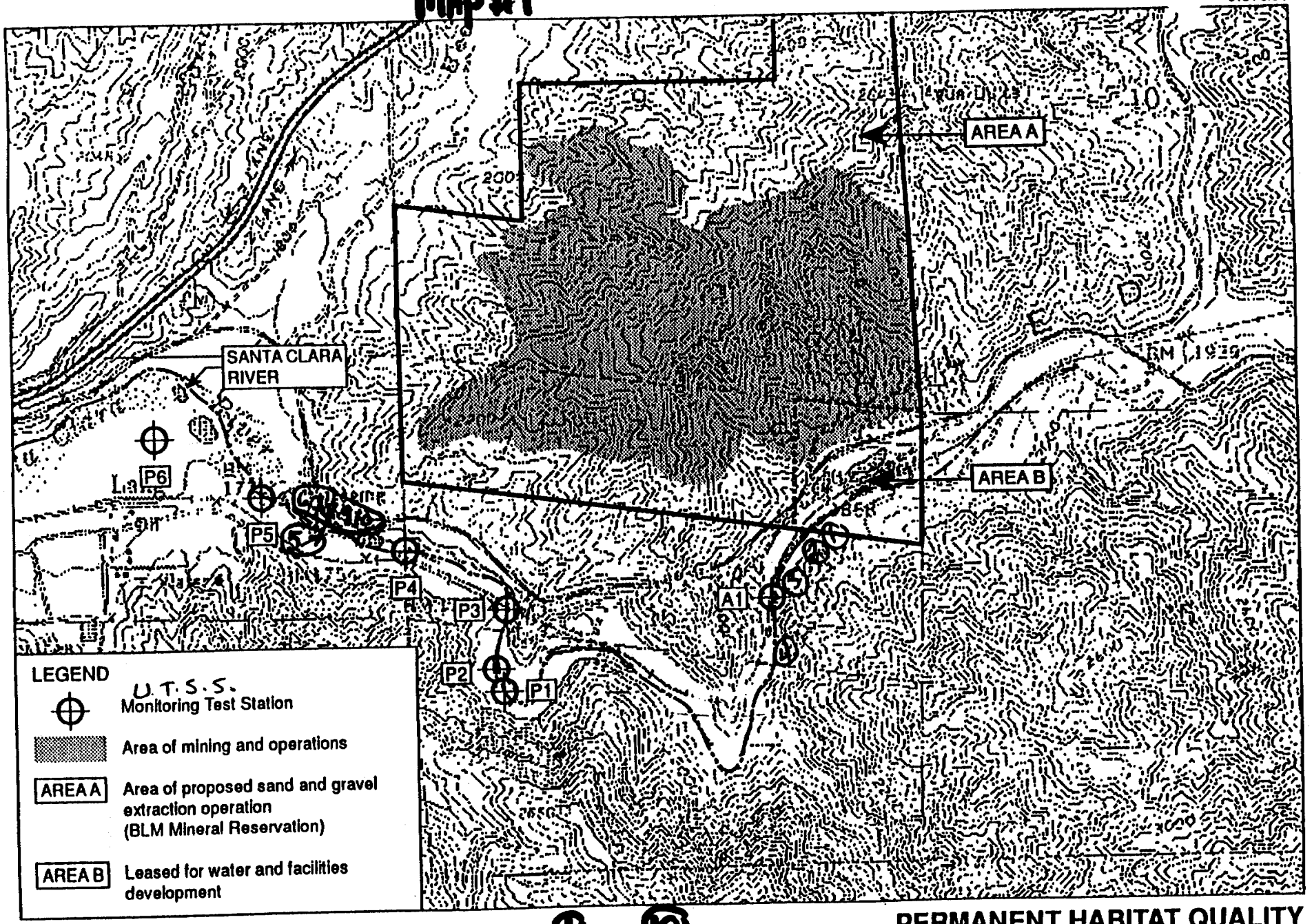
SCIENTIFIC NAME	COMMON NAME	COMMENTS
Pseudacris regilla	Pacific treefrog	tadpoles and adults
Pseudacris cadaverina	California treefrog	tadpoles and adults
Bufo boreas	Western toad	tadpoles
Xenopus laevis	African clawed frog	Very common
Uta stansburiana	Side-blotched lizard	common
Sceloporus occidentalis	Western fence lizard	common
Gerrhonotus multicarinatus	Southern alligator lizard	1 adult
Cnemidophorus tigris	Western whiptail	common
Masticophis lateralis	California whipsnake	2 adults
Gasterosteus aculeatus willamsoni	Unarmored threespine stickleback	common
Catostomus santaanae	Santa ana sucker	common
Gila orcutti	Arroyo chub	common
Gambusia affinis	Western mosquito fish	common
Cyprinus carpio	Common carp	15 captured in pond turtle trap

Table #2: Possible sensitive reptiles and amphibians in Soledad Canyon along the Santa Clara River not seen in the survey.

SCIENTIFIC NAME	COMMON NAME	COMMENTS
Rana aurora draytonii	Red-legged frog	unlikely
Clemmys marmorata pallida	Southwestern pond turtle	possible
Phrynosoma coronatum	Coast horned lizard	possible
Thamnophis hammondii	Two-striped garter snake	highly possible

Map #1

6154-3/94



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Source: Chambers Group, Inc.

Area of Concern ① — ⑩ Trapping Sites

PERMANENT HABITAT QUALITY SAMPLING SITES
Figure 8-9

5

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I would like to take this opportunity to thank you for allowing me to assist you in surveying for southwestern pond turtle in Soledad Canyon along the Santa Clara River. I look forward to working with Chambers Group in the future on pond turtles and other reptiles and amphibians. If you have any questions concerning the contents of this report, please do not hesitate to contact me at (909) 985-9861.

Sincerely,

Robert H. Goodman Jr.

Robert H. Goodman Jr.
Pond Turtle Ecologist

APPENDIX F8

POST-FIRE VEGETATION SURVEYS

MEMORANDUM

DATE: September 28, 1995

TO: Brian Mastin, Transit mixed Concrete

FROM: Ileene Anderson, Botanist

SUBJECT: Post-Fire Vegetation Surveys

An additional survey was performed to assess the vegetation after the 1994 fire at the Soledad Canyon Site. The survey was performed on June 1, 1995 by a site walkover by one plant ecologist and two botanists. The walkover was started at Soledad Canyon Road at the west end of the site and continued up the main ridge within the mining area. The main ridges of the North Fines Storage Areas (NFSA) were also walked.

The fire of 1994 had reduced the cover of the chaparral species on mainly the north and west sides of the ridge. Some of these shrubs showed signs of crownsprouting with new shoots growing from the base of the burned shrubs. As expected, annual plant species were prevalent on the site. Weedy annuals were limited to areas of previous disturbance along old road cuts. Previous surveys had located Pierson's morning glory (*Calystegia peirsonii*) and two species of mariposa lily (*Calochortus clavatus* var. *clavatus* and *Calachortus clavatus* var. *gracilis*) on the lower slopes of the NFSA. During the June 1995 survey, these three species were located in several areas of the NFSA higher on the slopes. Pierson's morning glory is often found in disturbed areas such as a fire would create. A small population of another sensitive mariposa lily species, Plummer's mariposa lily (*Calochortus plummerae*), was located on the west edge of the mining area, along the south face of the top of the ridge. Plummer's mariposa lily is a Federal Category 2 Candidate Species.

The alternative sites for fines storage were also assessed for vegetation. All of these areas are located downstream of much larger watersheds that the proposed NFSA. The vegetation is general the same types of communities that occur over the NFSA. The most northerly alternative fines storage area also supports approximately 40 oak trees (*Quercus palmeri*). These trees are considered sensitive in Los Angeles County and would be required to be replaced in accordance with the Los Angeles County oak Tree Ordinance No. 22.56.20. The slender mariposa lily and Pierson's morning glory were also found to occur on the lower slope at this site.

APPENDIX F9

SENSITIVE REPTILE SURVEY

RECONNAISSANCE-LEVEL SURVEYS FOR INDIVIDUALS AND HABITAT OF THE COASTAL WESTERN WHIPTAIL LIZARD, COASTAL ROSY BOA, COAST PATCH-NOSED SNAKE, AND COAST HORNED LIZARD

Prepared for:

TRANSIT MIXED CONCRETE
P.O. Box 575
1201 W. Gladstone
Azusa, California 91702-0575

Prepared by:

CHAMBERS GROUP, INC.
16700 Aston Street (92714)
P.O. Box 57002 (92619-7002)
Irvine, California
(714) 261-5414

NOVEMBER 1995

RECONNAISSANCE-LEVEL SURVEYS FOR INDIVIDUALS AND HABITAT OF THE COASTAL WESTERN WHIPTAIL LIZARD, COASTAL ROSY BOA, COAST PATCH-NOSED SNAKE, AND COAST HORNED LIZARD

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RECONNAISSANCE-LEVEL SURVEYS FOR INDIVIDUALS AND HABITAT OF THE COASTAL WESTERN WHIPTAIL LIZARD, COASTAL ROSY BOA, COAST PATCH-NOSED SNAKE, AND COAST HORNED LIZARD

INTRODUCTION

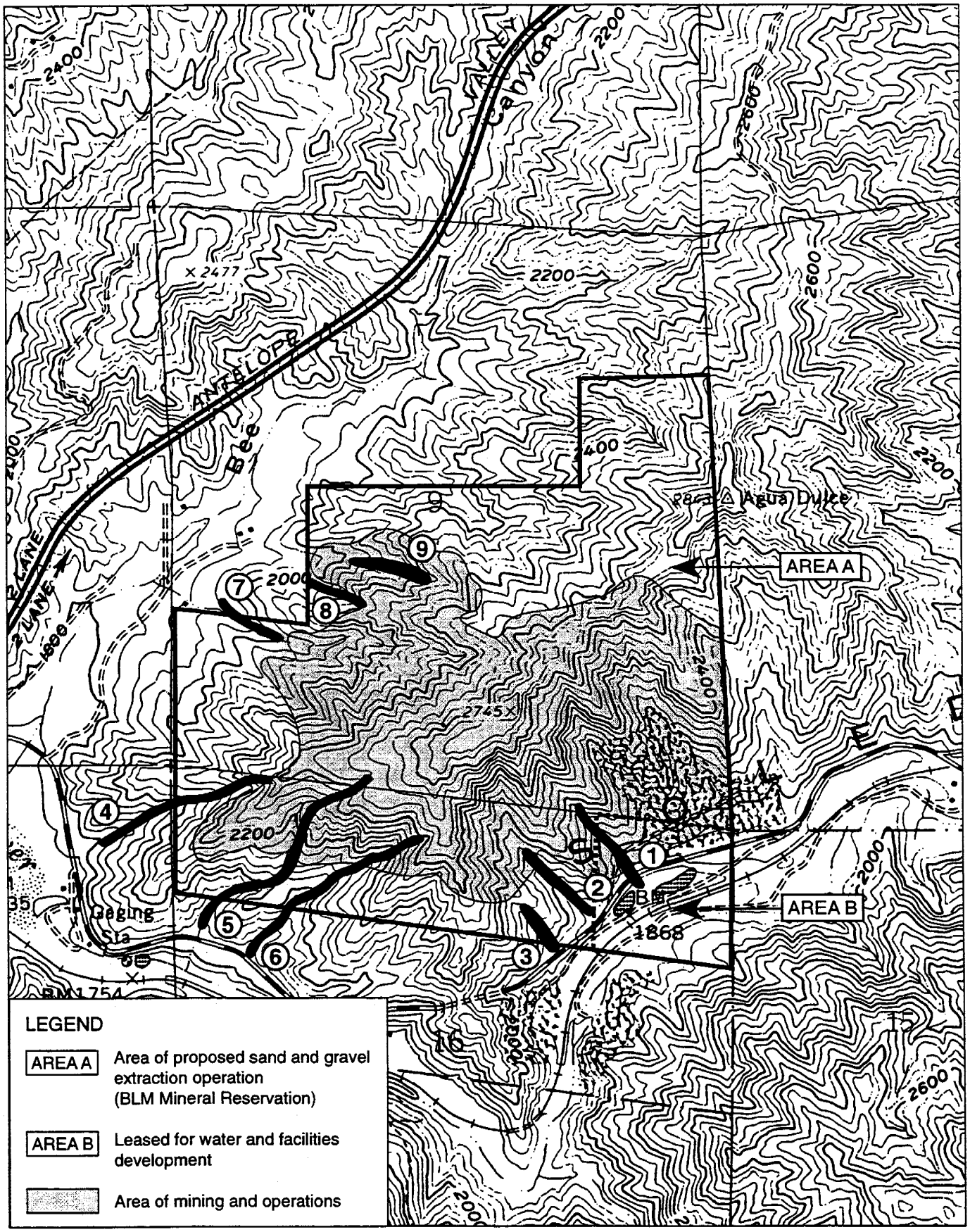
As part of a biological assessment of a proposed plan for mining of sand and gravel from lands adjacent to the Santa Clara River in lower Soledad Canyon, Chambers Group, Inc., was retained to conduct a reconnaissance-level survey for potential sensitive reptile species inhabiting the project area. The purpose of this survey was to assess potential habitat of sensitive reptiles onsite and evaluate the potential for each of these species to occur in the project area. The survey focused on four sensitive reptile species: the coastal western whiptail (*Cnemidophorus tigris multiscutatus*), a Federal Candidate 2 Species (C2) and California Species of Special Concern (CSC); coast patch-nosed snake (*Salvadora hexalepis virgultea*), a C2 and CSC Species; coastal rosy boa (*Lichanura trivirgata rosafusca*), a C2 Species; and coast horned lizard (*Phrynosoma coronatum blainvillei*), also a C2 and CSC Species.

METHODS

Reconnaissance-level field surveys were performed in the project area to characterize the distribution and relative abundance of sensitive reptiles and reptile habitat within the project area. Within the project site, those areas with the most potential to support sensitive reptiles were surveyed (rocky outcrops, sandy drainages, and newly disturbed areas such as from fires, see Figure 1). Each survey area was evaluated for its potential to support sensitive reptiles, and these notes were recorded on standardized data sheets (see attachment).

Prior to performing the survey, documentation relevant to the project area was reviewed. The California Department of Fish and Game (CDFG) Natural Diversity Database (CNDDB) was accessed for information on sensitive wildlife species known to occur in the project area and its vicinity. The U.S. Fish and Wildlife Service (USFWS), U.S. Forestry Service, and the CDFG were also referenced, and a list of sensitive wildlife species potentially occurring in the project area was developed. This study was conducted to evaluate the four sensitive species listed above. The potential for each of these species to occur in the project area was assessed during previous biological surveys (Chambers Group 1991) and during this survey. The "potential for occurrence" ranking is based on the following criteria:

- **Low Potential for Occurrence** - There are no recent or historical records of the species occurring in the project area or its immediate vicinity (within 5 miles) and the diagnostic habitat requirements strongly associated with the species do not occur in the project area or its immediate vicinity.



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SITE MAP SHOWING PROJECT BOUNDARY, SUBAREAS AND LOCATION OF POTENTIAL REPTILE HABITAT

Figure 1

- **Moderate Potential for Occurrence** - There is either a historical record of the species in the project area or its immediate vicinity or the diagnostic habitat requirements associated with the species do occur in the project area or its immediate vicinity.

- **High Potential for Occurrence** - There is both a historical record of the species in the project area or its immediate vicinity and the diagnostic habitat requirements strongly associated with the species do occur in the project area or its immediate vicinity.

Other literature sources referenced for pertinent ecological information include Stebbins (1985), Brattstrom (1992), Hager (1992), and Rowland (1992).

RESULTS

Environmental Conditions

A reconnaissance-level survey for sensitive reptiles and reptile habitat was conducted on March 30, 1995, by Scott D. Rowland and Margot Griswold of Chambers Group. Ambient temperature at the time of the survey ranged from 68 to 75°F, zero percent cloud coverage, and winds ranging from light to heavy (gusting).

No sensitive reptiles were observed during the survey, however, there is a low to moderate potential for one or more of these species to onsite as described below.

Coastal Western Whiptail

There is a moderate potential for the coastal western whiptail to occur onsite. This species is found in a variety of habitats, including disturbed grassland, chaparral, sage scrub, and oak woodlands (Anderson 1986; Maya and Malone 1989; Pianka 1970). This species could be found in most of the habitat types onsite but was not observed during the current survey.

Coastal Rosy Boa and Coast Patch-Nosed Snake

Nine sites within the project area were categorized as either marginal or suitable habitat for the coastal rosy boa and coast patch-nosed snake (Figure 1). No individuals were observed during the current survey; however, there is a moderate potential for these two species to occur at three locations (Areas 1, 2, and 3; see Figure 1). These areas are ravines on the southwest edge of the project that contain rocky outcrops and may serve as shelter sites for these two sensitive snake species.

It should be noted that it is questionable whether the ranges of the three aforementioned sensitive species do in fact include the project site. The coastal western whiptail, coastal rosy boa, and coast patch-nosed snake all are sensitive coastal subspecies of more common and widely distributed species. The project area lies in a geographical region that is a transition between the coastal chaparral, grassland, and sage scrub communities, and inland semi-arid to arid desert

communities. If these subspecies do occur onsite, is it likely that they (1) occur in small numbers, (2) are at the northernmost part of their coastal range, or (3) are in fact not the sensitive coastal subspecies but more common desert subspecies. The last possibility is highly subjective and subject to argument to the contrary.

Coast Horned Lizard

There is a low to moderate potential for the coast horned lizard to occur within the project site. There are a few areas onsite with sandy, friable soils in which the species can burrow. Areas with suitable soils are mainly at the base of ravines that drain into Bee Canyon Wash at the north side of the site. No rodent burrows, which horned lizards use for shelter, or harvester ant mounds were observed at any of the survey locations. The harvester ant is a staple prey species of the lizard, and much of the range of the lizard is defined by the presence of harvester ants (Hager 1992). With the lack of an abundance of prey species, the coast horned lizard is not expected to be a resident onsite. Additionally, no horned lizards have been observed onsite during any previous visit to the site by Chambers Group biologists. Although the horned lizard is cryptic in nature, if they were present onsite, it is likely that this morphologically distinct species would have been detected during the numerous botanical and wildlife surveys conducted throughout the project site.

DISCUSSION

The lack of suitable habitat for any of the four sensitive species surveyed and the absence of these species during the current and previous surveys suggest that none of the species are expected to occur onsite. However, there is still a low to moderate potential for them to reside there. If these species do occur onsite, they likely occur in low numbers and would not be considered part of a viable population. Implementation of the proposed mining and gravel activity is therefore not likely to have a significant impact on the continued existence of these four sensitive reptile species.

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ATTACHMENT

ORIGINAL FIELD NOTES

Proj #8200

Survey: TMC Horned Lizard Survey Date/Time: / Surveyor: SDRM Transect/Location: NW portion of slab
Start Temp: Start Weather: End Temp: 75°F End Weather: Wind Med, Heavy 0% grass lands

Time	Sign	Location	Habitat Association	Remarks
1203	(7) looking Northwest from main ridge, almost at the highest peak	1 house - proposed barn sites along Bee Canyon	mixed chap/CSS with burned areas scrub oak predominant	No real rocky areas for R.B., P.N.S. — may be some habitat along drainages.
				No. H.L. habitat (to ants, soils fairly rocky
1240	(8) Morning Glory possibly sensitive	ridgeline on the way to old water tank	burned area chap/CSS/juniper mix	Morning glory not in flower, unable to ID
1246	(9) drainage downhill from main ridge		burned area " "	no real H.L. habitat, to rocky, rubbly.
1300	Bee Canyon Prospect. 1330 End Survey		burned/grassland many annuals	No H.L. habitat, soils are ok but no ants, few rodent burrows, highly disturbed

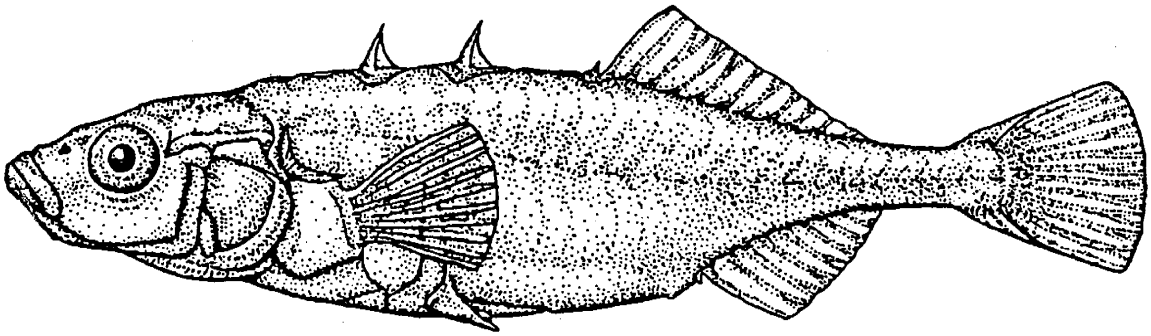
Survey: TMC Horned Lizard Recon Survey Date/Time: 3/30/95, 0930 Surveyor: SDRM Transect/Location: Southwest Facing Slope
Start Temp: 68°F Start Weather: wind Heavy/0% clouds End Temp: End Weather:

Time	Sign	Location	Habitat Association	Remarks
0945	(1) Ravine, new canyon southwest of Soledad Canyon above silt ponds	←	Decent chaparral/chaparral/CSS mix	Some rocky areas along ravine, no noticeable habitat for horned lizard observed. No ant mounds, rocky soil, steep grade.
				Potential for ringnecked, patch-nosed, rosy boa
1010	(2) Ravine, larger Canyon next to #1 (west)	←	" " "	Similar potential for rosy, patch-nosed, ring-necked, no h.l. habitat (rocky soil, no ants)
1035	(3) Ravine - isolated from wind just off Soledad Canyon Rd.		" " with liverworts, club moss, ferns, etc	No horned lizard habitat, but much rosy, ring-necked, patch-nosed
1120	(4) Valley - looking down from ridge to the northwest	entire valley, no rocks, all sloping smoother area.	old burned mix of sagescrub/chap, mixed chap. scrub oak dominant.	No real vegetation throughout the ridges and valley. Some scattered rocks at bottom of valley, however, no habitat for H.L., R.B., P.N.S, or R.S.
1140	(5) looking south from same ridge as #4,	" "	" "	no real habitat for each species, down by road there may be habitat.

APPENDIX F10

UNARMORED THREESPINE STICKLEBACK RECOVERY PLAN (REVISED) 1985

Recovery Plan



UNARMORED THREESPINE STICKLEBACK

REVISED

UNARMORED THREESPINE STICKLEBACK

RECOVERY PLAN

U.S. Fish and Wildlife Service

Portland, Oregon

Revision Approved: David L. McMullen

Acting Regional Director, Region 1
U.S. Fish and Wildlife Service

12/26/85

Date

THIS IS THE REVISED UNARMORED THREESPINE STICKLEBACK RECOVERY PLAN. IT HAS BEEN APPROVED BY THE U.S. FISH AND WILDLIFE SERVICE. IT DOES NOT NECESSARILY REPRESENT OFFICIAL POSITIONS OR APPROVAL OF COOPERATING AGENCIES, AND IT DOES NOT NECESSARILY REPRESENT THE VIEWS OF ALL RECOVERY TEAM MEMBERS OR ADVISORS WHO PLAYED A KEY ROLE IN PREPARING THIS PLAN. THIS PLAN IS SUBJECT TO MODIFICATION AS DICTATED BY NEW FINDINGS, CHANGES IN THE SPECIES' STATUS, AND COMPLETION OF THE TASKS DESCRIBED IN THE PLAN. GOALS AND OBJECTIVES WILL BE ATTAINED AND FUNDS EXPENDED CONTINGENT UPON APPROPRIATIONS, PRIORITIES, AND OTHER BUDGETARY CONSTRAINTS.

LITERATURE CITATION SHOULD APPEAR AS FOLLOWS:

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ACKNOWLEDGEMENTS

The Unarmored Threespine Stickleback Recovery Plan was revised from the original Recovery Plan prepared by the Unarmored Threespine Stickleback Recovery Team in 1977. At the time the original plan was prepared the Recovery Team consisted of: Shoken Sasaki, Team Leader, California Department of Fish and Game, Jonathan N. Baskin, California State Polytechnic University, Pomona, Ben Beall, U.S. Forest Service, James A. St. Amant, California Department of Fish and Game, and Camm Swift, Los Angeles County Natural History Museum. Input into the revised plan was provided by the current Recovery Team members and advisors and the agencies cooperating in the recovery effort. The final revisions were incorporated into the plan by Jack Williams and Edward Lorentzen of the Sacramento Endangered Species Office, U.S. Fish and Wildife Service. Cover drawing by Sara Wilkinson.

Unarmored Threespine Stickleback Recovery Team Members

Shoken Sasaki, Leader, California Department of Fish and Game, Goleta
Jonathan N. Baskin, California State Polytechnic University, Pomona
David W. Haney, U.S. Forest Service, Angeles National Forest, Pasadena
James Johnston, U. S. Air Force, Vandenberg Air Force Base
James A. St. Amant, California Department of Fish and Game, Long Beach
Camm Swift, Natural History Museum of Los Angeles County, Los Angeles

Assisted by

Michael A. Bell, Team Advisor, State University of New York at Stony Brook
David L. Soltz, Team Advisor, California State University, Los Angeles

Unarmored Threespine Stickleback

Recovery Plan Executive Summary

1. At what point or condition can the species be considered recovered?

When habitat conditions for each of the known remnant popualtions have been stabilized at or near historical carrying capacities, when the other known threats have been addressed in a manner that assures the continued existence of these populations, and when at least five self-sustaining populations have been maintained within the historical range of G. a. williamsoni for a period of five consecutive years without significant threats to their continued existence.

2. What must be done to reach recovery?

The known extant populations must be preserved and protected, additional populations will need to be successfully reintroduced into historical habitats, the spread of exotic organisms will need to be controlled, and degraded habitats will need to be restored and maintained.

3. What specifically must be done to meet needs of #2?

Adequate instream flows must be maintained in all essential habitats, land uses must be regulated to maintain good water quality, the introduction of additional exotic organisms must be prevented, the spread of established populations of exotic organisms controlled, suitable reintroduction sites within the historical range must be found, and habitat conditions must be monitored to insure that satisfactory conditions for G. a. williamsoni are being maintained.

4. What management/maintenance needs have been identified to keep species recovered?

Removal (take) of species will be closely regulated; habitat conditions will be monitored and appropriately managed; contingency plans will be implemented to protect the species from natural or man-made disasters, and additional populations will be established in suitable reintroduction sites as needed.

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PART I

INTRODUCTION

Brief Overview

This is a plan for the recovery and eventual delisting of the endangered unarmored threespine stickleback (*Gasterosteus aculeatus williamsoni*). This fish is currently restricted to the Santa Clara River drainage in Los Angeles County and the San Antonio Creek drainage in Santa Barbara County, but previously was more widespread in southern California (Miller and Hubbs 1969). The U.S. Fish and Wildlife Service listed the unarmored threespine stickleback as an endangered species in 1970 (Federal Register 35: 16047). Critical habitat was proposed in 1980 (Federal Register 45: 76012) and is still pending.

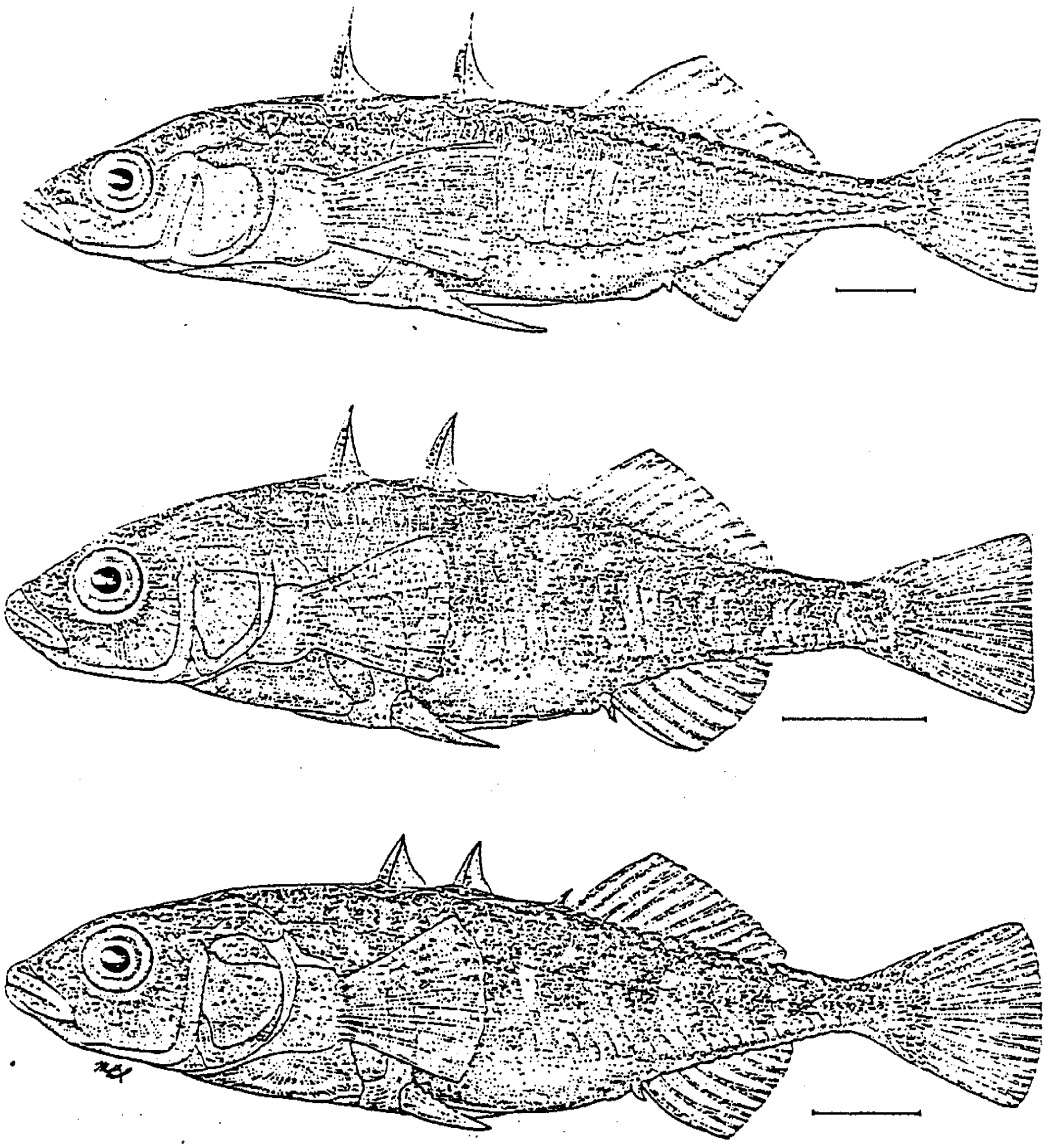
Description and Diagnosis

Threespine sticklebacks (*Gasterosteus aculeatus*) are found throughout much of the Northern Hemisphere. They are streamlined fish, usually not exceeding six cm standard length (i.e., from the tip of the snout to the base of the caudal fin). The dorsal fin consists of two isolated spines anteriorly, with a third smaller spine at the front edge of the more posterior, soft rayed portion of the fin. The most striking features, however, are the unusual pelvic girdle with a denticulated spine on either side (Nelson 1971) and large, lateral bony plates of varying number (zero to about 35). Threespine sticklebacks also are known for the brilliant male nuptial coloration of red on the head which sometimes extends back to

the origin of the anal fin. Miller and Hubbs (1969) recognized three subspecies of Gasterosteus aculeatus on the Pacific Coast of North America: G. a. aculeatus (fully plated), G. a. microcephalus (low plated) and G. a. williamsoni (unplated) (Figure 1). The minor problems with this terminology have been pointed out by Hagen and McPhail (1970) and reviewed by Bell (1976a).

G. a. williamsoni is readily distinguished from the other two subspecies on the basis of lateral plate counts alone, provided that at least 25 morphologically mature specimens [i.e., individuals of at least 32 mm in standard length (SL), Bell (1981)] are available. Samples of G. a. williamsoni generally average 0.06 to 0.55 lateral plates per individual and G. a. microcephalus average more than six lateral plates per individual (Bell 1976b). However, rare individuals of G. a. williamsoni may have as many as six lateral plates (Miller and Hubbs 1969, Bell 1976b) and occasional specimens of G. a. microcephalus have none. It is necessary to have several individuals to recognize a population of G. a. williamsoni, as is usually the case with subspecies (Mayr 1969).

Although lateral plate counts are the easiest way to separate G. a. williamsoni from other subspecies, they also may be distinguished from other California sticklebacks by using additional characters: short dorsal pelvic spines, rounded pectoral and caudal fins, less streamlined body (Miller and Hubbs 1969), reduced denticulation of the spines, and reduced size of the ascending branch of the pelvic girdle (Bell 1976b). Ross (1973) devised a character index with a 96% joint nonoverlap between typical G. a. williamsoni and G. a. microcephalus. Miller and Hubbs (1969) mention characters which separate G. a. williamsoni from Old World analogs.



The three subspecies of *Gasterosteus aculeatus* in western North America. All specimens drawn are from California; the scale for each figure represents 0.5 mm. Above: *G. a. aculeatus*, UMMZ 66025, a female 62 mm SL, from Humboldt Bay. Middle: *G. a. microcephalus*, UMMZ 131725, a juvenile (♂?) 33 mm SL, from Arroyo Grande Creek (Fig. 1, loc. 8). Below: *G. a. williamsoni*, UMMZ 159243, a topotypic male 42 mm SL, from the headwaters of Santa Clara River (see Miller, 1960).

Figure 1. Illustrates physical characteristics of three subspecies of Gasterosteus aculeatus. Taken from COPEIA 1969, No. 1. March 6, Stickleback Systematics, Robert Rush Miller and Carl L. Hubbs.

Bell's (1975, 1976b) results indicate that there has been a low rate of gene flow from G. a. microcephalus to G. a. williamsoni within some populations. The rate of gene flow has been so low that it has had little impact on lateral plate counts in G. a. williamsoni under existing conditions. At present, the dry portion of the Santa Clara River from Lang to Interstate 5 appears to be a major barrier to upstream gene flow. For the reasons discussed below in the section on introgression, an increase in the rate of gene flow might cause a significant increase in lateral plate counts in G. a. williamsoni. G. a. williamsoni could eventually become indistinguishable from G. a. microcephalus if the historical barriers to gene flow are not maintained.

Taxonomic Status and Distribution

Girard (1854) was the first to describe low or zero plated sticklebacks in California when he named the population in Soledad Canyon Gasterosteus williamsoni. Since then, other low or zero plated Gasterosteus have been reported from California (Regan 1909, Miller and Hubbs 1969) and elsewhere (Regan 1909 - Italy; Boulenger 1916 - Algeria; Moodie and Reimchen 1973, Hagen and McPhail 1970, Bell 1974 - British Columbia; Francis et al. 1985 - Alaska). The southern California unarmored sticklebacks have been considered to be G. a. williamsoni, which formerly had a widespread distribution including the headwaters of the Santa Clara and low gradient parts of the Los Angeles, San Gabriel, and Santa Ana rivers. Recently, Baskin and Bell (1976) documented the distribution of populations of sticklebacks from the Santa Maria River

system and San Antonio Creek (Santa Barbara County) with an average number of lateral plates intermediate between G. a. williamsoni and G. a. microcephalus. The San Antonio Creek unarmored threespine stickleback population is considered to be G. a. williamsoni.

This problem of recognition and taxonomic status is compounded because (1) armored or partially armored sticklebacks are widespread and can interbreed with unarmored sticklebacks to produce intermediate forms and (2) sticklebacks may be widely introduced unwittingly with trout introductions.

At present the only recognized G. a. williamsoni populations are confined to the headwaters of the Santa Clara River and its tributaries, in northern Los Angeles County, and to the San Antonio Creek drainage, and possibly Honda Creek, on Vandenberg Air Force Base, Santa Barbara County. The areas in the Los Angeles basin which formerly supported G. a. williamsoni now harbor no sticklebacks and few, if any, other native fishes. The historic range of G. a. williamsoni and the location of the known surviving populations are depicted in Figure 2.

In 1984, G. a. williamsoni from San Antonio Creek were introduced into Honda Creek, a tributary to the Pacific Ocean. These fish have reproduced and survived to the present. However, it will be some time before it is known whether a self-sustaining population has become established in this marginal habitat. A small transplanted population may also exist outside the native range in upper San Felipe Creek, San Diego County. That population was established from a 1973 transplant of sticklebacks taken from Soledad Canyon. A population of low-plated

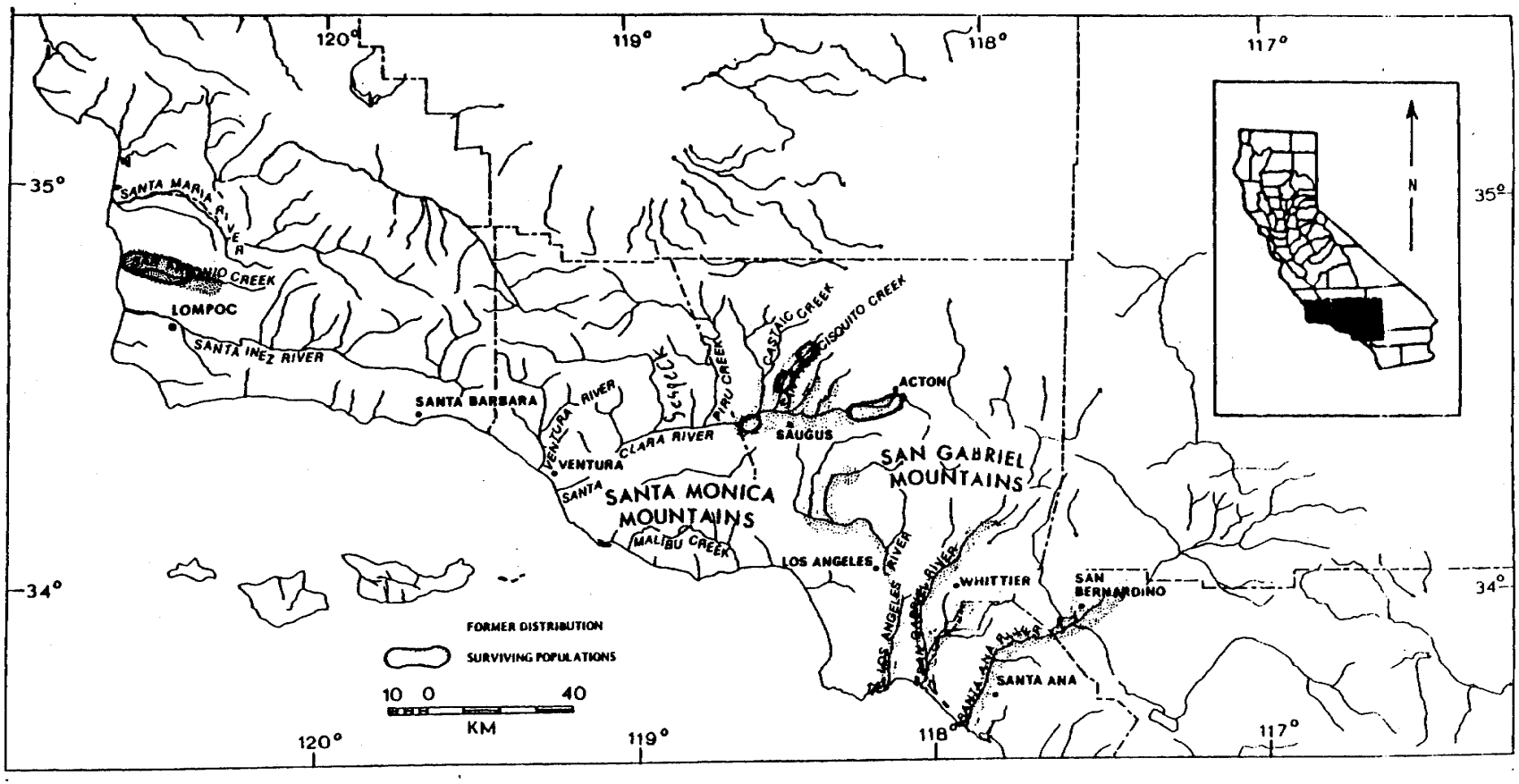


Figure 2. Historic range and present distribution of Gasterosteus aculeatus williamsoni.

sticklebacks that is possibly a remnant population of G. a. williamsoni was recently discovered in Shay Creek, a tributary to Baldwin Lake, San Bernardino County. Efforts are underway to examine the genetic characteristics of this population to determine if it properly should be considered G. a. williamsoni.

Essential habitat for the unarmored threespine stickleback consists of two disjunct stream reaches of the Santa Clara River in Los Angeles County, a short reach of San Francisquito Canyon in Los Angeles County, and the lowermost 8.4 miles of San Antonio Creek in Santa Barbara County. The essential habitat coincides with the area proposed as critical habitat for G. a. williamsoni on November 17, 1980 (Federal Register, 45:76012-76015) (see Appendices A and B). Essential habitat within the Santa Clara River proper consists of the following two sections: the river near Del Valle downstream of Interstate 5 and the river at the head of Soledad Canyon. The lower portion is separated from the upper portion by a dry section of river bed from Lang to Interstate 5. The upper portion is in Soledad Canyon from Lang to Arrastre Canyon, the type locality, which is subdivided during the dry season by intermittent dry sections of river bed. Essential habitat in San Francisquito Canyon is located from the southern boundary of the Angeles National Forest upstream approximately 8.4 miles to San Francisquito Powerhouse No. 1 near the junction with Clearwater Canyon. Essential habitat in the San Antonio Creek drainage consists of approximately an 8.4 mile section from the mouth of the creek at the Pacific Ocean upstream into Barka Slough. This creek section is entirely within the boundary of Vandenberg Air Force Base.

Reasons for Decline

In 1917, Culver and Hubbs found G. a. williamsoni to be abundant throughout the Los Angeles basin. By 1942 it was extinct there, and Miller (1961) attributed this extinction to habitat destruction (channelization and drying of streams caused by groundwater pumping) and the introduction of mosquitofish (Gambusia affinis). Baskin (1974) found that G. a. williamsoni builds its nests only in a microhabitat with a slow or negligible water flow. He also found it sympatric with Gambusia in parts of the upper Santa Clara River. Stomach content analysis indicated that Gambusia may be competing with G. a. williamsoni for some food items. Thus, Gambusia may have contributed to the disappearance of G. a. williamsoni in the Los Angeles basin. However, this basin has become thoroughly urbanized since 1917 and most of the streams have been channelized, destroying the quiet backwaters and side streams required by sticklebacks.

Miller and Hubbs (1969) reported that populations of G. a. williamsoni from the Santa Maria River drainage had been introgressed by G. a. microcephalus that were inadvertently included with introductions of trout. These plate counts were confirmed by Baskin and Bell (1976).

Thus all of the known natural populations of G. a. williamsoni except those from the upper Santa Clara River drainage (Baskin 1974, Bell 1975) and San Antonio Creek, have either been extirpated or become introgressed. The extant populations of G. a. williamsoni in the upper Santa Clara River system and San Antonio Creek have been spared

extinction by the relative lack of urbanization. The upper Santa Clara River population apparently has not been introgressed by G. a. microcephalus because natural barriers prevent substantial gene flow into the upper Santa Clara River drainage and G. a. microcephalus has not been introduced. G. a. microcephalus is not known from San Antonio Creek.

Natural History and Habitat Requirements

The Santa Clara River populations of G. a. williamsoni spend all of their life in fresh water in the upper portions of that basin (Baskin 1974, 1975). The following fishes also are found there and have probably been introduced:

Arroyo chub	Gila orcutti
Santa Ana sucker	Catostomus santaanae
Mosquitofish	Gambusia affinis
Green sunfish	Lepomis cyanellus
Black bullhead	Ictalurus melas

Young sticklebacks hatch in a nest from eggs which have been brooded for several days by the adult male, which fans the eggs and guards the nest and surrounding territory from possible predators (Baskin 1974, 1975; Baskin and Bell 1976). This parental care is essential for successful reproduction. The exact amount of time the young stay in the nest is not known, but the smallest specimens captured outside a nest were about 10 mm SL. These young fish were observed at the shallow edge of the

stream in areas of dense vegetation. The water temperature here is a few degrees higher than the surrounding stream, which may help speed development through the vulnerable early juvenile stages. The larger juveniles and sub-adults (less than about 20 mm SL) also tend to be found in the protection of vegetation, in slow moving or standing water.

Adults (32 mm SL or longer) are found in all areas of the stream. They tend to gather in areas of slower moving or standing water. In places where water is moving rapidly, adults tend to be found behind obstructions, or at the edge of the stream, especially under the edge of algal (*Cladophora*) mats. In small artificial pond situations, the sticklebacks tend to be concentrated at the upstream end of the pond where the water is flowing in. In larger ponds they are only found in such places, not in the areas of standing water. No adults have been found to be living permanently in ponds isolated from the main stream.

Population size estimates (Baskin 1975, Baskin and Bell 1976) indicate that the best habitat is a small clean pond in the stream with a constant flow of water through it. A pond such as this once located at Thousand Trails in Soledad Canyon supported between 2.0 and 3.4 fish/m^2. The pond encompassed about 475 m^2. The cleanliness of the water in Soledad Canyon is indicated by the 2.49 diatom diversity index found there by Riznyk (in Baskin 1974).

Stickleback populations tend to decline because of natural mortality and low recruitment during the winter. Fish apparently live for only one year.

Examination of gonads, size-frequency studies, and field observations of young and nesting adults show that there is some reproduction during almost every month. A large increase in reproductive activity occurs in the spring, about March, and continues at a lower level throughout the summer and fall.

Breeding takes place when the male develops nuptial coloration (bright red throat, blue sides, green eyes), establishes a territory, and builds a nest of aquatic vegetation on the bottom. These nests are located in places were there is ample vegetation and a gentle flow of water. After the female lays the eggs, the male fertilizes and guards them. He also uses his pectoral fins to pass a current of water over the eggs. This "fanning" behavior is essential for the proper development of the eggs.

The number of suitable nesting sites may be a limiting factor for the population. Some natural mortality probably occurs from flooding, causing sticklebacks to be washed out of favorable habitat. Also, predation by males on eggs may be a major mortality factor. None of the fishes occurring sympatrically with G. a. williamsoni have been found to be egg predators. However, stomach contents of Ictalurus and Lepomis have not been examined. These species are certainly capable of taking sticklebacks of all sizes, but they are not abundant and tend to be small in the upper Santa Clara River drainage.

Two other predators, belostomatid bugs (Belostoma) and garter snakes, (Thamnophis), occur in the essential habitat and are known to prey on sticklebacks. Belostomatids are very abundant and may be a major predator, especially on the younger individuals.

G. a. williamsoni feeds mostly on insects, most of which are benthic, but some are nectonic or terrestrial. Snails are also common in the diet, but flat worms and nematodes comprise only a very small percentage. Stickleback eggs were found in 12% of the stickleback stomachs examined. All of these stickleback eggs were in males.

In general, G. a. williamsoni appears to be an opportunistic feeder and takes a wide variety of food items. However, during the dry season of 1973, when these samples were taken, G. a. Williamsoni relied mostly on mayfly larvae, which are characteristic of clean flowing fresh water.

Our knowledge of the San Antonio Creek population of G. a. williamsoni is sparse but was recently expanded by the work of Irwin and Soltz (1982). The unarmored threespine stickleback was found throughout most of San Antonio Creek downstream of Barka Slough. Irwin and Soltz (1982) also found the following fishes in San Antonio Creek:

Tidewater goby	Eucyclogobius newberryi
Prickly sculpin	Cottus asper
Arroyo chub	Gila orcutti
Carp	Cyprinus carpio
Mosquitofish	Gambusia affinis

With the exception of the tidewater goby, these fish appear to be introduced. Suitable stickleback habitat in San Antonio Creek consists of shallow areas of moderate current with copious quantities of aquatic vegetation (Irwin and Soltz 1982). Periodic flood events are an

integral feature of San Antonio Creek and radically alter the physical habitat. Irwin and Soltz (1982) found that some reproduction occurred throughout the year, but that the highest recruitment of young occurs from May through September. No population estimates are available for the San Antonio creek population.

Primary food items of G. a. williamsoni in San Antonio Creek consist of chironomid larvae, amphipods and ostracods. Feeding is largely opportunistic, with consumption of the above mentioned foods highly correlated with their abundance in the habitat (Irwin and Soltz 1982).

Threats

The management of G. a. williamsoni presents some unusual problems not typically encountered in endangered species management. In addition to the usual problems of maintaining the essential habitat and sufficient numbers of individuals, G. a. williamsoni is a subspecies and is susceptible to introgression (see below) by G. a. microcephalus. Lateral plate counts also have been shown to be strongly influenced by selective predation (Bell 1976a, b) and the introduction of predators to the essential habitat might selectively eliminate zero-plated sticklebacks, obliterating the unique features by which G. a. williamsoni is recognized. Each of these problems must be recognized and taken into account in the management of G. a. williamsoni. Many of the threats to G. a. williamsoni discussed below have been examined elsewhere (Baskin 1974; Baskin and Bell 1976, Bell 1975, 1976a, b).

Stream Channelization.--Stream channelization presents a number of problems. One major consequence of channelization of the essential habitat of G. a. williamsoni is that it might allow continuous flow of water across the dry area between Interstate 5 and Lang (Stations 16 and 17 of Bell 1975). Continuous flow across this area might allow introgression of G. a. williamsoni by G. a. microcephalus. Continuous flow might also allow prickly sculpin (Cottus asper), which have been reported to feed on stickleback eggs and fry (Moodie 1972), to move upstream.

Channelization increases water velocity in pools, eliminates shallow backwaters, and reduces aquatic vegetation. Baskin (1974) showed that G. a. williamsoni nest in the calm water of pools with well-developed vegetation and a slow, gentle current. Furthermore, Baskin (1974, 1975) found that G. a. williamsoni is far more abundant in pools (with some flow) and shallow backwaters than in stream channels. Thus, pools along the upper Santa Clara River should not be channelized but should be maintained or even increased in number.

Stream channelization also increases peak flows during floods. The stickleback populations in Soledad Canyon and San Antonio Creek have both been drastically reduced in recent years in response to major flood events. Post flood surveys conducted by the Forest Service after the flood of 1977 documented the almost complete disappearance of G. a. williamsoni from Soledad Canyon in the year following the flood. Only a handful of sticklebacks were collected in Soledad Canyon in 1978 in spite of intensive survey efforts (Nichols 1978). Major floods

completely scoured the stream channels of both San Antonio Creek and the upper Santa Clara River again in the spring of 1983 causing stickleback numbers to decline to low levels once again. Any action that increases peak flood flows over natural conditions would increase the potential for a flood to cause the complete extirpation of a stickleback population.

Urbanization.--Urbanization presents a large number of threats to *G. a. williamsoni*. Included among these is increased public pressure for stream channelization and subsequent destruction of essential habitat. Urbanization also increases the chance of introducing *G. a. microcephalus* or predators of *G. a. williamsoni*. However, the greatest threat of urbanization is the degradation of water quality. Presently, the upper Santa Clara River and San Antonio Creek watersheds are relatively undeveloped, though some housing exists on the former stream. Intensive development would increase runoff, siltation, nutrients (which would cause cultural eutrophication, see below), pesticides, and other pollutants in the river. The consequences of other pollutants are difficult to foresee, but they are likely to be adverse.

Bell (unpublished data)[1] has discovered drastic deformities of *G. a. microcephalus* associated with pollution in the Ventura and lower Santa Clara rivers. Sticklebacks from Santa Clara River immediately downstream of the Fillmore State Fish Hatchery (station 11 of Bell 1975)

[1]Present Address: Department of Ecology and Evolution, State University of New York at Stony Brook, Stony Brook, New York 11794

commonly have deformities such as pug nose (truncated snout and protruding lower jaw), incomplete gill covers, and increased lateral plate count asymmetry compared to sticklebacks from other parts of the drainage. Increased bilateral asymmetry of fishes has been correlated with increased water pollution (Valentine et al. 1973). Water immediately downstream of the Fillmore Hatchery is relatively turbid and there are thick deposits of detritus, presumably derived from uneaten food and trout feces. Although the pollutant in the Ventura River is unidentified, collections made downstream of petrochemical plants in 1974 consistently contained foreshortened fish (i.e., reduced length relative to body depth). This deformity was entirely absent upstream of the petrochemical plants in 1974. Foreshortened sticklebacks have also been recorded from an agricultural area in British Columbia (McPhail, pers. comm.). While these deformities have thus far been detected only in other subspecies of *Gasterosteus aculeatus*, it is reasonable to expect that *G. a. williamsoni* would be affected similarly.

Introduction of Predators and Competitors.--Predators may adversely affect *G. a. williamsoni* by removing individuals either randomly or selectively or by restricting them to habitats that the predators cannot enter. Random or selective removal may cause extinction, but selective removal also may cause a change in the appearance of *G. a. williamsoni* to more closely resemble *G. a. microcephalus*. Restriction to habitats that the predators cannot enter will reduce population size. Bell (1976a, b) has shown that predators remove sticklebacks with different plate counts at different rates. This can produce a shift in the frequency of individuals with different numbers of plates (Hagen and

Gilbertson 1973, Moodie et al. 1973). Larson (1976) found that predation by Coho salmon (Oncorhynchus kisutch) caused lacustrine sticklebacks to occupy a limnetic habitat to which they were poorly adapted.

Competitors also may cause extirpation or morphological change of G. a. williamsoni populations. G. aculeatus is rare in eastern North America streams apparently because fish species diversity is high and, hence, there are many potential competitors. Ross (1973) believed that low gill raker counts of sticklebacks for Arroyo Trabuco Creek, a tributary of San Juan Creek, Orange County, was caused by the unusual presence of California killifish (Fundulus parvipinnis). Thus, introductions could have unforeseeable effects on G. a. williamsoni.

Introductions of predators and competitors can come from a number of sources. Channelization may provide a route for invasion by fathead minnows (Pimephales promelas) and Cottus asper, which was recently introduced into the Santa Clara River drainage (Bell 1975, 1976a). Urbanization also increases the probability that predators and competitors will be introduced. The African clawed frog (Xenopus laevis), which was popular in the pet trade until it was prohibited, was introduced into Agua Dulce Canyon, a tributary of the Santa Clara River sometime in the 1970's. Xenopus is regarded as a threat to native fishes (St. Amant et al. 1973) and a severe threat to G. a. williamsoni (Baskin 1974). In 1984, X. laevis was discovered in Soledad Canyon zone

of essential habitat (S. Sasaki, pers. comm.)[2]. This stream reach is now being monitored to determine how severe an impact this fish predator is having on G. a. williamsoni reproduction and survival. Efforts to control its spread in the Santa Clara River drainage are also underway. The introduction of other exotic species into the essential habitat of G. a. williamsoni should be prevented to avoid the unforeseeable effects of predators and competitors.

Introgression.--Introgression results from hybridization and is the flow of genes from members of one population into members of a second population. The result of introgression is that the population receiving intensive gene flow will come to resemble the other population. Increased gene flow may be caused by stream channelization, releases of water containing G. a. microcephalus into the upper Santa Clara River and San Antonio Creek, or the introduction of G. a. microcephalus into the habitat of G. a. williamsoni. The latter may occur when game fishes are introduced, or may be done intentionally. Introduction by private parties becomes increasingly likely as the human population in the upper Santa Clara River basin grows.

Agricultural Impacts.--Possible impacts of agriculture are varied, depending on the kind of agriculture and techniques used. Increased flow of silt from the watershed can cause habitat destruction by

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[2]Present Address: California Department of Fish and Game, 110 Salisbury Avenue, Goleta, California 93117

covering the bottom of pools with fine sediment or completely filling in pools. Increased siltation may be caused by overgrazing or by irrigation. Irrigation of citrus orchards in the lower Santa Clara River, downstream of the essential habitat of G. a. williamsoni, has already caused siltation of certain reaches of the stream. G. a. williamsoni is not found in even slightly turbid water (Baskin 1974).

Cultural eutrophication is the excessive growth of aquatic vegetation resulting from the input of nutrients, particularly phosphate and nitrate (Odum 1971). The flow of these nutrients into the essential habitat of G. a. williamsoni probably will be increased by urbanization as well as agriculture. Agricultural sources of such nutrients include runoff from crop fields containing dissolved synthetic fertilizers and runoff from areas containing large concentrations of livestock feces.

Oxygen Reduction.--Excessive growth of aquatic vegetation may reduce oxygen by two different means. During the night, photosynthesis (which produces oxygen) ceases, but aquatic plants continue to utilize oxygen by respiration. If the vegetation is dense, oxygen levels may be depressed sufficiently to cause fish kills. During winter, aquatic vegetation dies, and its decomposition also requires oxygen. If aquatic vegetation is overly dense, the winter die-off may depress dissolved oxygen to lethal levels.

Feldmeth and Baskin (1976) and Baskin (1975) showed that G. a. williamsoni has a moderate tolerance to oxygen reduction (to 2.0 ppm).

They pointed out that as oxygen concentration approaches 2.0 ppm, G. a. williamsoni must increase the amount of energy put into respiration, detracting from somatic growth, reproduction, and activity. Thus, sublethal reductions of dissolved oxygen may reduce growth and reproduction of G. a. williamsoni, possibly placing it at a competitive disadvantage with sympatric fishes. Cultural eutrophication thus could eliminate G. a. williamsoni directly by reducing dissolved oxygen to lethal levels or indirectly by reducing dissolved oxygen to disadvantageous levels.

Groundwater Removal.--The Santa Clara River flows over a sandy surface that is easily permeated by water. Therefore, there is a continuous exchange of water between the surface and groundwater. As water is pumped from wells along the Santa Clara River, it presumably is replaced by water moving from the surface into the ground. The aquatic habitat of G. a. williamsoni tends to expand and contract following a daily and annual cycle (Baskin 1974). If too much water were removed by pumping, all remaining stream segments ~~might~~ become desiccated. Any reduction of essential habitat is likely to cause a reduction of the population size. Feldmeth and Baskin (1976) and Baskin (1975) found that G. a. williamsoni has a moderate temperature tolerance (critical thermal maximum of 30.5°C when acclimated at 8°C and a critical thermal maximum of 34.6°C when acclimated at 22.7°C). As the volume and flow of water in the essential habitat declines, pools become shallower and water temperature increases. Pumping of groundwater, especially during dry years, is a severe threat to G. a. williamsoni. Such problems already exist in the upper San Antonio Creek drainage because of domestic and agricultural use.

Transpiration.--Transpiration is the release of water from the leaves of plants. It seems unlikely that transpiration could remove a significant amount of water from the essential habitat of *G. a. williamsoni* except possibly in portions of San Antonio Creek. Increased plant growth and associated water loss by transpiration around one spring habitat of the warm springs pupfish (*Cyprinodon nevadensis pectoralis*) in Nevada, probably caused the near complete desiccation of this habitat (Soltz pers. comm.)[3].

Off-road Vehicles.--The use of off-road vehicles (motorcycles, dirt bikes, dune buggies, jeeps, and four wheel drive trucks) is a popular sport in southern California. The ecological effects of off-road vehicle (ORV) use can be drastic resulting in vegetation destruction, increased erosion, and increased water flow. As the sport has grown, the land area which ORVs are allowed to use has declined. Formerly, ORVs were used extensively along two reaches of the essential habitat, Soledad Station (U.S. Forest Service) and Thousand Trails (privately owned) (Baskin 1974). ORV use has been substantially reduced near the former Soledad Station site by means of a Forest Service order closing the area to such use. A potentially significant amount of illegal use continues, however. Ongoing law enforcement activity will be necessary to protect the habitat. ORVs indirectly affect *G. a. williamsoni* by destroying riparian vegetation and removing obstacles to stream flow which in turn cause pools to form. It also was common for dirt bikes

[3]Present Address: Department of Biology, California State University, Los Angeles, 5151 State University Drive, Los Angeles, CA 90032

for dirt bikes to race through the stream beds and destroy nesting areas of G. a. williamsoni. Dirt bike racers have been observed driving through a pool (Baskin 1974) that had contained twelve stickleback nests.

Drinkwater Reservoir.--San Francisquito Canyon contains a small population of G. a. williamsoni at its juncture with Drinkwater Canyon in Angeles National Forest. This habitat is only about 100 m long during the summer but extends to a length of about 1.5 km in the winter. A reservoir in Drinkwater Canyon releases water that maintains the small habitat in San Francisquito Canyon. According to local Los Angeles Department of Water and Power personnel, a one cfs water release is maintained throughout the year to satisfy the rights of private property owners downstream of the reservoir. The flow, however, is temporarily terminated when pipes are cleaned. Positive action should be taken to insure the continuous supply of suitable quality water to this population. Many of the threats to G. a. williamsoni in the Santa Clara River also apply to the population in San Francisquito canyon.

Toxic Spills and Discharges.--The floodplain of the Santa Clara River is crossed by the Southern Pacific Railroad tracks, Soledad Canyon Road, and several commercial campgrounds. The possibility exists that a toxic chemical spill from private land, railroad, or highway accident could destroy the entire Santa Clara River population of G. a. williamsoni leaving only the San Antonio Creek population and the small populations in San Francisquito Canyon. The discharge of chlorine into the

essential habitat is also a potential problem because of the large number of recreational lakes and pools in Soledad Canyon. The Los Angeles County Health Department currently requires property owners to chlorinate or otherwise treat these recreational water bodies. When they are drained, chlorine or other chemicals may be discharged into the Santa Clara River. Thus, while G. a. williamsoni is currently seasonally abundant in most years, its restricted distribution renders it vulnerable to catastrophic extirpation. This situation necessitates consideration of transplants to other drainages for security.

Addition of Water.--The addition of water to the Santa Clara River basin can be beneficial or harmful depending on the amount and contents of the water. Tertiary treated sewage water, if released into the upper Santa Clara River, would probably be of sufficient quality to increase the size and productivity of the G. a. williamsoni habitat.

Both the increase in size and productivity of habitat would tend to increase the population size. However, if too much water is released, increased flow rates might wash out barriers (e.g., dams, fallen logs, emergent vegetation, etc.) that keep flow at an appropriate velocity for G. a. williamsoni. If sewage water contained a high concentration of nutrients, cultural eutrophication (discussed above) might occur, or the decomposing nutrients might cause oxygen depletion thereby adversely affecting G. a. williamsoni. In addition, waters polluted with excessive concentrations of nutrients have been observed to contain unusually high

frequencies of deformed fish (unpublished data[4]). If addition of treated sewage water into the upper Santa Clara River were sufficient to establish continuous flow of water between Lang and Interstate 5, introgression between G. a. williamsoni and G. a. microcephalus might occur.

Water imported from another drainage into the Santa Clara River basin also might increase the size of the G. a. williamsoni habitat. However, the importation of out-of-basin water has already resulted in the introduction of Catostomus fumeiventris and Cottus asper into the Santa Clara River drainage (Bell 1978). Imported water may contain a variety of predators, competitors, and parasites detrimental to G. a. williamsoni.

Any source of water that increases the habitat of G. a. williamsoni and the dependability of the water supply should be considered on its merits. However, any potential addition of water to the upper Santa Clara River should be preceded by careful analysis of its chemical and biological contents. Initial addition of water should be on a trial basis, with continuation contingent upon its ecological benefit to the Santa Clara River system, not on the basis of economic benefit. Disposal of water into the Santa Clara River would be a privilege, and parties interested in utilizing this privilege should be prepared to demonstrate that their water is safe and that they could immediately halt water disposal if necessary.

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[4] See footnote 1.

Impoundment of Waters.--Baskin (1974) found that impoundments may benefit or adversely affect sticklebacks. Small impoundments (e.g., Pond 1, 456 m^2., Baskin and Bell 1976) with well-circulated water and abundant aquatic vegetation along the edges have the highest density of sticklebacks (Baskin 1974, 1975). However, large impoundments without aquatic vegetation are unsuitable for sticklebacks. Baskin (1974) found that White Rock Pond, which is large and lacks vegetation, contained abundant mosquitofish, but G. a. williamsoni was virtually absent. It seems likely that White Rock Pond, as it is presently managed, has reduced the carrying capacity of G. a. williamsoni in the segment of essential habitat that it occupies.

Conservation Efforts

The agencies cooperating in the recovery effort have undertaken several actions to conserve the unarmored threespine stickleback. These activities include: (1) surveys to discover additional populations, (2) transplants to establish G. a. williamsoni in other waters, (3) surveys to discover exotic organisms, (4) eradication programs to remove or control exotic species, (5) contingency plans to establish response procedures in case of oil or toxic chemical spills, (6) rescue efforts to maintain the gene pool of populations threatened by stream desiccation, (7) genetic studies to ascertain taxonomic relationships, and (8) installation of water conveyance facilities to provide emergency supplemental flows.

These conservation efforts have resulted in the discovery of a potential remnant population of G. a. williamsoni in Shay Creek, San Bernardino County, (J. Malcolm, pers. comm.)[5], the possible establishment of another stickleback population in Honda Creek, Santa Barbara County, and a potential change in the taxonomic status of one or more of the recognized extant populations (D. Buth, pers. comm.)[6]. Fish and Wildlife Service policy with respect to proposed taxonomic revisions is to await acceptance and publication in a reputable scientific journal before initiating changes in the management of listed species.

Recently the Air Force added a discharge valve to an existing water line over San Antonio Creek to provide capability for releasing emergency supplemental flows into that stream in the event it becomes dewatered as a result of increased groundwater pumping in the upper part of the basin. In response to another emergency situation, the Big Bear City Community Services District has agreed to protect the recently discovered stickleback population in Shay Creek by providing supplemental flows from a nearby water line through the summer and fall of 1985. Some sticklebacks from that stream were also rescued and placed in a laboratory at the University of Redlands as a precautionary measure. Flows in Shay Creek had declined to perilously low levels by August, 1985, and it appeared likely that the short reach of stickleback habitat in this stream might completely dry up before the genetic

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[5]Present Address: Department of Biology, University of Redlands, 1200 East Colton Avenue, Redlands, CA 92374

[6]Present Address: Department of Biology, University of California at Los Angeles, 405 Hilgard Street, Los Angeles, CA 90024

composition of this population could be ascertained. By preparing a contingency plan (see Appendix D) and acquiring the equipment needed to rescue and hold sticklebacks during an emergency situation, the Forest Service is prepared to respond to a toxic chemical spill in the Soledad Canyon zone of essential habitat.

PART II

RECOVERY

Objectives

The primary objective of this recovery plan is to prevent the extinction of the unarmored threespine stickleback and to improve and maintain its status at a point where it can be safely delisted. This objective will be achieved when: (1) the factors responsible for threatening the integrity of the known remaining habitats have been identified and actions have been taken to stabilize habitat conditions, (2) the other known threats to extant populations have been addressed in a manner that assures the continued existence of these remnant populations, and (3) at least five self-sustaining populations have been maintained within the historical range of G. a. williamsoni for a period of five consecutive years without significant threats to their continued existence. The latter criterion can be satisfied by successfully reintroducing G. a. williamsoni into sufficient numbers of suitable historical habitats to reach a total of five secure populations, by discovering additional remnant populations in secure historical habitats, or by some combination of reintroductions and new discoveries.

It will be appropriate to consider reclassification of G. a. williamsoni from endangered to threatened when criteria 1 and 2 have been met and at least three self-sustaining populations have been maintained within the historical range of G. a. williamsoni for a period of five consecutive years without significant threats to their continued existence.

Step-down Outline

1. Restore and maintain UTS essential habitat at optimum conditions.
    - 11. Maintain existing habitat.
        - 111. Determine, monitor and regulate water use.
        - 112. Determine, monitor and regulate land use.
        - 113. Develop management agreement with Los Angeles Department of Water and Power.
        - 114. Maintain essential stream characteristics.
    - 12. Restore degraded habitat.
        - 121. Determine appropriate methods to restore degraded habitat.
        - 122. Develop procedures to supplement instream flows.
            - 1221. Determine supplemental flow capacity needed to maintain UTS if natural flows interrupted.
            - 1222. Acquire water rights if necessary.
            - 1223. Install needed pumping or water conveyance facilities.
        - 123. Implement procedures to restore degraded habitat and supplement instream flows.
    - 13. Protect existing and restored habitat.
        - 131. Identify and investigate potential land sites needing protection.
        - 132. Establish priorities for protection as needed.
        - 133. Secure appropriate parcels.

2. Restore and maintain UTS populations at optimum conditions.

   21. Protect existing populations.

      211. Prevent introduction of exotic organisms.

      212. Remove exotic organisms as needed.

      213. Establish contingency plan.

         2131. Determine UTS contingency procedures.

         2132. Establish temporary holding facility to maintain rescued UTS.

      214. Implement contingency plan as appropriate.

   22. Establish additional populations as appropriate.

      221. Determine need for establishing additional populations.

      222. Select suitable sites.

      223. Restore habitat as necessary.

      224. Obtain transplant stock.

      225. Perform transplants.

   23. Monitor UTS populations.

      231. Monitor existing populations through established census techniques.

      232. Monitor transplanted individuals.

      233. Investigate possible existence of additional populations of UTS.

3. Determine UTS life history and obtain needed ecological and genetic information.

   31. Determine natural habitat conditions.

   32. Assess effects of exotic predators.

33. Determine biological needs for nesting, reproduction and rearing young.

34. Determine food requirements.

35. Determine water quality and quantity requirements of UTS.

36. Establish determinants of water distribution and abundance within essential habitat.

37. Determine optimum size of UTS population necessary to be self-sustaining.

38. Determine genetic composition of populations of unknown origin.

4. Inform the public of UTS status and recovery effort.

41. Publicize UTS distribution, identification and legal status.

42. Provide relevant organizations with advice to preserve UTS.

43. Inform public of transplant efforts.

5. Utilize laws and regulations to protect fish and habitat.

51. Enforce existing laws and regulations.

52. Designate critical habitat as provided for by the Endangered Species Act.

53. Determine need for and propose additional laws and regulations.

54. Review permits for research projects.

Narrative

The primary objective of this recovery plan is to prevent the extinction of the unarmored threespine stickleback and to improve and maintain its status at a point where it can be safely delisted. This objective will be achieved when: (1) the factors responsible for threatening the integrity of the known remaining habitats have been identified and actions have been taken to stabilize habitat conditions, (2) the other known threats to extant populations have been addressed in a manner that assures the continued existence of these remnant populations, and (3) at least five self-sustaining populations have been maintained within the historical range of G. a. williamsoni for a period of five consecutive years without significant threats to their continued existence. The latter criterion can be satisfied by successfully reintroducing G. a. williamsoni into sufficient numbers of suitable historical habitats to reach a total of five secure populations, by discovering additional remnant populations in secure historical habitats, or by some combination of reintroductions and new discoveries.

It will be appropriate to consider reclassification of G. a. williamsoni from endangered to threatened when criteria 1 and 2 have been met and at least three self-sustaining populations have been maintained within the historical range of G. a. williamsoni for a period of five consecutive years without significant threats to their continued existence.

1. Restore and maintain UTS essential habitat at optimum conditions. Restoration of the essential habitat in Soledad Canyon, Angeles National Forest, is under way. The use of off-road vehicles (ORV)

within the essential habitat on public lands in Soledad Canyon has been reduced, but continuing law enforcement efforts will be necessary to prevent significant habitat destruction by unauthorized users. In San Francisquito Canyon, efforts to stop ORV use are continuing. Efforts also are being made to improve the quality of the existing habitat on public land (see Habitat Requirements). Further modifications will await determination of more precise habitat requirements and may include the creation of small pools within the stream by the use of small dams and deflectors.

All the Angeles National Forest was closed to target shooting in November of 1981, except for 16 designated areas. None of these areas are in essential habitat, but shooter debris remains from past activity in certain areas and should be cleaned up.

Restoration of the essential habitat on private land involves problems similar to those on public land, but in addition the cooperation of the owner must be obtained. This is a critical problem because most of the essential habitat in Soledad Canyon where the most important populations occur (see Description and Diagnosis) and downstream of Interstate 5 are privately owned.

11. Maintain existing habitat. *G. a. williamsoni* must be able to survive in the areas that it now occupies to have a good chance of recovery. Maintenance of suitable habitat requires that instream flows and vegetation be protected. Recently

individuals have been harvesting watercress and other aquatic vegetation from the essential habitat for private and commercial use. Watercress harvest may be especially detrimental to the stickleback population in years following major floods when instream vegetation is scarce.

111. Determine, monitor and regulate water use. The amount and quality of water is the primary environmental parameter that must be monitored and regulated. Flowing surface water is essential to stickleback populations as was shown in 1976 when the amount of essential habitat in the dry season was reduced to levels that constituted a threat to *G. a. williamsoni* (see Threats). It is necessary to regulate the removal of groundwater and the diversion of streams into lakes and large pools, which form unfavorable habitat for *G. a. williamsoni*.

The chemical composition of the water will have to be monitored and the various possible sources of chemical pollution must be regulated (e.g., human waste, agricultural runoff, chemical spills). Also, a drastic increase in flow rate as a result of artificial addition of water must be avoided because this also can reduce the suitability of habitat for sticklebacks.

112. Determine, monitor and regulate land use. The use of land in and adjacent to the essential habitat must be regulated to avoid deleterious modifications such as pollution.

Of the two essential habitat crossings in San Francisquito Canyon, one has an approved concrete low water crossing. The other crossing just below Power House #2 should be improved.

Private landowners of habitat occupied by *G. a. williamsoni* should be informed of the fish's presence and the status of their property as essential habitat for the UTS. Efforts should be made to control the harvest of watercress if this activity results in the take of *G. a. williamsoni*.

113. Develop management agreement with Los Angeles Department of Water and Power. The essential habitat in San Francisquito Canyon (Angeles National Forest) depends on release of water from Drinkwater Reservoir by the Los Angeles Department of Water and Power (LADWP). A management agreement with LADWP should be pursued to insure the continued release of suitable quality water from Drinkwater Reservoir.

Another segment of essential habitat in San Francisquito Canyon, also in Angeles National Forest, flows through a small community occupied by LADWP workers. The USFS should notify LADWP that this segment of essential habitat is not to be disturbed.

114. Maintain essential stream characteristics. Major floods in the Santa Clara River and San Antonio Creek drastically modify the configuration of the stream channel and scour away aquatic vegetation. Such events also typically cause precipitious declines in stickleback abundance. Because of the current restricted distribution of *G. a. williamsoni*, some seasonal pool restoration work may be required following flood events to increase stickleback carrying capacity and to accelerate the recovery of populations that are adversely affected by floods. Rish (1982) described the types of stream restoration activities that have been most successful to date in accelerating habitat recovery. A population that declined to a low level after a winter flood and did not recover in the following summer would be vulnerable to extirpation in the event major floods occurred in successive years.

12. Restore degraded habitat. Continuing habitat degradation necessitates restoration efforts in certain sections of essential habitat to insure survival of UTS populations.

121. Determine appropriate methods to restore degraded habitat. Areas of essential habitat that have been degraded should be examined to determine the most appropriate methods of restoration.

122. Develop procedures to supplement instream flows. Groundwater pumping for agricultural, military, and residential use may soon desiccate portions of San Antonio Creek, at least seasonally. The same threat also applies to Soledad Canyon and the recently discovered population in Shay Creek, San Bernardino County. One potential means of maintaining surface flows during periods when heavy groundwater pumping would otherwise cause stream desiccation is through the release of surface or groundwater back into the stream. When it is not possible to preserve essential habitat by regulating the removal of groundwater (see #111), an emergency flow maintenance system should be developed that is capable of sustaining the stickleback population through critical dry periods.

1221. Determine supplemental flow capacity needed to maintain UTS if natural flows interrupted. It will be necessary to determine the minimum flow levels needed to maintain UTS populations. This volume may vary because of season (e.g., high evaporation rates in

summer), or differing requirements of the fish (e.g., enough water for reproduction and survival of young or only enough water for adult survival). After the stickleback's minimum flow needs are determined, the amount of supplemental flow capacity needed for emergency situations can be calculated.

1222. Acquire water rights if necessary. It may be necessary to acquire water rights for instream flow preservation or for groundwater pumping.

1223. Install needed pumping or water conveyance facilities. Any pumps or related equipment and conveyance facilities that are needed to maintain instream flows during critically dry periods should be installed before the need for their use arises.

123. Implement procedures to restore degraded habitat and supplement instream flows. The methods identified in task 121 for restoring degraded habitats should be implemented as needed. Supplemental instream flows should also be provided as needed during prolonged periods of drought or when surface diversions or groundwater pumping have diminished or eliminated natural flows. The groundwater pumping or water

conveyance facilities needed to maintain flows during an emergency should be ready in advance.

13. Protect existing and restored habitat. Suitable existing or restored habitat must be protected by conservation easements, memoranda of understanding, management agreements, land exchange, or acquisition. These efforts should be restricted to critical parcels of private land and Forest Service inholdings that are available on a willing seller basis or for which mutually acceptable management agreements can be negotiated.

131. Identify and investigate potential land sites needing protection. Land downstream of Interstate 5 has not been investigated for possible protection. Its ownership, availability, and appropriate method of protection should be investigated. An area near San Martinez Canyon is a candidate for habitat protection.

132. Establish priorities for protection as needed. Lands containing essential habitat should be identified and priorities for protection determined on a periodic basis. Protection of needed essential habitat land in Soledad Canyon should have priority over land downstream of Interstate 5 because (1) sticklebacks in the latter area are introgressed by *G. a. microcephalus*, (2) it is farthest upstream and

therefore easiest to manage, (3) it contains high quality habitat, (4) it has sticklebacks with the lowest average lateral plate number, and (5) it has the most abundant population of sticklebacks.

133. Secure appropriate parcels. Those lands identified as most important for UTS preservation should be secured by the most appropriate method (e.g., cooperative agreements, memoranda of understanding, conservation easements, land exchange, or fee purchase).

2. Restore and maintain UTS populations at optimum conditions. Population levels of *G. a. williamsoni* can be enhanced by protecting existing populations from threats such as exotic species and pollution as well as by establishing additional populations. A regular program of population monitoring is necessary to determine the need for further actions.

21. Protect existing populations. The first priority of the recovery plan must be to preserve and protect existing populations of *G. a. williamsoni* while achieving the primary objective.

211. Prevent introduction of exotic organisms. Even if the essential habitat remains physically intact the possible introduction of several species of exotic organisms remains a constant threat to UTS survival.

Exotic organisms may be introduced into essential habitat in a variety of ways. Water imported from other areas or released from upstream may contain exotic species. The fish fauna of Bouquet Reservoir, Drinkwater Reservoir, Lake Piru, and Castaic Lake may include exotic species that would be detrimental to survival of G. a. williamsoni.

No exotic fishes, either predators or competitors of G. a. williamsoni, should be introduced into the essential habitat. Exotic predators that cannot reproduce in the Santa Clara River (e.g., Salmo gairdneri) may be permitted in private ponds, but those that may reproduce (e.g., Xenopus and Centrarchidae) should be excluded. Plants of game fish should be carefully scrutinized to assure the absence of unwanted exotics. Exotics may be introduced by bait fishermen. Therefore, laws prohibiting the use of small fish as bait should be strictly enforced.

The introduction of G. a. microcephalus should also be prevented. If G. a. microcephalus is introduced to the essential habitat of G. a. williamsoni, interbreeding could cause lateral plate counts and other distinctive features of G. a. williamsoni (see Description and Diagnosis) to approach the condition

in G. a. microcephalus. The result could be that G. a. williamsoni would cease to exist as a distinct taxon.

212. Remove exotic organisms as needed. The African clawed frog, Xenopus laevis, was introduced into Agua Dulce Canyon, which drains into the essential habitat, sometime in the early 1970's. In 1984, this exotic predator was discovered in the Soledad Canyon reach of essential habitat. Measures should be implemented to eradicate or control this fish predator and other exotics that are found to be detrimental to G. a. williamsoni.

213. Establish contingency plan. One justification for considering G. a. williamsoni to be endangered is that it is restricted to the Santa Clara River basin and San Antonio Creek and that most individuals might be eliminated by a single catastrophic event such as a drought, chemical spill or forest fire. Until UTS is well established in other locations, a contingency plan should be prepared to save surviving individuals in case of catastrophe.

2131. Determine UTS contingency procedures. Step by step procedures to follow in case of an emergency should be established and made

available to local wardens and resource managers.

2132. Establish temporary holding facility to maintain rescued UTS. Temporary facilities to maintain rescued G. a. williamsoni should be established in case of catastrophe. It may be desirable to establish mobile holding facilities that can be moved rapidly to the appropriate site in case of a catastrophe. The larger the number of sticklebacks rescued, the greater will be the probability of preserving genetic variation in the population.

214. Implement contingency plan as appropriate. As soon as a catostrophe has been detected, the contingency plan should be implemented. Responsible personnel from the California Department of Fish and Game, Forest Service, Fish and Wildlife Service, and Air Force should be notified immediately.

22. Establish additional populations as appropriate. Establishment of new, viable populations of G. a. williamsoni by transplants into its former range or at adjacent sites will reduce the possibility of its extinction. In addition, this action should improve its status and be cause to consider removing this fish from the endangered species list.

221. Determine need for establishing other populations. To delist the subspecies, it will be necessary to establish additional self-sustaining populations. The number, size and location of the populations can only be determined on the basis of historic distribution, current distribution, and potential transplant sites.

Populations of *G. a. williamsoni* should be established in habitats that it previously inhabited, provided that they will now support such populations. Reintroduction into suitable habitat also will help restore damaged ecosystems.

222. Select suitable sites. Suitable transplant sites should be selected on the basis of the best available criteria. Important criteria include absence of predatory fishes and other sticklebacks, the presence of suitable habitats and evidence that the habitat will remain suitable.

223. Restore habitat as necessary. Restoration of habitat may be necessary. Ideally, habitat should be restored to near historical condition. Instream flows may need to be supplemented (see #122). If exotic predators are present, their removal may be needed.

224. Obtain transplant stock. Specimens for transplants should be collected by seining. All size classes (i.e., age classes) should be used and individuals should be transplanted without regard to lateral plate count. All *G. a. williamsoni* populations contain some individuals with plates (Miller and Hubbs 1969, Bell 1974) and it is not desirable, and probably not possible, to eliminate them from introduced populations.

The number of sticklebacks introduced will affect the likelihood of the introduced fish finding each other for reproduction. The probability of encountering an appropriate mate depends on the size of the suitable habitat and the tendency of sticklebacks to disperse or aggregate. The tendency to disperse is not known for *G. a. williamsoni*. Thus, the number of sticklebacks used for transplants should be relatively large (500 to 1000 individuals).

225. Perform transplants. Specimens for transplants south of Vandenberg AFB should come from the headwaters of the Santa Clara River in Soledad Canyon because sticklebacks from this area are least introgressed (Bell 1976b) and this apparently is the type locality of the subspecies (Miller and Hubbs 1969). Specimens for transplants within or north of Vandenberg AFB should come from San Antonio Creek.

23. Monitor UTS populations. All populations should be monitored annually. Habitat condition, especially quality and quantity of water flow, should be monitored periodically throughout the year.

231. Monitor existing populations through established census techniques. Existing populations should be monitored annually. Additional monitoring may be necessary following major floods or during drought.

232. Monitor transplanted individuals. The stickleback population in the immediate vicinity of the transplant site should be monitored at fixed periods following the transplant to note the presence of fry, stickleback nests, and sticklebacks in reproductive condition.

233. Investigate possible existence of additional populations of UTS. The existence of other *G. a. williamsoni* populations also should be determined. Preliminary surveys to determine the range of *G. a. williamsoni* within and to the north of the Santa Clara River system have already been carried out. There have been reports of unarmored sticklebacks to the south of the Santa Clara River system. These reports should be investigated, and all other streams that might contain UTS should be surveyed.

3. Determine UTS life history and obtain needed ecological and genetic information. Several studies have addressed habitat requirements and/or distribution of the UTS, however, much remains to be learned about the life history, ecology, and genetics of *G. a. williamsoni* that will aid in its recovery and eventual delisting. Important aspects of UTS biology that are poorly known should be identified and evaluated so that research can be initiated on the most essential items. Future research may provide data that will increase our ability to manage the habitat and thus increase the survival probability of *G. a. williamsoni* within its essential habitat. Clarification is also needed concerning the genetic composition of some populations, including the ones in Del Valle zone of the Santa Clara River and San Antonio Creek.

The ecology of various species of sticklebacks is an active area of research. Much is being published on resource utilization, the effects of predation on morphological variation, and habitat preference. This information may provide insights into the proper management of the essential habitat.

31. Determine natural habitat conditions. Although a great deal of time has been spent in the field observing *G. a. williamsoni*, it still is impossible to predict that a habitat within the range of the subspecies will contain abundant *G. a. williamsoni*. It is possible, however, to recognize unsuitable habitats. Research to determine measurable

ecological parameters that are indicators of habitat suitability for G. a. williamsoni are needed. Emphasis should be placed on determining historic, natural habitat conditions.

32. Assess effects of exotic predators. It is known that certain predators selectively feed on sticklebacks with a low number of lateral plates (Bell 1976a, b; Moodie and Reimchen 1973; Moodie et al. 1973). Thus, it seems likely that predators may cause an increase in lateral plate counts if they prey on G. a. williamsoni. The actual effects of known or potential predators on G. a. williamsoni should be assessed, particularly the impact of X. laevis on the population in Soledad Canyon.

33. Determine biological needs for nesting, reproduction and rearing young. Information concerning reproduction, nesting, and rearing of young is needed so that optimum habitat for these activites can be determined.

34. Determine food requirements. The feeding ecology of G. a. williamsoni should be investigated. Knowledge of the relationship between food habits and food supply in the UTS ecosystem can furnish some answers to the fish's life history and assist in management.

35. Determine water quality and quantity requirements of UTS. We presently do not know much about the quality and quantity of water necessary to maintain existing populations of *G. a. williamsoni*. It is known that the Santa Clara River has relatively clean water (Baskin 1974), but the amount of turbidity and water quality degradation that can be tolerated by *G. a. williamsoni* is unknown. Until water-quality requirements are determined, the threat posed by pollution will be difficult to assess. Bioassays can help determine water quality requirements.

36. Establish determinants of water distribution and abundance within essential habitat. The amount of water necessary to maintain the essential habitat and many of the factors that control the distribution and abundance of water within the essential habitat are unknown. Knowledge of these factors will allow maximal utilization of groundwater in the upper part of the Santa Clara River without destroying essential habitat. This knowledge also may allow anticipation of habitat loss by drought.

37. Determine optimum size of UTS population necessary to be self-sustaining. It is important to know what constitutes optimal population size for *G. a. williamsoni* so that self-sustaining populations can be maintained. The criteria for reclassifying to threatened consists of maintaining self-sustaining populations of UTS in three historic habitats

without significant threats to their existence for a period of five consecutive years.

38. Determine genetic composition of populations of unknown origin. The Forest Service recently funded an electrophoretic study that examined the biochemical characteristics of 17 southern California stickleback populations. The preliminary results suggest that the populations in San Antonio Creek and the Del Valle reach of the Santa Clara River may be derived from *G. a. microcephalus* and should not be assigned to *G. a. williamsoni* (see section on Conservation Efforts). The findings of that study have not yet been published. A morphological and meristic study is needed to supplement the data obtained by electrophoresis to determine whether the San Antonio and Del Valle populations should continue to be treated as *G. a. williamsoni*, described as new subspecies, assigned to *G. a. microcephalus* without protection under the Endangered Species Act, or considered a uniquely distinctive population of *G. a. microcephalus* that qualifies for protection under the Endangered Species Act.

4. Inform the public of UTS status and recovery effort. The success of the UTS recovery effort will depend on a carefully coordinated program of public education and support.

41. Publicize UTS distribution, identification and legal status. A conservation education and public information program should be conducted. It should be recognized that the recovery of G. a. williamsoni depends ultimately upon public support and understanding. The public should, therefore, be made aware of the existence and endangered status of the fish, and public sympathies solicited for its preservation. The facts to be emphasized are the uniqueness of the fish, its being one of southern California's very few native freshwater fishes, its role in the ecosystem, the potentially disasterous effect that man's modification of the habitat can have on this unique fish, and that the first recovery step is the preservation of its habitat.

The public relations objectives can be furthered by several means: through media, by the installation of informational signs in the essential habitat areas and at nearby places where people gather (e.g., campsites, picnic areas and shopping centers), by audiovisual programs and brochures made available to the public (e.g., at schools), by establishing a natural history exhibit on the UTS essential habitat area (e.g., in the Thousand Trails area), or displays at schools.

42. Provide relevant organizations with advice to preserve UTS. Both public and private organizations whose activities affect the stickleback populations and their habitat should be made

aware of the existence and endangered status of the stickleback. Such organizations should be offered advice concerning the way in which their activities may degrade UTS habitat and be informed of things that can be done to improve habitat conditions. Much additional support for the recovery program could be generated through a positive informational program.

43. Inform public of transplant efforts. Details of transplants should be made public by inclusion in CDFG archives in Long Beach and Sacramento, publication in California Fish and Game, press releases, and informational signs. This information should include at a minimum: source of introduced fish, place of introduction, date of introduction, description of the habitat into which the transplant was made, and the number of sticklebacks introduced.

5. Utilize laws and regulations to protect fish and habitat. Existing laws should be strictly enforced and periodically examined as to their effectiveness.

51. Enforce existing laws and regulations. Applicable laws and regulations should be strictly enforced to protect *G. a. williamsoni* and its habitat. Transplanted populations should receive the same protection as native populations unless they have been designated as experimental pursuant to Section 10(j) of the Endangered Species Act.

52. Designate critical habitat as provided for by the Endangered Species Act. Final determination of those lands designated in Appendix A as critical habitat would benefit the Forest Service and County governments in their planning efforts by identifying the areas most vulnerable to land use changes.

53. Determine need for and propose additional laws and regulations. Current laws and regulations should be examined to determine the need for additional protective measures. Such measures, as needed, should be proposed.

54. Review permits for research projects. Proposals to study *G. a. williamsoni* should be screened and permits granted expeditiously for needed studies. Permits should be granted on the basis of the effect on the total stickleback population.

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PART III

IMPLEMENTATION SCHEDULE

Table 1 that follows is a summary of scheduled actions and costs for the unarmored threespine stickleback recovery program. It is a guide to meet the objectives of the Unarmored Threespine Stickleback Recovery Plan, as elaborated upon in Part II, Narrative section. This table indicates the priority in scheduling tasks to meet the objectives, which agencies are responsible to perform tasks, a time table for accomplishing these tasks, and lastly, the estimated costs to accomplish these tasks. Implementing Part III is the action of the recovery plan that, when accomplished, will bring about the recovery of this endangered species. Initiation of these actions is subject to the availability of funds.

GENERAL CATEGORIES FOR IMPLEMENTATION SCHEDULES

Information Gathering - I or R (research)

1. Population status
2. Habitat status
3. Habitat requirements
4. Management techniques
5. Taxonomic studies
6. Demographic studies
7. Propagation
8. Migration
9. Predation
10. Competition
11. Disease
12. Environmental contaminant
13. Reintroduction
14. Other information

Acquisition - A

1. Lease
2. Easement
3. Management agreement
4. Exchange
5. Withdrawal
6. Fee title
7. Other

Management - M

1. Propagation
2. Reintroduction
3. Habitat maintenance and manipulation
4. Predator and competitor control
5. Depredation control
6. Disease control
7. Other management

Other - O

1. Information and educatic
2. Law enforcement
3. Regulations
4. Administration

RECOVERY ACTION PRIORITIES

1 = An action that must be taken to prevent extinction or to prevent the species from declining irreversibly.
2 = An action that must be taken to prevent a significant decline in the species' population or habitat quality, or some other significant negative impact short of extinction.
3 = all other actions necessary to provide for full recovery of the species.

Table 1. Implementation Schedule

General Category	Plan Task	Task Number	Priority Number	Duration[1/] of Task (Yrs.)	Cooperating Agencies: FWS Region Program	Cooperating Agencies: Other	Estimated Costs ($1,000's) FY 1	FY 2	FY 3	Comments/Notes
M7	Determine, monitor and regulate water use	111	1	Ongoing		USFS* USAF* SWRCB* CDFG	1 1 0.5 0.5	1 1 0.5 0.5	1 1 0.5 0.5	USFS is lead agency on Forest Service lands; USAF is lead agency on Vandenberg AFB lands; SWRCB has jurisdiction over issuance of water rights
O3	Determine, monitor and regulate land use	112	1	Ongoing		USFS* USAF* CDFG*	3 1 0.5	3 1 0.5	3 1 0.5	USFS is lead agency on Forest Service lands; USAF is lead agency on Vandenberg AFB lands; CDFG is lead agency on private lands
A3	Develop management agreement with Los Angeles Department of Water and Power	113	2	1		USFS* LADWP	0.5			Agency costs largely administrative
M3	Maintain essential stream characteristics	114	1	Ongoing		USFS* USAF* CDFG*	1 0.5 0.5	1 0.5 0.5	1 0.5 0.5	USFS is lead agency on Forest Service lands; USAF is lead agency on Vandenberg AFB lands; CDFG is lead agency on private lands
M3	Determine appropriate methods to restore degraded habitat	121	1	2		USFS* USAF*	1 1	1 1		USFS is lead agency on Forest Service lands; USAF is lead agency on Vandenberg AFB lands

General Category	Plan Task	Task Number	Priority Number	Duration[1/] of Task (Yrs.)	Cooperating Agencies FWS Region	Cooperating Agencies FWS Program	Cooperating Agencies Other	Estimated Costs ($1,000's) FY 1	FY 2	FY 3	Comments/Notes
M3	Determine supplemental flow volume necessary to maintain UTS	1221	2	1			USFS* USAF* CDFG*	1 1 1			USFS is lead agency on Forest Service lands; USAF is lead agency on Vandenberg AFB lands CDFG is lead agency on private lands
M3	Acquire water rights if necessary	1222	1	As needed			USFS* USAF* SWRCB* CDFG	To Be Determined			USFS is lead agency on Forest Service lands; USAF is lead agency on Vandenberg AFB lands; SWRCB has jurisdiction over issuance of water rights
M3	Install apparatus for maintaining supplemental flows	1223	2	1			USFS* USAF*			10 10	USFS is lead agency on Forest Service lands; USAF is lead agency on Vandenberg AFB lands
M3	Implement procedures to restore degraded habitat and supplement instream flows	123	2	As Needed			USFS* USAF*	To Be Determined			USFS is lead agency on Forest Service lands; USAF is lead agency on Vandenberg AFB lands
A7	Identify and investigate potential land sites needing protection	131	2	2			CDFG USFS*	2 2	2 2		
A7	Establish priorities for protection as needed	132	2	1	1	SE	CDFG* USFS*	0.5 1 1			USFS is lead agency within Angeles N.F.; CDFG is lead agency on other lands

General Category	Plan Task	Task Number	Priority Number	Duration[1/] of Task (Yrs.)	Cooperating Agencies FWS Region	Cooperating Agencies FWS Program	Cooperating Agencies Other	Estimated Costs ($1,000's) FY 1	FY 2	FY 3	Comments/Notes
A7	Secure appropriate parcels	133	2	5			CDFG USFS*		5 10	10 50	USFS will secure parcels as funding permits after priorities established
M4	Prevent introduction of exotic organisms	211	1	Ongoing	1	LE	CDFG* USFS	0.5 0.5 0.5	0.5 0.5 0.5	0.5 0.5 0.5	FY85 PA 4a
M4	Remove exotic organisms as needed	212	1	Ongoing	1	SE	CDFG*	To Be Determined			CDFG has undertaken action to remove catfish and tilipia from Soledad Canyon.
M7	Establish contingency plan	213	1	1	1	SE	CDFG* USAF	1 1 1			Includes 2131-2132 USFS has completed plan for Angeles N.F.
M7	Implement contingency plan	214	1	Continuous			CDFG* USFS USAF	To Be Determined			USFS has obtained necessary equipment for Angeles N.F.
M2	Determine need for establishing additional populations	221	2	1	1	SE	CDFG*	1 1			
M2	Select suitable sites	222	2	1	1	SE	CDFG* USFS* USAF*		0.5 0.5 ? ?		USFS is lead agency for sites on Forest Service land.; USAF is lead agency on Vandenberg AFB; CDFG is lead agency in other areas.
M2	Restore habitat as necessary	223	2	Ongoing			CDFG* USFS* USAF*	To Be Determined			Same division of responsibilities as described for #222

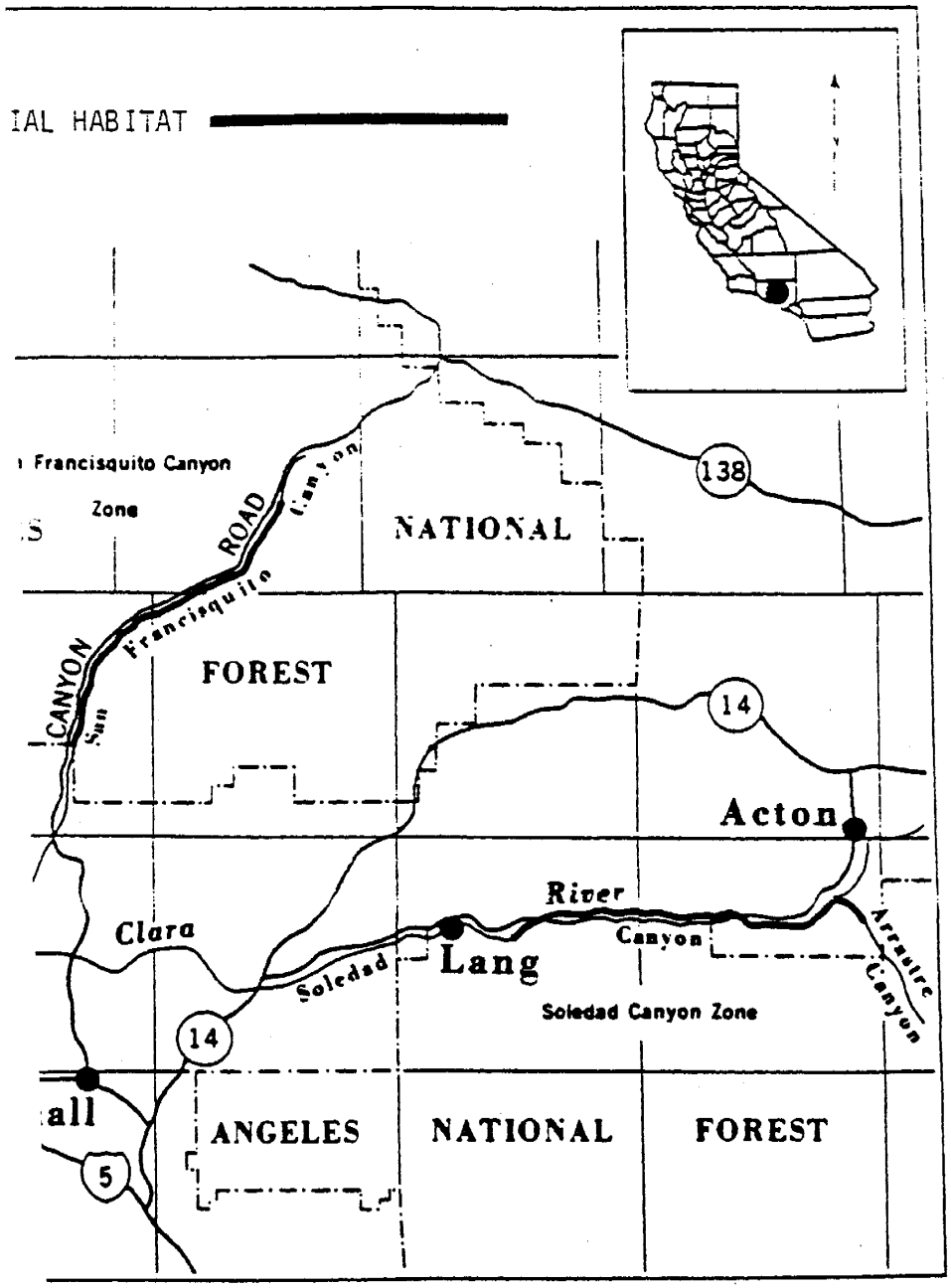
General Category	Plan Task	Task Number	Priority Number	Duration[1/] of Task (Yrs.)	Cooperating Agencies FWS Region	Cooperating Agencies FWS Program	Cooperating Agencies Other	Estimated Costs ($1,000's) FY 1	FY 2	FY 3	Comments/Notes
M2	Obtain transplant stock	224	2	Ongoing			CDFG*	To Be Determined			Stock from San Antonio Creek was transplanted into Honda Creek on Vandenberg AFB in 1984.
M2	Perform transplants	225	2	Ongoing			CDFG*	To Be Determined			See Notes 224
R1	Monitor existing populations through established census techniques	231	1	Ongoing			CDFG* USFS* USAF*	0.5 0.5 0.5	0.5 0.5 0.5	0.5 0.5 0.5	CDFG is lead agency on private lands; USFS is lead agency on Forest Service lands; USAF is lead agency on Vandenberg AFB
M2	Monitor transplanted individuals	232	3	Ongoing			CDFG* USFS* USAF*	To Be Determined			Same division of responsibilities as described for #231 - Monitoring indicates some reproduction in both 1984 and 1985.
R1	Investigate possible existence of additional populations of UTS	233	1	1	1	SE	CDFG*	12.5 12.5			Several populations south of the Santa Clara River need to be examined
M3	Determine natural habitat conditions	31	2	3	1	SE	USFS* USAF* CDFG*	1 3 2 1	1 3 2 1	1 3 2 1	Same divisions of responsibilities as described for #231
R9	Assess effects of exotic predators	32	2	1	1	SE	CDFG*	4 4			Evaluating impact of African clawed frog [illegible] is high [illegible] priority [illegible]

General Category	Plan Task	Task Number	Priority Number	Duration[1/] Duration (Yrs.)	Cooperating Agencies FWS Region	FWS Program	Other	Estimated Costs ($1,000's) FY 1	FY 2	FY 3	Comments/Notes
R14	Determine biological needs for nesting, reproduction and rearing young	33	2	3	1	SE		1	1	1	Current knowledge needs refining
							UNIV	1	1	1	
							LACM	1	1	1	
							CDFG*	1	1	1	
R14	Determine food requirements	34	2	1	1	SE			1		Current knowledge needs refining
							UNIV		1		
							LACM		1		
							CDFG*		1		
R14	Determine water quality and quantity requirements of UTS	35	2	1	1	SE			2		Some requirements are known, but additional information is needed
							CDFG*		2		
R2	Establish determinants of water distribution and abundance within essential habitat	36	1	1	1	SE		1			USFS is lead agency on Forest Service lands, USAF is lead agency on Vandenberg AFB lands
							CDFG	1			
							USFS*	2			
							USAF*	2			
R1	Determine optimum size of UTS population necessary to be self-sustaining	37	2	1	1	SE			1		
							CDFG*		2		
R1	Determine genetic composition of populations of unknown origin	38	1	1	1	SE		10			Highest priority research needs are resolving taxonomic questions associated with Shay Creek and San Antonio Creek populations
							CDFG*	10			

USAF = U.S. Air Force
SWRCB = State Water Resources Control Board
USFS = U.S. Forest Service
UNIV = Universities
LACM = Los Angeles County Museum
LADWP = Los Angeles Department of Water and Power

APPENDIX A

itat for the unarmored threespine stickleback in
ounty, California.



ancisquito Canyon and Soledad Canyon Zones

Los Angeles County, CALIFORNIA

Critical habitat has
been proposed and should
be finalized

1

SE*

1

1

2

52

Designate critical
habitat as provided for
by the Endangered
Species Act

04

Description of the three zones of essential habitat for the unarmored threespine stickleback in Los Angeles County.

1. Del Valle zone. An area of land and water with the following components (San Bernardino meridian): Santa Clara River within T4N, R16W and R17W, beginning at its confluence with San Martinez Grande Canyon, at a point 0.9 of a mile (1.5 kilometers) southwest of Del Valle settlement, and extending upstream approximately 5.6 miles (8.8 kilometers) to the overcrossing of Interstate Highway 5.

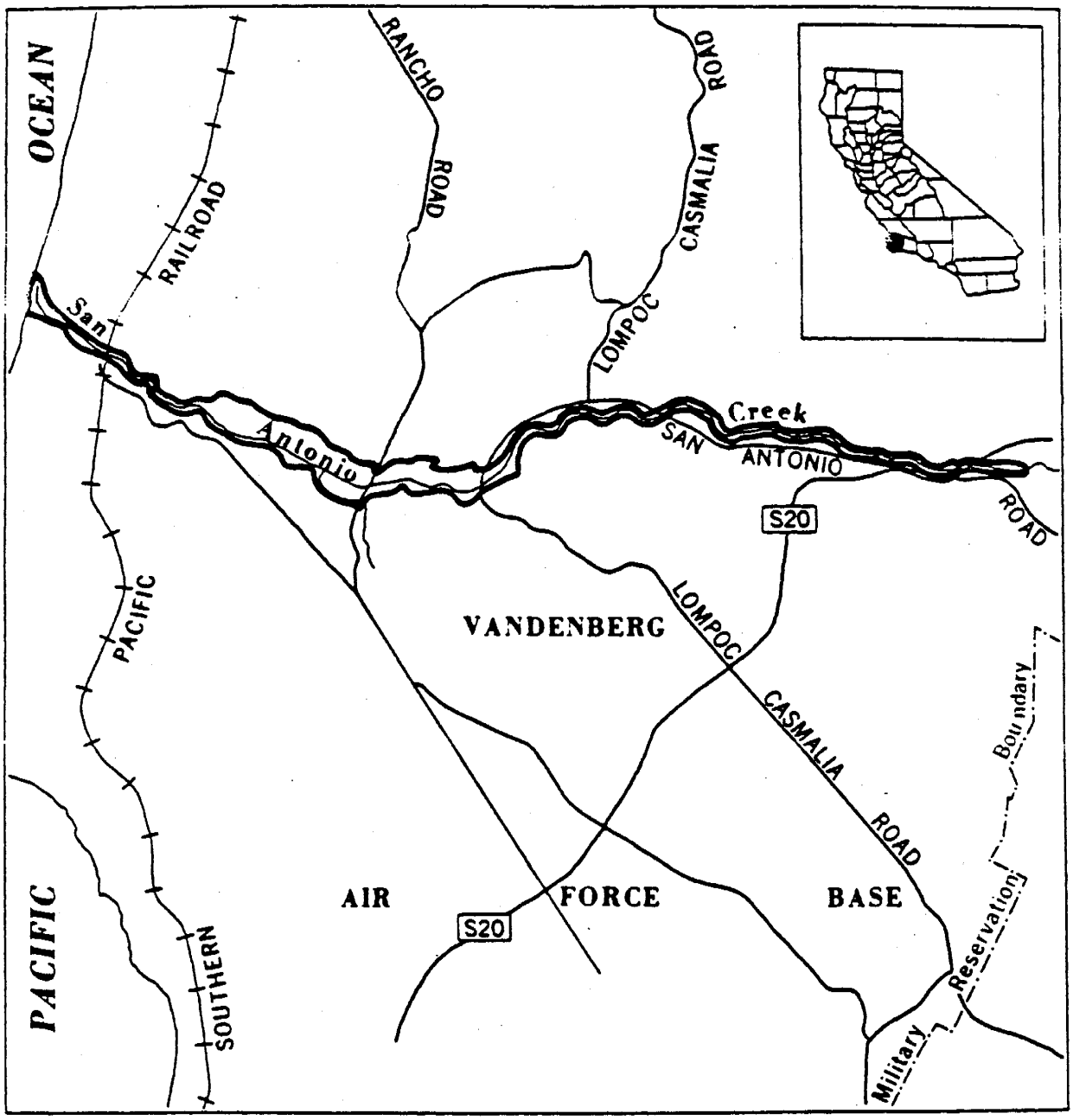
2. San Francisquito Canyon zone. An area of land and water with the following components (San Bernardino meridian): San Francisquito Canyon watercourse, within T5N, R16W and T6N, R15W, beginning at a point where the Angeles National Forest boundary intersects the San Francisquito Canyon watercourse approximately 2½ miles southwest of San Francisquito Powerhouse No. 2, and extending upstream in San Francisquito Canyon approximately 8.4 miles (13.5 kilometers) to San Francisquito Powerhouse No. 1, near its junction with Clearwater Canyon.

3. Soledad Canyon zone. An area of land and water in Los Angeles County, with the following components (San Bernardino meridian): Santa Clara River within T4N, R13W and R14W, beginning at a point 1.4 miles (2.3 kilometers) upstream in Soledad Canyon from the community of Lang, at the downstream end of the area called River's End Park, at 34° 26' 7" N, 118° 21' 51" W, thence extending upstream approximately 8.5 miles (13.7 kilometers) to its confluence with Arrastre Canyon, at a point located about 0.6 of a mile (1 kilometer) southwest of Los Angeles County Rehabilitation Camp, thence upstream in Arrastre Canyon approximately 0.8 of a mile (1.4 kilometers) to 34° 26' 7" N, 118° 11' 51" W.

APPENDIX B

Essential habitat for the unarmored threespine stickleback in Santa Barbara County, California

ESSENTIAL HABITAT



San Antonio Creek Zone

Santa Barbara County, CALIFORNIA

Description of the zone of essential habitat for the unarmored threespine stickleback in Santa Barbara County.

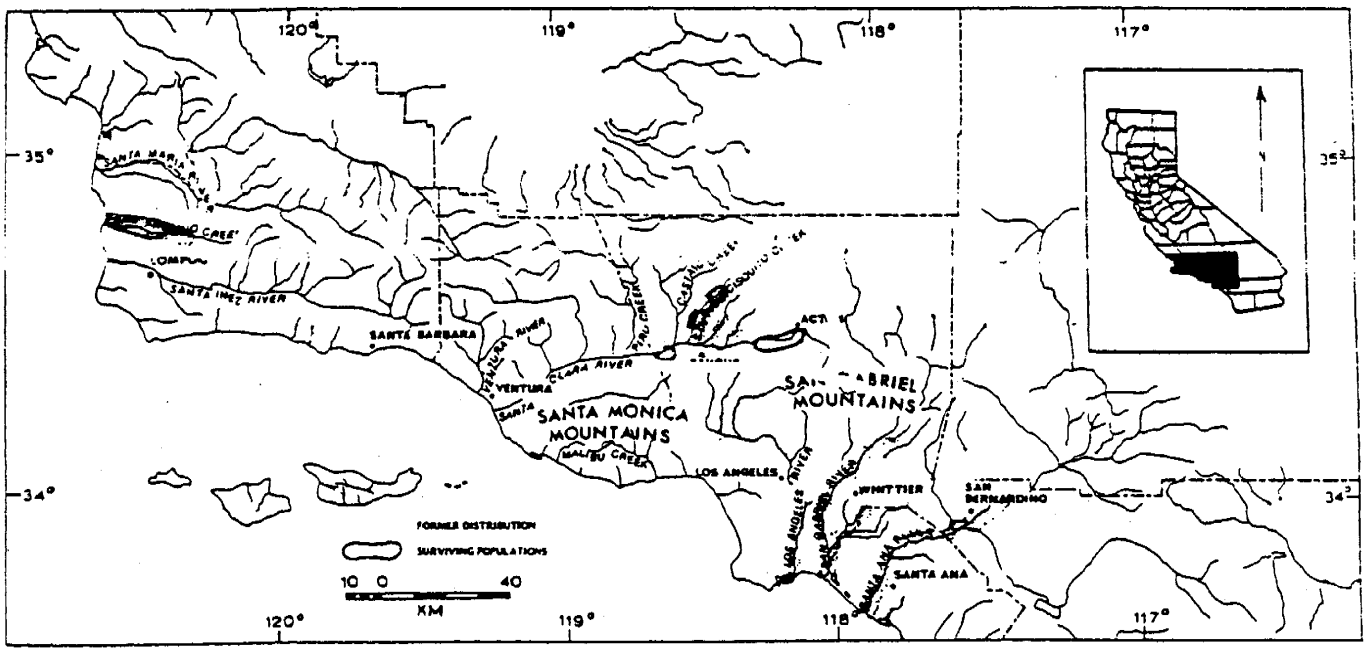
San Antonio Creek zone. An area of land and water with the following components (using California Grid Zone 5 coordinates): San Antonio Creek watercourse, beginning at the Pacific Ocean beach boundary at 482,000 N; 1,213,000 E and including natural dunes or sandbars in the stream mouth, thence upstream approximately 8.4 miles (13.5 kilometers) to the eastern boundary at 473,357 N; 1,256,250 E in Barka Slough. Lateral flood plain areas elevated less than ten feet above the main streambed constitute seasonal marsh utilized for feeding and reproduction by this species and are considered a necessary component of the essential habitat. Total designated area of stream and associated seasonal marsh is approximately 611 acres.

APPENDIX C

ESSENTIAL MANAGEMENT AREA

The designation of another habitat management category called the essential management area may also be beneficial. The essential management area includes all areas in the Santa Clara River watershed upstream from the juncture with and including San Martinez Grande Canyon that are not within the proposed critical habitat and all of the San Antonio Creek watershed that is not included within the proposed critical habitat.

The essential management area does not require the intensive management that is required within the proposed critical habitat to maintain satisfactory habitat conditions for the unarmored threespine stickle. However, it must be managed to the extent that adequate flows of good quality water are maintained in the proposed critical habitat so that the quantity and quality of that habitat is not significantly reduced.



Essential Management Area

STICKLEBACK EMERGENCY CONTINGENCY PLAN
(For Essential Habitat Zones in Los Angeles County)

EMERGENCY FIELD PROCEDURES
FOR PROTECTION OF THE
UNARMORED THREESPINE STICKLEBACK

A. PURPOSE AND NEED

The unarmored threespine stickleback (Gasterosteus aculeatus williamsoni) is listed as an endangered species by the U.S. Fish and Wildlife Service (FWS). At present, the major G. a. williamsoni populations are confined to portions of the Santa Clara River drainage in Los Angeles County.

These populations are susceptible to extinction as a result of a single catastrophic event such as a toxic chemical spill.

B. GOAL

Insure the continued existence of the unarmored threespine stickleback.

C. OBJECTIVES

1. Define responsibilities and tasks of the various State and Federal agencies involved in the recovery and protection of the unarmored threespine stickleback.

2. Establish lines of authority and coordination when the plan is in effect.

D. SCOPE

The Stickleback Emergency Contingency Plan will act as an attachment to the Angeles National Forest Oil and Hazardous Substances Pollution Contingency Plan (HSP Plan).

Emergency field procedures will be activated when a hazardous spill or other threat occurs within the upper Santa Clara drainage.

The key to the success of this plan will be timely notification. It will then be the responsibility of the Stickleback Response Team Leader to take immediate on-site action.

THE SAFETY OF PERSONNEL AND THE PUBLIC IS THE MOST IMPORTANT CONSIDERATION IN ALL ACTIONS INVOLVING TOXIC SPILLS.

E. RESPONSIBILITY

All agencies will establish primary contacts and initial response team leaders for the protection and salvage of the unarmored threespine stickleback.

Participating agencies and their roles:

CALIFORNIA DEPARTMENT OF FISH AND GAME - Serves as the lead agency responsible for the protection of the unarmored threespine stickleback.

U.S.D.A. FOREST SERVICE - Will provide assistance and act as team leaders on hazardous toxic spills which occur on federal lands. The main emphasis on Forest Service lands will be to stop the spread of toxic materials.

U.S.D.I. FISH AND WILDLIFE SERVICE - Serves as the lead agency responsible for the recovery of the unarmored threespine stickleback. Is responsible for monitoring affects of toxic contamination on the U.T.S.

Preliminary Response Team Leaders who will implement the plan until arrival of the CDFG representative are listed below:

AGENCY	HOME PHONE	OFFICE PHONE
California Department of Fish and Game		
24 Hour Emergency		(800) 852-7550
Warren Crooker	(805) 255-1489	(213) 590-5132
Long Beach Office		(213) 590-5132
U.S.D.A. Forest Service, Angeles National Forest		
Steve Bear, Tujunga RD	(818) 368-6916	(818) 899-1900
Debbie Raphael, Saugus RD	(805) 724-1075	(805) 252-9710
Glenn Johnson, Saugus RD	(805) 251-3158	(805) 252-9710
Bill Brown, Supervisor's Office	(818) 794-3010	(818) 577-0050
Joe Gonzales, Supervisor's Office	(818) 447-2388	(818) 577-0050

F. ON-SITE ACTIONS

The type of on-site action taken will depend on the severity of the toxic contamination. The following factors must be considered: 1) location of spill, 2) type of contaminant, 3) amount of contaminant, and 4) stream flow condition.

To aid Response Team Leaders in deciding appropriate on-site action, the Soledad Canyon reach of the Santa Clara River and San Francisquito Creek, a tributary to the to the Santa Clara River, have been divided into zones of influence (see Figures 1 and 2).

A description of each zone of influence and a discussion of potential effects, by area, are given below. An assumption has been made that stickleback are evenly distributed throughout the zones of influence.

SOLEDAD CANYON

ZONE A

This zone encompasses the uppermost reach of the Santa Clara River. It is approximately 3.3 miles in length and lies between Acton Camp and County Highway Bridge #904 near Wild Country Park (aka "Roar").

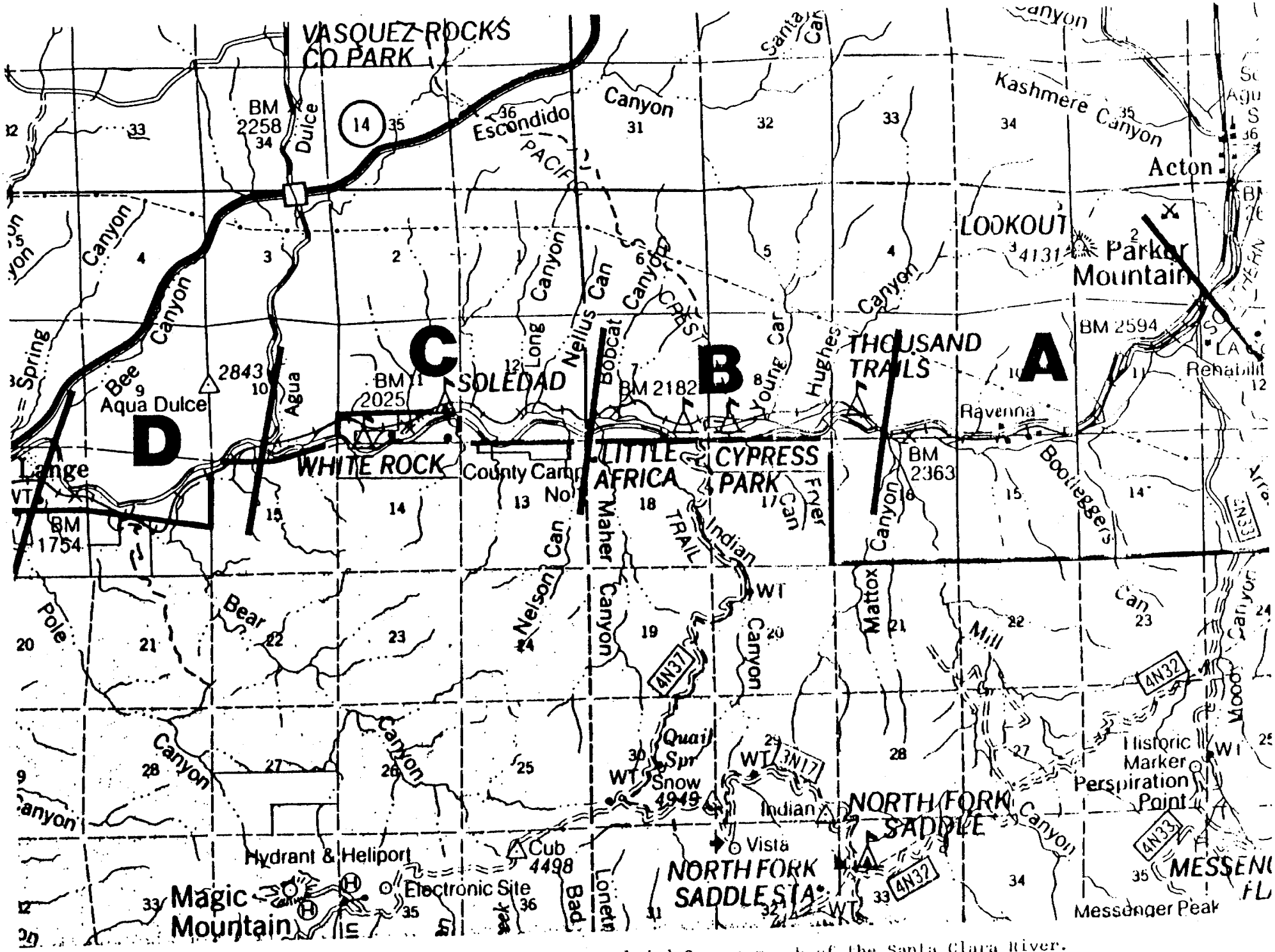


Figure 1. Zones of influence along the Soledad Canyon reach of the Santa Clara River.

Zone A has a very high potential for extirpation of the stickleback population in Soledad Canyon should a toxic contaminant enter the river, since all fish and their habitat could be directly impacted.

However, the probability of toxic contamination is low due to the relatively safe distances (600') and flat slopes between the river channel, Soledad Canyon Road and Union Pacific Railroad, and the lack of major river crossings by these transportation routes.

ZONE B

This zone lies between the bridge near Wild Country Park (aka Roar) and the confluence of Maher Creek near County Detention Camp No. 1. This reach is approximately 2.4 miles in length.

A toxic contaminant entering the river within this zone could result in a major loss of the stickleback population. Stickleback inhabiting the river above the location where the contaminant enters would not be affected.

The probability of a toxic spill occurring and entering the river is very high, due to the close proximity of transportation corridors to the river channel and two major river crossings.

ZONE C

Zone C lies between the confluence of Maher Creek and the bridge near the confluence of Agua Dulce Creek. It is approximately 3.1 miles in length.

The potential for catastrophic destruction of the stickleback population is moderate since less than one-half of the existing habitat would be affected. The potential for a toxic substance entering the river is high.

ZONE D

This zone lies between the confluence of Agua Dulce Creek and River's End, a private campground. This reach is approximately 2.2 miles in length.

The potential for significant stickleback loss is low due to the small amount of habitat that would be impacted.

The potential for toxic contamination is high, due again to the close proximity of transportation routes to the river.

SAN FRANCISQUITO CREEK

ZONE A

This is the uppermost reach of San Francisquito Creek, and for our purposes includes the area from Powerhouse No. 1 up to South Portal Canyon, a distance of approximately 2 miles.

This zone has a relatively low potential for contamination, with spills of chemicals or toxicants the main concern. Any such spill would, however, have a good chance of impacting the entire stickleback population during continuous flow periods (generally November - June). The major source for contamination would be from spills off of San Francisquito Canyon Road.

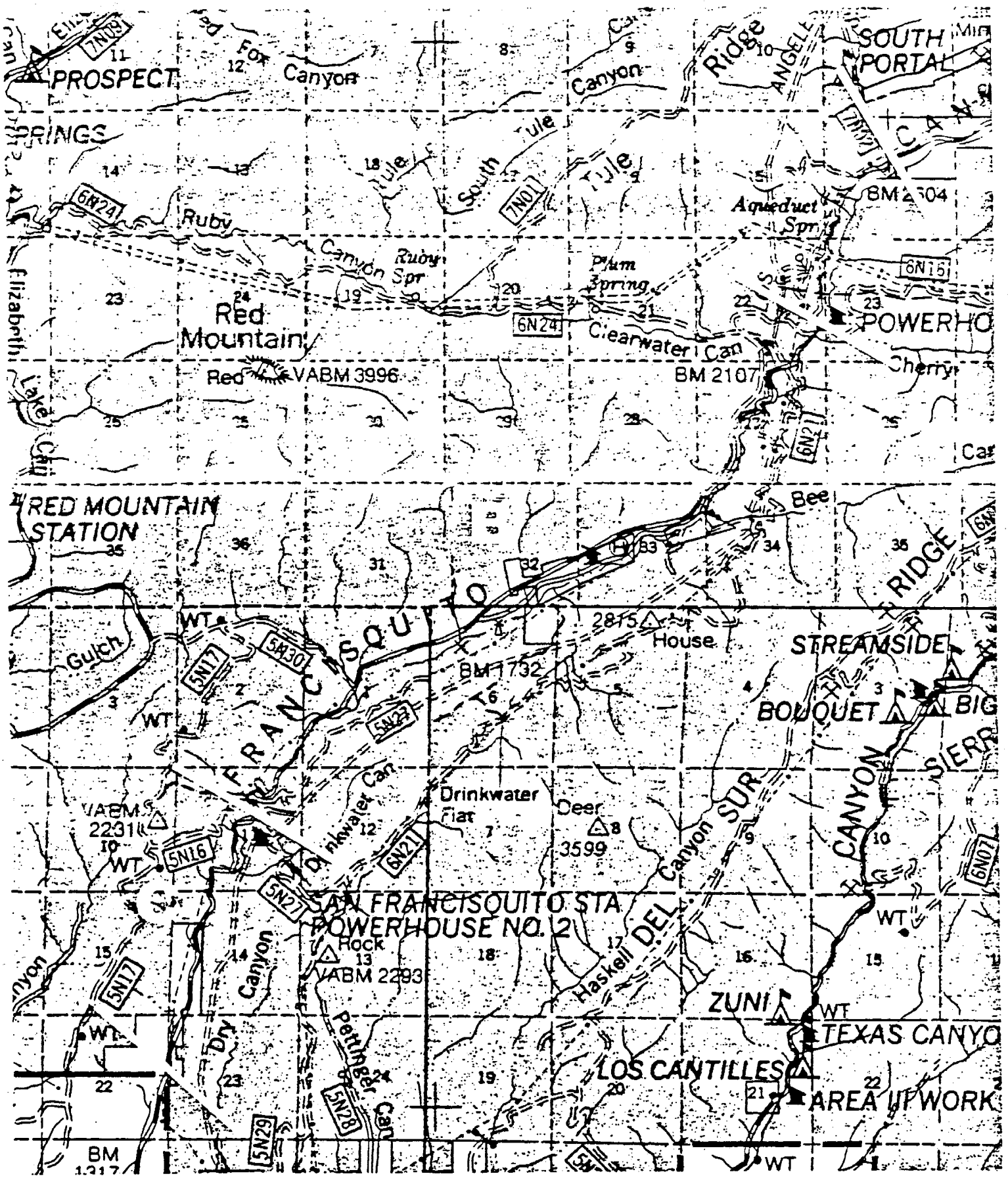


Figure 2. Zones of influence along San Francisquito Creek.

ZONE B

This section lies between Powerhouse No. 1 and Powerhouse No. 2, a distance of approximately 5-1/2 miles.

This zone contains the bulk of the stickleback population within San Francisquito Creek. Risk of loss is high due to the potential for loss of hydraulic oil from Powerhouse No. 1, as well as oil or toxic waste spills or dumping off of San Francisquito Canyon Road, which is located immediately adjacent to the stream bed through most of this section.

ZONE C

This zone includes the area from Powerhouse No. 2 down to the Forest boundary, a distance of approximately 2 miles.

The potential for loss of stickleback in this section is fairly low due to the small amount of suitable year-long habitat available. The area could be impacted by both road-related spills and dumping from San Francisquito Canyon Road, and hydraulic oil spills from Powerhouse No. 2, as well as from contaminant entering from Zone B.

ACTION PLAN

The Response Team Leader will take the following action(s):

1. Evaluate potential for fish loss.

2. If contaminant or other threat is determined to be a threat to stickleback survival, start salvage procedures.

   If in doubt, proceed with salvage efforts. Stickleback can always be returned to the stream once the threat has been alleviated.

3. Salvage procedures will include capturing as many stickleback as possible, maintaining immediate life-support systems, and placing these fish upstream from the source of contamination or in a temporary holding facility until it is safe to return them to their natural habitat.

   Stickleback will be captured using equipment stored at the Tujunga Ranger District Office, Saugus Ranger District Office, and County Camp 11, or by any other means as deemed appropriate.

   Salvage equipment stored at each of these locations will include the following:

   1) One small-mesh minnow seine (10-12 feet in length)
   2) Two (2) long-handled dip nets
   3) Twelve (12) five-gallon plastic buckets
   4) Six (6) battery-powered fish tank aerators and 4 oxygen bottles
   5) Twenty-five feet of aquarium tubing
   6) Six (6) gang valves
   7) Air stones
   8) Two (2) pair elbow-length plastic or neoprene gloves
   9) Two (2) pair hip boots
   10) Two (2) pair chest waders

4. Recovery team members will be briefed as soon as possible about the situation. Phone (213) 590-5151 or 5152

5. Recovery team will meet, if necessary, within 48 hours to review salvage efforts and evaluate potential consequences of toxic contamination.

6. If salvaged stickleback are placed into a temporary hold facility, they will be reintroduced into the affected area once it has been judged safe to do so.

7. Monitoring will be conducted at various times throughout the year to determine success of operation.

Prepared by — Forest Wildlife Biologist — 9/19/85 Date

Recommended by — Land Management Planning/ Resource Staff Officer — 9/20/85 Date

Approved by — Forest Supervisor, Angeles National Forest — 9/24/85 Date

APPENDIX E.

List of Agencies Asked to Submit Comments on the Agency Review Draft.

California Department of Fish and Game, Sacramento, California

California Department of Fish and Game, Region 5, Long Beach, California

Los Angeles County Planning Department, Los Angeles, California

U.S. Air Force, Environmental Planning Section, Vandenberg AFB, California

U.S. Fish and Wildlife Service, Office of Endangered Species, Washington, D.C.

U.S. Fish and Wildlife Service, Region One, Portland, Oregon

U.S. Fish and Wildlife Service, Division of Law Enforcement, Sacramento, California

U.S. Forest Service, Angeles National Forest, Pasadena, California

U.S. Forest Service, Tujunga Ranger District, San Fernando, California

Team Leader, Unarmored Threespine Stickleback Recovery Team, Goleta, California

APPENDIX F11

U.S. FISH AND WILDLIFE SERVICE BIOLOGICAL OPINION FOR TMC PROJECT

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ventura Fish and Wildlife Office
2493 Portola Road, Suite B
Ventura, California 93003

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January 14, 1998

Memorandum

To: State Director, Bureau of Land Management, Sacramento, California

From: Diane K. Noda
Field Supervisor, Ventura Fish and Wildlife Office, Ventura, California

Subject: Biological Opinion for Transit Mixed Concrete's Application to Mine Sand and Gravel in Soledad Canyon, Los Angeles County, California (6840 CA930.6) (1-8-96-F-41)

This biological opinion responds to your request for formal consultation with the U.S. Fish and Wildlife Service (Service) pursuant to section 7 of the Endangered Species Act of 1973, as amended (Act). Your request for consultation was dated July 30, 1996 and was received by us on August 1, 1996. At issue are the impacts that the approval of a mining and reclamation plan for the proposed operation and reclamation of a sand and gravel mine by Transit Mixed Concrete (TMC) in Soledad Canyon, Los Angeles County, California, may have on the unarmored threespine stickleback (*Gasterosteus aculeatus williamsoni*), a federally endangered species.

This biological opinion was prepared using the following information: the biological assessment for the subject action (Bureau of Land Management [Bureau] 1996); informal consultation among our staffs and TMC; and our files.

Biological Opinion

It is the opinion of the Service that the proposed action is not likely to jeopardize the continued existence of the unarmored threespine stickleback.

Consultation History

The Service provided a draft biological opinion to the Bureau on March 19, 1997. After reviewing the draft document with TMC, the Bureau provided comments to the Service by memorandum dated September 22, 1997. The Bureau's and TMC's comments have been addressed in this final biological opinion.

Description of the Proposed Action

The Bureau may approve a mining and reclamation plan, submitted by TMC for the mining of up to 56 million tons of sand and gravel over a 20-year period from lands adjacent to the Santa Clara River in the lower Soledad Canyon area of Los Angeles County. The proposed mining of a conglomerate rock formation on a ridge adjacent to the river would occur on a site that was previously mined for about 20 years, which has resulted in the disturbance of approximately 45 acres of the hillside. The existing mining site has not been reclaimed. TMC's proposed project calls for the mining of an additional 115 acres, establishing processing facilities, backfilling excess natural fines on the site, and reclaiming the mine site at the termination of mining.

To obtain water for the mining activities, TMC has leased riparian properties and submitted an application to the State Water Resources Control Board, Division of Water Rights to appropriate water from the Santa Clara River underflow. The water would be pumped from wells tapping the underflow of the Santa Clara River.

The proposed mining and reclamation plan may change due to varying market demands, actual geologic conditions encountered, and changing regulations. The mining and reclamation plan is subject to modification by the mine operator to meet these unexpected conditions, provided that applicable regulations are met.

Previous mining operations left a large excavation on the south side of the ridge. TMC plans to mine on the south side of the ridge to minimize surface disturbance and visual impacts. Several excavations are planned on the south side of the ridge starting at higher elevations and sloping downward at angles approaching 45 degrees. Approximately 82.7 million tons of materials would be mined to produce 56.1 million tons of aggregate product and up to 26.1 million tons of backfilled fines. Any remaining fines would be sold. A fill area for excess fines would be established on the north side of the ridge and in the mine cuts on its south side. The area on the north side will be used for fines storage throughout the life of the site; however, revegetation of this area will be sequential as filling proceeds and benches are prepared for reclamation.

If the maximum mining production occurs, the ridge elevation would be lowered from approximately 700 to about 500 feet above Soledad Canyon Road. Several existing ravines on the north side of the ridge would be filled. If mining is discontinued at the end of the contract term, TMC will revegetate disturbed ground surfaces. Funds for the reclamation of the site have already been guaranteed by TMC through posting a bond with the Bureau, State, and the County of Los Angeles (County).

The mining operation would be entirely outside of the floodplain. Permanent watercourses are absent from the mining area. Seven desilting basins would be constructed before subsequent project work or mining commences in the catchment area above each watercourse. A Storm Water Pollution Prevention Plan has been prepared for the project that describes the stormwater

management practices for all phases of operation (West Coast Environmental 1993a in Chambers Group, Inc. 1996).

Clearing of vegetation will occur only prior to the onset of mining in any area to reduce the potential for erosion. As mining and backfilling or storage of fines proceeds, areas will be seeded with a plant mix designed to reduce erosion.

The following facilities would be located at the mine site: aggregate plant, batch plant, fuel island, truck washout, truck scale and scale house, service and maintenance building, stockpile areas, water tanks, dust pallative storage tank, office, and parking area. Construction of the facilities would proceed after the site is graded and the access road is developed. Facilities would be completed in accordance with the standard construction practices and zoning and grading ordinances of the County.

The fuel island would include two 6,000- to 10,000-gallon above ground diesel storage tanks, a propane storage tank, 1,000-gallon waste oil tank, three 250- to 1,000-gallon fresh motor oil tanks, and a 1,000-gallon hydraulic fluid tank. The plans for construction and installation of these tanks have been designed to meet the requirements of the South Coast Air Quality Standards and County fire codes. Two 600,000-gallon water storage tanks would be built in the facilities area. All tanks are addressed in the Spill, Prevention, Control and Counter Measure Plan (West Coast Environmental 1993b in Chambers Group, Inc. 1996). All oil wastes collected onsite will be disposed of at a certified oil recycling center.

Approximately 15 employees would be onsite during Phase 1; approximately 30 would be onsite during Phase 2. The exact number of employees would depend on the market demand for material at any given time.

Water would be used in several aspects of the operations, including aggregate production, dust suppression, compaction of fines, ready-mixed production, and truck washing. The water system proposed for the aggregate production has been designed to conserve water. All of the water used will be recycled onsite. No point source discharge to the river is planned. The solids that are collected during recycling of the water, including the flocculating agent, would be blended with the waste fines for compaction onsite.

The proposed mining operations would require approximately 442 acre-feet of water per year during Phase 1 and 746 acre-feet per year during Phase 2. The water would be supplied from three wells located adjacent to the Santa Clara River with on-demand pumping and an above ground pipeline to the facilities site.

TMC and the Bureau have proposed the following mitigation measures to reduce the adverse effects of the proposed action on the unarmored threespine stickleback:

1. four existing monitoring wells will be maintained to monitor water levels of the Santa Clara River underflow during the life of the project;

2. surface flows of the Santa Clara River will be monitored during the life of the project at locations to be determined in conjunction with responsible agencies prior to the start of mining; and

3. the riparian and aquatic habitat in the immediate vicinity of the site will be monitored as detailed in the proposed habitat protection plan.

Monitoring will begin each season when the reach of the Santa Clara River near P1 dries (Figure 3.2.4-5). TMC would not monitor flows in years with high precipitation and year round flow throughout the reach from Bear Creek to the Pole Canyon Fault because unarmored threespine sticklebacks would not be affected by pumping under these conditions.

In years when surface flow is absent from this reach, aerial photos of this portion of the river will be used to provide the base for mapping. Information on both natural changes to the streambed and man-made streambed alterations at River's End Trailer Park will be recorded, and perennial riparian vegetation will be mapped. The aerial photo and map will be verified by field inspection and perennial riparian vegetation, pool formation, emergent and aquatic vegetation, and the streambed alteration at the River's End Trailer Park will be described or documented by photographs. A survey for unarmored threespine sticklebacks will also occur along this reach.

After the initial description of the monitoring reach, monitoring stations will be established for the remainder of the season. If River's End Trailer Park has not altered the streambed, monitoring stations will be set up every 100 meters (m) along the monitoring reach from the springs near P4 to P6. If River's End Trailer Park has altered the stream, monitoring stations will be established every 50 m from just below the trailer park alteration to P6. Measurements will also be taken at the springs upstream of the inlet to the ponding produced by the streambed alteration and at the outlet from River's End Trailer Park. Monitoring will also occur at the Forest Service campground upstream of the project to serve as a control site.

During the dry season, monthly sampling at the stations will be conducted using transects across the river to measure flow, depth, oxygen levels, and water temperature. TMC would be required to reduce or stop pumping the underflow of the river when certain action levels are reached. Water pumping will be reduced or stopped when any combination of two or more of the average measured parameters for the monitoring reach do not simultaneously occur at the control site upstream of the project area. The parameters and action levels are as follows:

1. Flow: three measures will be taken across the stream from the mid-point and half the distance to the banks of the stream on either side. At each point, three measures will be taken and averaged. The flow measurement will be taken with a pigmy flow meter or other equivalent equipment. The action level would occur when the flow decreases

25 percent or more from the previous measurement and the difference in the change in flow is significantly different (using standard statistical methods at the 0.05 level) from the changes at the control site.

2. Depth: three measures as outlined for the flow measurements above. The action level would occur when the mean water depth of the stream decreases by 25 percent or more compared with the previous measurement.

3. Oxygen: five measures will be taken across the stream from the mid-point, half the distance to the banks and either at the edge of the emergent vegetation or the edge of the streambanks, whichever is found at the monitoring location. The action level would occur when the mean oxygen level falls below 3.0 milligrams/liter.

4. Temperature: three measures as outlined for the flow measurements above. The action level would occur when the mean temperature of the stream exceeds 27°C.

Seven permanent stations have been established on the Santa Clara River in the vicinity of the proposed TMC facility to monitor water quality. Baseline water quality data and general stream conditions have been collected and evaluated on a regular basis by the Chambers Group since July 1990.

The operational adjustments that will occur if the action level is reached include one or more of the following:

a. seasonal adjustments of sand and gravel production through stockpiling of materials;

b. seasonal management of concrete production;

c. stockpiling excess fines temporarily to eliminate water used in the compaction process;

d. increased use of dust pallatives for dust control;

e. temporary reduction or cessation of pumping of river underflows; and

f. cessation of mining operations, if necessary.

TMC has also proposed to remove giant reed (*Arundo donax*) from riparian areas on non-Forest Service land adjacent to and downstream of the mining site. The U.S. Forest Service (USFS) currently removes giant reed on its lands along the Santa Clara River near the mine.

The habitat on non-Forest Service land from just above the junction of Agua Dulce Creek and the Santa Clara River to the permanent unarmored threespine stickleback habitat at Station 6 just below River's End Trailer Park would be evaluated annually to determine where giant reed

occurred. Removal would be contingent on receiving permission from property owners in the area and would be coordinated each year with the USFS.

Plants would be cut and the stumps sprayed immediately with Rodeo. The cut vegetation would be removed from the river corridor and shredded and disposed of at a landfill or burned. The removal would be conducted in late summer or early fall when the plants will be near the end of the growing season and the herbicide will be more likely to be transported to the roots.

Effects of the Proposed Action on the Listed Species

Species Account

The unarmored threespine stickleback was listed as endangered in 1970 (35 *Federal Register* 16047). The following information is summarized from the recovery plan for the unarmored threespine stickleback (Service 1985). Currently, the only recognized populations of unarmored threespine sticklebacks are located in the Santa Clara River and its tributaries, San Antonio and Honda Creeks at Vandenberg Air Force Base, and possibly in San Felipe Creek, San Diego County. Competition with non-native fish, introgression with other subspecies of sticklebacks, and loss of habitat to urbanization were contributing factors that led to the decline of the unarmored threespine stickleback.

The area proposed as critical habitat for the unarmored threespine stickleback consists of two disjunct stream reaches of the Santa Clara River and a short reach of San Francisquito Canyon in Los Angeles County and the lower portion of San Antonio Creek in Santa Barbara County (45 *Federal Register* 76012). Along the Santa Clara River, proposed critical habitat occurs near Del Valle downstream from Interstate 5. The other area is in Soledad Canyon; it is separated from the Del Valle portion by a seasonally dry section of riverbed from Lang to Interstate 5. The proposed critical habitat in Soledad Canyon extends from approximately 1.4 miles upstream from Lang upstream to Arrastre Canyon; during the dry season, portions of this reach of the river are dry. The Soledad Canyon portion of proposed critical habitat is located adjacent to and upstream from the mining operation proposed by TMC; consequently, the Bureau did not request conference on the proposed critical habitat.

An important component of unarmored threespine stickleback habitat is the slowly moving water found in pools and riffles. When in water that is moving rapidly, they seek shelter behind barriers or in algal mats. Unarmored threespine sticklebacks feed on insects, small crustaceans, and snails, and to a lesser degree, on flat worms and nematodes. Unarmored threespine sticklebacks make their nests where ample vegetation and a gentle flow of water are present (Sasaki et al. 1977 in Chambers Group, Inc. 1996). Young fish tend to be found at the shallow edges of streams in areas of dense vegetation (Chambers Group, Inc. 1996).

Analysis of Effects

The proposed mining operation would not occur within habitat of the unarmored threespine stickleback. However, the pumping of water from the underflow of the Santa Clara River has the potential to affect the stream's hydrology, particularly during those times of the year when the flow of water is at a minimum. Therefore, the Bureau and TMC focused their analysis of the potential effects of the proposed action on the stream flow and water withdrawals. The Service concurs with this approach.

The following information on precipitation and river flows is summarized from the biological assessment (Chambers Group, Inc. 1996). The average annual precipitation within the watersheds above the proposed mining operation ranges from approximately 8 to 23 inches; direct precipitation on the property averages approximately 16 inches annually. More than 90 percent of the annual rainfall occurs between November and April, with most of the rainfall occurring from January to March. The lowest amount of rainfall occurs in June, July, and August.

Surface flow in the Santa Clara River in the vicinity of the proposed mining operation is derived from the Acton watershed and from direct precipitation within Soledad Canyon. Both surface and subsurface flows in the Santa Clara River valley are sustained by subsurface flows from the Acton drainage area, groundwater storage within the valley alluvium, and from the drainages of local tributaries. During the winter, surface flow is continuous throughout this reach of the river and the underlying alluvium is fully saturated. During the summer, surface flow ceases along portions of the river. The only portion of the river downstream and in the vicinity of TMC's project site which retained year-round flows is below the pond in the reach near the River's End Trailer Park. During periods of high flow, unarmored threespine sticklebacks may move along the entire reach of river between Soledad Campground and the River's End Trailer Park.

The biological assessment also notes that this reach of the Santa Clara River is highly dynamic, with even moderate flood flows scouring and depositing alluvial materials, modifying the distribution of riparian vegetation, and altering the surface and subsurface flow regimes. The runoff from the storms of early 1993 scoured the streambed to depths as great as 6 to 8 feet in one portion of the river and to a lesser extent along the entire stream reach. The course of the stream within the confines of the alluvial floor was dramatically altered in many locations by these storms.

The following summary of the potential effects of the proposed mining operation on the water resources of the Santa Clara River is derived from the biological assessment (Chambers Group, Inc. 1996). TMC estimates that 442 acre-feet of water per year would be used for the first 10 years of the mining operation. During the second 10 years, total water use is estimated at 746 acre-feet per year. In both cases, the amount of water that would be used would be increased over time to the maximum level predicted for that phase. TMC anticipates that some level of surface and subsurface flow would be maintained in the river downstream of the constriction

point at the site of the Old Lang Gauging Station because of the volume of water in storage in the aquifer.

Approximately 757 acre-feet of water are stored in the Santa Clara River alluvial aquifer in the vicinity of the proposed mine. Approximately 123 acre-feet are stored in the portion of the aquifer downstream of the constriction point near the Old Lang Gauging Station. TMC notes that the aquifer from which it would obtain its water is recharged very rapidly when the rainy season commences and it tends to become quickly and fully recharged with only moderate levels of rain. In the rainy season, aquifer recharge is primarily dependent on infiltration of surface flow into the aquifer although some level of aquifer recharge is continuous as a result of underflow from upstream areas. Monitoring data from test wells indicate that the underflow is at its maximum during the wet season, but is continuous throughout the year at some level.

Measured water levels in the permeable alluvial aquifer at the end of the dry season indicate that the aquifer is often not fully saturated at that time. Throughout the wet season, while surface flows continue in the river, the aquifer is constantly recharged by infiltration of surface flows and the sustained underflow of the river. The surface flow of the river at the proposed mine site often continues for an additional two to three months into the dry season. Surface flows then cease and the river dries upstream from the Pole Canyon Fault. Underflow continues during the dry season although the level of flow decreases to some degree.

TMC anticipates that water withdrawn from the aquifer during the wet season would be wholly replaced by inflow. The downstream flow is expected to continue under normal conditions with a reduction in surface flows of 35 to 65 acre-feet per month (in the first and second phases of the project, respectively). TMC also predicts that the available water in storage in the alluvial aquifer would not be significantly reduced during the wet season.

Surface water flows at the Old Lang Gauging Station between water years 1949-50 and 1969-70 ranged from 432 to 21,231 acre-feet per year; the second highest recorded annual surface flow is 9,232 acre-feet. All months had surface flow recorded (Ground Water Systems, Inc. 1993 in Chambers Group, Inc 1996). TMC estimates that surface flow at the Old Lang Gauging Station would be reduced by approximately 9 and 16 percent during Phase 1 and Phase 2 operations, respectively, and acknowledges that the effects of these reductions on the maintenance of instream habitats cannot be absolutely predicted.

During the dry season, pumping would draw down the aquifer. TMC also assumes that surface flows would continue but diminish during June and July, and during the late summer and fall months, surface flows upstream from the Old Lang Gauging Station would stop. Surface flow at the Old Lang Gauging Station would normally continue at the average amounts shown in the following table.

	Month	Average Measured Flow (acre-feet per year)	TMC Water Use		Downstream Surface Flow After Pumping	
			Phase 1	Phase 2	Phase 1	Phase 2
Dry Season (no surface flow upstream of Pole Canyon Fault)	August September October	74 66 81	-38 -38 -38	-65 -65 -65	36 28 43	9 1 16

TMC states that surface flow downstream of the Pole Canyon Fault would remain unchanged, if its entire use during August, September, and October is taken from the aquifer. In Phases 1 and 2, the entire drawdown of the aquifer for these months would be 114 and 195 acre-feet each year, respectively. Consequently, if the aquifer upstream of the constriction point at the Old Lang Gauging Station is fully saturated at 634 acre-feet of water, and if the inflow and outflow to the aquifer occur at average rates in a normal rain year, approximately 444 and 309 acre-feet of water would remain in storage in the alluvium at the end of the dry season. TMC notes that recharge of the aquifer would normally begin in November at the beginning of the rainy season. The following chart depicts the expected drawdown throughout the entire dry season.

Phase	Water in Storage at End of Wet Season	TMC Water Use June through October (acre-feet)	+	Inflow Constant (average)	-	Outflow Constant (average)	=	Resultant Storage in Alluvium
1	634	190	+	normal	-	normal	=	444
2	634	325	+	normal	-	normal	=	309

In summary, a bedrock constriction of the alluvial aquifer related to the Pole Canyon Fault forces underflow of the Santa Clara River to the surface in the vicinity of the Old Lang Gauging Station. For some distance downstream of this area, flows are perennial. Upstream of this area, surface flows cease during the drier portions of most years. Further upstream in Soledad Canyon, the Santa Clara River again supports perennial flows.

Under the current situation, unarmored threespine sticklebacks persist downstream of the Old Lang Gauging Station and upstream of the project area in Soledad Canyon throughout the year. During wet periods of the year, unarmored threespine sticklebacks may be found continuously from deep in Soledad Canyon to near Lang (see Figure 3.2.4-5 from the Chambers Group, Inc 1996 [attached]) wherever suitable habitat occurs. As the river from the Old Lang Gauging Station upstream into Soledad Canyon dries, unarmored threespine sticklebacks can become isolated in pools within this reach which will eventually dry. The effects of the proposed water

withdrawals on the rate or timing of the drying of these pools cannot be accurately quantified, although one can reasonably assume that the water withdrawals can cause the pools to dry somewhat earlier in the dry season.

Consequently, TMC has focused its monitoring and mitigation efforts to ensure that pumping of water from the aquifer does not reduce the quality of unarmored threespine stickleback habitat downstream of the Old Lang Gauging Station. As noted in the attached table, TMC has proposed action levels that would trigger cessation or reduction of pumping which are well within habitat parameters of water quality and quantity for the unarmored threespine stickleback. TMC notes that the cessation or reduction of pumping of water from the alluvium would not result in an immediate recharge of the alluvium. However, TMC believes that flows to the downstream habitat of the unarmored threespine stickleback will continue due to discharge of water from storage in the upstream alluvium. The amount of water stored in this alluvium will be regulated by reducing or stopping pumping as necessary to maintain flows to the habitat. Additionally, by monitoring rainfall during the wet season, TMC should be able to plan its water use well in advance of the dry months. When a below average rainfall year occurs, aggregate production would be adjusted as much as practicable to increase yield in the wet season which would allow a reduction in the dry season. Monitoring and use of action levels of water quality and quantity parameters that are above critical requirements of the unarmored threespine stickleback should ensure that the lag time between the reduction or cessation of pumping and the recharge of the alluvium downstream of the Pole Canyon Fault will not result in conditions that are deleterious to the species.

The biological assessment does not provide information on when water withdrawals would cease or be reduced. Under natural conditions, the level of the river would continually drop at some rate throughout the dry season. If TMC's pumping is repeatedly stopped and started, some potential exists that the water level in the river downstream of the Old Lang Gauging Station may rise and fall in response to changes in the amount of pumping. These changes in water level could cause degradation of the stream by causing aquatic vegetation, which is an important component of unarmored threespine stickleback habitat, to dry out. Some potential may also exist for unarmored threespine sticklebacks and their nests to be stranded, particularly in drier years.

The removal of giant reed from the non-Forest Service properties along the river would benefit the unarmored threespine stickleback because this invasive exotic species can reduce the abundance of native vegetation and thereby degrade the overall quality of the riparian habitat upon which the species depends. Removal of the giant reed may also reduce the use of water by streamside vegetation at least temporarily. However, the potential effects of decreased shading and the natural replacement of the giant reed with native riparian vegetation, which would then require water, may reduce the amount of water conserved by removal of the giant reed.

The actual removal of the giant reed, which would involve workers moving through riparian habitat, cutting stems, and treating the cut stumps with herbicide, can be conducted without

adversely affecting the unarmored threespine stickleback if all activities are conducted outside the stream and pools of water. If giant reed that is growing in water needs to be removed, harm to the unarmored threespine stickleback can be avoided by having a biologist familiar with the species inspect the area prior to removal to ensure the fish are not present.

Rodeo, which is the herbicide that TMC plans to use to control giant reed, has been approved for use in and near aquatic habitats. Therefore, its use should reduce the potential that unarmored threespine sticklebacks could be killed if herbicide is spilled and enters the stream.

Cumulative Effects

Cumulative effects are those impacts of future State and private actions that are reasonably certain to occur in the project area. Future Federal actions will be subject to the consultation requirements established in section 7 of the Act and, therefore, are not considered cumulative to the proposed project.

Development in the watershed of the Santa Clara River has probably substantially altered the natural flow regimes of the Santa Clara River, which, in turn, has likely changed the nature of habitat for the unarmored threespine stickleback. Water diversions and pumping of underflow are not controlled by Federal regulations and have likely reduced the annual flow in the Santa Clara River. The discharge of treated effluent into the river returns a portion of this flow; however, this source of water is much more regular and constant than can be expected from the region's natural rain cycles. Unauthorized activities along the river, such as private flood control actions and mining, have also likely contributed to alterations in the river's hydrology. Potential non-native predators of the unarmored threespine stickleback, such as the African clawed frog (*Xenopus lavius*), are known to exist in the Santa Clara River in the vicinity of the proposed action area; the effects of the African clawed frog, which is a voracious predator, on the unarmored threespine stickleback are unknown at this time.

The Service is unaware of any State or private actions which, when considered cumulatively with the proposed action, would be likely to jeopardize the continued existence of the unarmored threespine stickleback.

After reviewing the status of the species, the potential adverse effects of the proposed action, and the cumulative effects, it is the biological opinion of the Service that the proposed action is not likely to jeopardize the continued existence of the unarmored threespine stickleback. We have reached these conclusions because:

1. the reach of the Santa Clara River which would be most affected by the proposed action normally dries during years of low rainfall and this drying has not prevented the unarmored threespine stickleback from recolonizing this area during wetter portions of the year; and

2. the monitoring program proposed by the Bureau and TMC should be able to detect changes in water quality and quantity in a manner that prevents long-term effects to unarmored threespine sticklebacks and their habitat downstream of the Old Lang Gauging Station.

Incidental Take

Section 9 of the Act prohibits the take of listed species without special exemptions. Taking is defined as harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, collecting, or attempting to engage in any such conduct. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavior patterns, including breeding, feeding, or sheltering. Under the terms of section 7(b)(4) and 7(0)(2) of the Act, taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such take is in compliance with this incidental take statement. The stipulations in this biological opinion described as reasonable and prudent measures and terms and conditions are non-discretionary, and must be undertaken by the agency or made a binding condition of any grant or permit, as appropriate.

The Service anticipates that unarmored threespine sticklebacks in the reach of the Santa Clara River from station A1 downstream to monitoring station P3 (the Old Lang Gauging Station) (as shown in Figure 3.2.4-5) may be taken as a result of the withdrawal of water from the alluvium by TMC, which would be additive to some degree to the natural seasonal drying of the stream in this reach.

The actual number of unarmored threespine sticklebacks that would be taken cannot be predicted because the species' small size makes detection difficult and the number of individuals inhabiting the area varies. Additionally, determining if a particular fish was incidentally taken as a result of drying of the stream attributed to TMC's activities or if it dies as a result of natural seasonal drying would not be possible.

Successful implementation of the proposed monitoring program and cessation or reduction of TMC's water withdrawals should prevent mortality of unarmored threespine sticklebacks downstream of monitoring station P3 (Old Lang Gauging Station). Therefore, the Service does not anticipate that the incidental take of unarmored threespine sticklebacks will occur below the Old Lang Gauging Station.

Reasonable and Prudent Measures

The Service believes that the following reasonable and prudent measures are necessary and appropriate to minimize the incidental take anticipated by this biological and conference opinion:

1. The Bureau shall reduce the take of unarmored threespine sticklebacks by including the measures proposed by TMC in the biological assessment and summarized previously in this biological and conference opinion as conditions of the mining and reclamation plan for the proposed action.

2. The Bureau shall require that pumping of water from the underflow of the Santa Clara River cease if the habitat requirements of the unarmored threespine stickleback are not being met.

3. The Bureau shall ensure that TMC does not use herbicides which are toxic to unarmored threespine sticklebacks in proximity to waters of the Santa Clara River.

Terms and Conditions

To be exempt from the prohibitions of section 9 of the Act, the Bureau is responsible for compliance with the following terms and conditions, which implement the reasonable and prudent measures described above.

1. The following term and condition implements reasonable and prudent measure 1:

   The measures proposed by TMC in the biological assessment and summarized previously in this biological and conference opinion are hereby incorporated as terms and conditions of this biological opinion and shall be included by the Bureau as conditions of the mining and reclamation plan for the proposed action.

2. The following terms and conditions implement reasonable and prudent measure 2:

   a. If the water quality and quantity parameters reach the action levels defined in the attached table (Comparison of Unarmored Threespine Stickleback Habitat Requirements and Monitoring Plan Action Levels), the Bureau shall require TMC to notify the appropriate Bureau office and to cease pumping water from the alluvium of the Santa Clara River until the action levels defined in the table are again achieved.

   b. If pumping has been suspended until at least the water quality and quantity standards defined by the action levels are once again achieved, the Bureau shall limit the amount of water pumped from the alluvium of the Santa Clara River by TMC to a rate and amount that will not result in fluctuations of the water level, water temperature, or oxygen level. This limitation shall remain in effect until the onset of rains during the next wet season.

3. The following term and condition implements reasonable and prudent measure 3:

The Bureau shall ensure that TMC uses only herbicides approved for spraying in and near aquatic sites, such as Rodeo, within 100 feet of the Santa Clara River when water flow is present in the river. Other herbicides may be used, according to their label restrictions, to control giant reed on upper floodplain terraces.

Reporting Requirements

The Bureau shall require TMC to prepare an annual report for its review by December 1 of each year the mine is in operation or reclamation phases. After the Bureau's review, the report shall be forwarded to the Service by January 15. The report shall document the effectiveness of the monitoring plan proposed by TMC and the terms and conditions, a summary of the information that was collected regarding water quality and quantity from the previous year, a summary of the results obtained from the habitat monitoring, and the results of any work to remove exotic species. If appropriate, the report shall also recommend modifications to the monitoring plan and terms and conditions to enhance the protection of unarmored threespine sticklebacks while making them more workable for TMC and the Bureau.

Disposition of Dead Unarmored Threespine Sticklebacks

Upon locating dead unarmored threespine sticklebacks, initial notification must be made in writing to the Service's Division of Law Enforcement in Torrance, California (370 Amapola Avenue, Suite 114, Torrance, California 90501) and by telephone and writing to the Ventura Field Office in Ventura, California, (2493 Portola Road, Suite B, Ventura, California 93003, 805/644-1766) within three working days of its finding. The report shall include the date, time, location of the carcass, a photograph, cause of death, if known, and any other pertinent information.

Care shall be taken in handling dead specimens to preserve biological material in the best possible state for later analysis. The remains of unarmored threespine sticklebacks shall be placed with the Los Angeles County Museum of Natural History. Arrangements regarding proper disposition of potential specimens shall be made with museum by the project monitor prior to implementation of the action.

Conservation Recommendations

Sections 2(c) and 7(a)(1) of the Act mandate Federal agencies to use their authorities to implement programs for the conservation of listed species. Conservation recommendations are defined as discretionary agency actions which further reduce the take of listed species, implement recovery actions, or provide information that would assist in the management of the species. The Service recommends that the Bureau and TMC remove other exotic species from habitat of the unarmored threespine stickleback when possible. In particular, any individuals of the African clawed frog that are encountered should be destroyed.

The Service requests notification of the implementation of any conservation recommendations to keep us informed of actions that either minimize or avoid adverse effects or that benefit listed species or their habitats.

Conclusion

This concludes formal consultation for Transit Mixed Concrete's application to mine sand and gravel in Soledad Canyon, Los Angeles County, California. Re-initiation of formal consultation is required if: (1) incidental take of unarmored threespine sticklebacks occurs; (2) new information reveals effects of the agency action that may adversely affect listed species or critical habitat in a manner or to an extent not considered in this biological and conference opinion; (3) the agency action is subsequently modified in a manner that causes an effect to a listed species or critical habitat that was not considered in this biological and conference opinion; and (4) a new species is listed or critical habitat is designated that may be affected by this action (50 CFR 402.16). Any comments or questions should be directed to Ray Bransfield of my staff at 805/644-1766.

Attachment

Literature Cited

Chambers Group, Inc. 1996. Final Biological Assessment for Soledad Canyon Sand and Gravel Mining project. Prepared for Transit Mixed Concrete. Irvine, California.

U.S. Fish and Wildlife Service. 1985. unarmored Threespine Stickleback Recovery Plan (Revised). U.S. Fish and Wildlife Service, Portland, Oregon.

COMPARISON OF UNARMORED THREESPINE STICKLEBACK HABITAT REQUIREMENTS AND MONITORING PLAN ACTION LEVELS

Habitat Parameter	Observed Habitat Requirement	Action Level
Water Temperature Upper Limit	30.5 - 34.6°C[1]	27.0°C
Oxygen Level Lower Limit	2.0 mg/L[2]	3.0 mg/L
Decrease in Stream Depth	15 - 32%[3]	25%
Stream flow	<0.1 m/sec[4]	*

[1] Feldmeth and Baskin 1976; Baskin 1974; Sasaki et al. 1977
[2] Sasaki et al. 1977
[3] Chambers Group observations of Santa Clara River B4 unarmored threespine stickleback population as recorded in Tables 3.2.4-2 through 3.2.4-8 of the biological assessment.
[4] Joyce 1989
* Unarmored threespine sticklebacks nest in vegetation at the edge of shallow pools that have a gentle Stream flow; however, no exact correlation exists between habitat and stream flow. Therefore, the action level for stream flow is a 25-percent decrease in flow that is significantly different (0.05 level) compared to the flow at the upstream control site.

All references are from Chambers Group, Inc. 1996.

APPENDIX G

LAND USE

CALIFORNIA DEPARTMENT OF CONSERVATION
DIVISION OF MINES AND GEOLOGY

DMG OPEN-FILE REPORT 94-14

UPDATE OF MINERAL LAND CLASSIFICATION OF PORTLAND CEMENT CONCRETE AGGREGATE IN VENTURA, LOS ANGELES, AND ORANGE COUNTIES, CALIFORNIA

Part II – Los Angeles County

1994

PREPRINT COPY

DEPARTMENT OF CONSERVATION
Division of Mines and Geology

THE RESOURCES AGENCY
DOUGLAS P. WHEELER
SECRETARY FOR RESOURCES

STATE OF CALIFORNIA
PETE WILSON
GOVERNOR

DEPARTMENT OF CONSERVATION
MICHAEL BYRNE
DIRECTOR

UPDATE OF MINERAL LAND CLASSIFICATION OF PORTLAND CEMENT CONCRETE AGGREGATE IN VENTURA, LOS ANGELES, AND ORANGE COUNTIES, CALIFORNIA

PART II
LOS ANGELES COUNTY

BY

Russell V. Miller

DMG OPEN FILE REPORT 94-14

1994

CALIFORNIA DEPARTMENT OF CONSERVATION
DIVISION OF MINES AND GEOLOGY
801 K STREET
SACRAMENTO, CA 95814-3531

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EXECUTIVE SUMMARY

This report is the second part of a three-part review of the mineral land classification of portland cement concrete (PCC) aggregate in the counties of Ventura, Los Angeles, and Orange.

This report updates information presented in a series of classification studies on portland cement concrete aggregate in Los Angeles County from 1979 to 1987. The studies were published by the Department of Conservation's Division of Mines and Geology (DMG) as Special Report 143, Parts II, IV, V, and VI (Anderson and others, 1979; Kohler, 1983; Joseph and others, 1984 and 1987; and Cole, 1984 and 1987). Two small areas of Los Angeles County not covered by these studies were included in Special Report 143, Part III (Miller and Corbaley, 1981) and Special Report 146, Part II (Anderson and others, 1981). These earlier classification studies assisted the State Mining and Geology Board (Board) in a subsequent process, called designation. Designation is the formal recognition by the Board of lands containing resources of regional or statewide significance that are needed to meet the demands of the future.

Mineral Land Classification

The six mineral land classification reports covered the highly urbanized areas of Los Angeles County and divided it into seven "production-consumption (P-C) regions" - the San Fernando Valley P-C Region (Anderson and others, 1979), the San Gabriel Valley P-C Region (Kohler, 1983), the Saugus-Newhall P-C Region (Joseph and others, 1984 and 1987), the Palmdale P-C Region (Joseph and others, 1984 and 1987), the Claremont-Upland P-C Region (Cole, 1984 and 1987), the Orange County-Temescal Valley P-C Region (Miller and Corbaley, 1981), and the Simi P-C Region (Anderson and others, 1981). The first four P-C regions are entirely within Los Angeles County and cover nearly all of it. The last three P-C regions have their major areas in adjoining counties and covered only small parts of Los Angeles County. These reports contained information on the location, tonnage, and quality of PCC-grade aggregate resources in Los Angeles County and the projected demand for aggregate to 50 years from the dates of the studies.

This report reviews the availability of the aggregate resources in the previously classified and designated areas and projects the demand for aggregate to the year 2044. The generalized land classification within Los Angeles County is presented in the form of Mineral Resource Zones (MRZ) on a U.S. Geological Survey topographic map at a scale of 1:100,000 (Plate 1, Generalized Mineral Land Classification Map of Los Angeles County) and two detailed MRZ classification maps of the Azusa and Mescal Creek 7.5-minute quadrangles (Plates 2 and 3). The

detailed classification map of the Azusa 7.5-minute quadrangle covers an area that was reclassified by petition in 1988 (Miller). The detailed classification map of the Mescal Creek 7.5-minute quadrangle covers an area that was reclassified for this study.

This report conveys important information on the present aggregate resources in Los Angeles County for the benefit of local lead agencies and other interested parties. **This report also requires Los Angeles County to incorporate the reclassification information on Plate 3 of this report - Revised Mineral Land Classification Map of the Mescal Creek Quadrangle - in their General Plan and to use it in their land-use decision process.**

Within Los Angeles County, 19 areas were classified as MRZ-2 for portland cement concrete aggregate in 1979, 1982, and 1984 reports and designated by the Board as being regionally significant in 1981, 1983, and 1986. Since those reports were published, two areas have been reclassified from MRZ-3 to MRZ-2 - the Fish Canyon Quarry area (Miller, 1988) and a the Mescal Creek Fan area for this report.

Active mines within Los Angeles County that extract mineral commodities other than PCC-grade aggregate, were not classified in this study.

Aggregate Resources

Throughout this report the terms "reserves" and "resources" are used with rigorous definitions. Reserves are aggregate deposits that are owned or controlled by a mining company, and that are authorized for extraction by appropriate lead agencies through a valid mining permit. Resources are all of the available aggregate deposits within an area, including reserves. **The estimated resources of PCC-grade aggregate, technologically and economically available, within Los Angeles County total 11,929 million tons, as of January 1994.**

There are about 750 million tons of PCC-grade aggregate reserves in Los Angeles County.

Projected Aggregate Consumption

The projected aggregate consumption for Los Angeles County was obtained by determining an average annual per capita rate of past consumption and multiplying that by the population projected for the next 50 years. The average annual per capita consumption rate was derived by correlating aggregate production and population for the past 27-year period of 1966 through 1992.

- **The projected aggregate consumption of Los Angeles County to the year 2044 is estimated to be 2,009 million tons, of which an estimated 1,005 million tons must be of PCC quality.**

- **The projected life expectancy of the present reserves of all aggregate in the county is estimated to be 21 years (depletion in the year 2016).**

- **The PCC-grade aggregate reserves are not evenly distributed; the San Fernando Valley P-C Region will be depleted in an estimated 7 years.**

Should unforeseen events occur, such as massive urban renewal, reconstruction in the wake of a disaster such as the Northridge Earthquake, or a major economic recession, the aggregate demand could change considerably.

As with many forecasts of economic activity, those generated for this report should not be viewed as offering unqualified predictions of the future. The forecasts in this report are based on assumptions that the data used are accurate, and that the economic and urban development trends of the past 3 decades will continue for the next 5 decades.

The increased use of recycled material for base aggregate will tend to increase the life expectancy of the PCC-grade aggregate resources in Los Angeles County, as PCC-grade aggregate deposits have, historically, supplied base material also.

The total reported aggregate production for Los Angeles County, from 1980 to 1992, was 24 percent more than was projected in the original classification studies. This indicates that the aggregate demand forecasts given in this and other classification reports may be conservative due to underestimation of population and economic growth potentials.

Review of Production-Consumption Regions

San Fernando Valley P-C Region:

- **The 1979 report projected that aggregate demand would be 57,987,000 tons from 1980 to 1992.**

- **Production records indicate that 122,109,000 tons of aggregate were produced from 1980 to 1992.**

The 111 percent greater aggregate demand can be attributed, in part, to the population growth from 1980 to 1992. The total population growth in the San Fernando Valley P-C Region was 16 percent more than the projection used by Anderson and others in 1979. The remainder of the greater aggregate demand is due

mostly to the large economic growth of the region during the late 1980s.

San Gabriel Valley P-C Region:

- **The 1982 report projected that aggregate demand would be 205,302,000 tons from 1980 to 1992.**

- **Production records indicate that 216,073,000 tons of aggregate were produced from 1980 to 1992.**

There was a 5 percent higher aggregate demand than projected. This higher demand can be attributed to a much larger population growth than was projected. The actual population growth was 19 percent higher than the projection used for the 1982 report.

Saugus-Newhall P-C Region:

- **The aggregate consumption from 1982 to 1992 was projected to be 9,167,000 tons.**

- **The recorded production of the region for those years was 13,560,000 tons, about 48 percent more than the projection.**

The per capita consumption was almost the same as that used in the original prediction - 9.9 tons per year actual compared to 10 tons per year as predicted by past production patterns. The 48 percent greater aggregate production then, can be accounted for by the greater increase in population for the region.

Palmdale P-C Region:

- **Aggregate consumption from 1982 to 1992 was projected to be 17,714,000 tons.**

- **The recorded production of the region for those years was 24,354,000 tons, about 37 percent more than the projection.**

The per-capita consumption was almost the same as that used in the original prediction - 12.7 tons per year actual and 12.2 tons per year as predicted by past production patterns. The 37 percent greater aggregate production then, can be accounted for, in large part, by the greater increase in population for the region. The remaining increase in aggregate consumption, about 9 percent, can be attributed to the large economic growth of the region in the mid to late 1980s.

In addition to those deposits classified as MRZ-2, areas classified as MRZ-3 within Los Angeles County contain possible

alternative sources of aggregate. Too little is known about the quality or quantity of these possible sources to permit even crude resource estimates to be made.

Conclusions

Based on this study, and assuming that the consumption forecast is accurate, the following conclusions were reached:

- **The anticipated consumption of aggregate in Los Angeles County through the year 2044 is estimated to be 2,008 million tons, 55 percent or 1,005 million tons of which must be of PCC quality.**

- **As of January 1994, 16 mines operated by 13 different mining companies were permitted to produce portland cement concrete aggregate in Los Angeles County.**

- **There is enough permitted PCC-grade aggregate within Los Angeles County to supply the major part of the county, excluding the three areas supplied by production districts outside of the county, for 21 years - until the year 2016. However, the San Fernando Valley Region is projected to be depleted of aggregate reserves within about 7 years.**

- **11,929 million tons of PCC-grade aggregate resources (including reserves) are identified as technologically and economically available within Los Angeles County.**

The following table compares population, aggregate demand, reserves, resources, number of aggregate mines, and number of aggregate companies in Los Angeles County at the times of the three original classification studies, first made available in 1979, 1982, and 1984, with the 1994 report.

COMPARISON OF:	original reports	1994
POPULATION	6.8 MILLION	8.3 MILLION
CALCULATED ANNUAL AGGREGATE DEMAND	23 MILLION TONS	28 MILLION TONS
AGGREGATE RESERVES	830 MILLION TONS	750 MILLION TONS
AGGREGATE RESOURCES	12.8 BILLION TONS	11.9 BILLION TONS
PCC AGGREGATE MINES	19	16
NO. OF COMPANIES	10	13

PART I - CLASSIFICATION OF AGGREGATE RESOURCES IN LOS ANGELES COUNTY

INTRODUCTION

From 1979 to 1987, the Department of Conservation's Division of Mines and Geology (DMG) published a series of studies on the portland cement concrete (PCC) aggregate resources of Los Angeles County as Special Report 143, Mineral Land Classification of the Greater Los Angeles Area, Parts II, IV, V, and VI (Anderson and others, 1979; Kohler, 1982; Joseph and others, 1984 and 1987; and Cole, 1984 and 1987). The area selected for each report was based on a Production-Consumption (P-C) Region concept, wherein each aggregate production district is surrounded by a market or consumption area (Figure 1).

Subsequent to the classification reports, the State Mining and Geology Board (Board) designated areas within each P-C region as having aggregate resources of regional significance (California Department of Conservation, 1981, 1984, 1987a, and 1987b). Table 1 lists the dates of classification and designation of each region.

This present report conveys important updated information on the present aggregate resources in Los Angeles County for the benefit of local lead agencies (Table 2 lists lead agencies). This report is not intended to replace Special Report 143, Part II, IV, V, or VI. The only action required of a local lead agency by this report is that Los Angeles County must incorporate the reclassification information on Plate 3, Revised Mineral Land Classification Map of the Mescal Creek Quadrangle, in its General Plan.

The original studies, as well as this update, were conducted as specified by the Surface Mining and Reclamation Act (SMARA) of 1975. Section I, Subsection 7 of the Board Guidelines for Classification and Designation of Mineral Lands adopted in 1978 and published in 1983, requires the State Geologist to review mineral land classification information after a period of no longer than 10 years to determine whether reclassification and/or revision of projected requirements of construction materials is necessary. It was determined that a revision of projected requirements was necessary for Ventura, Los Angeles, and Orange counties. This report, covering Los Angeles County, is the second part of a three-part review of those counties.

Special Report 143, Parts II, IV, and V covered most of the highly urbanized parts of Los Angeles County and divided it into four P-C regions - the San Fernando Valley, San Gabriel Valley, Saugus-Newhall, and Palmdale (Figure 1). The remaining highly

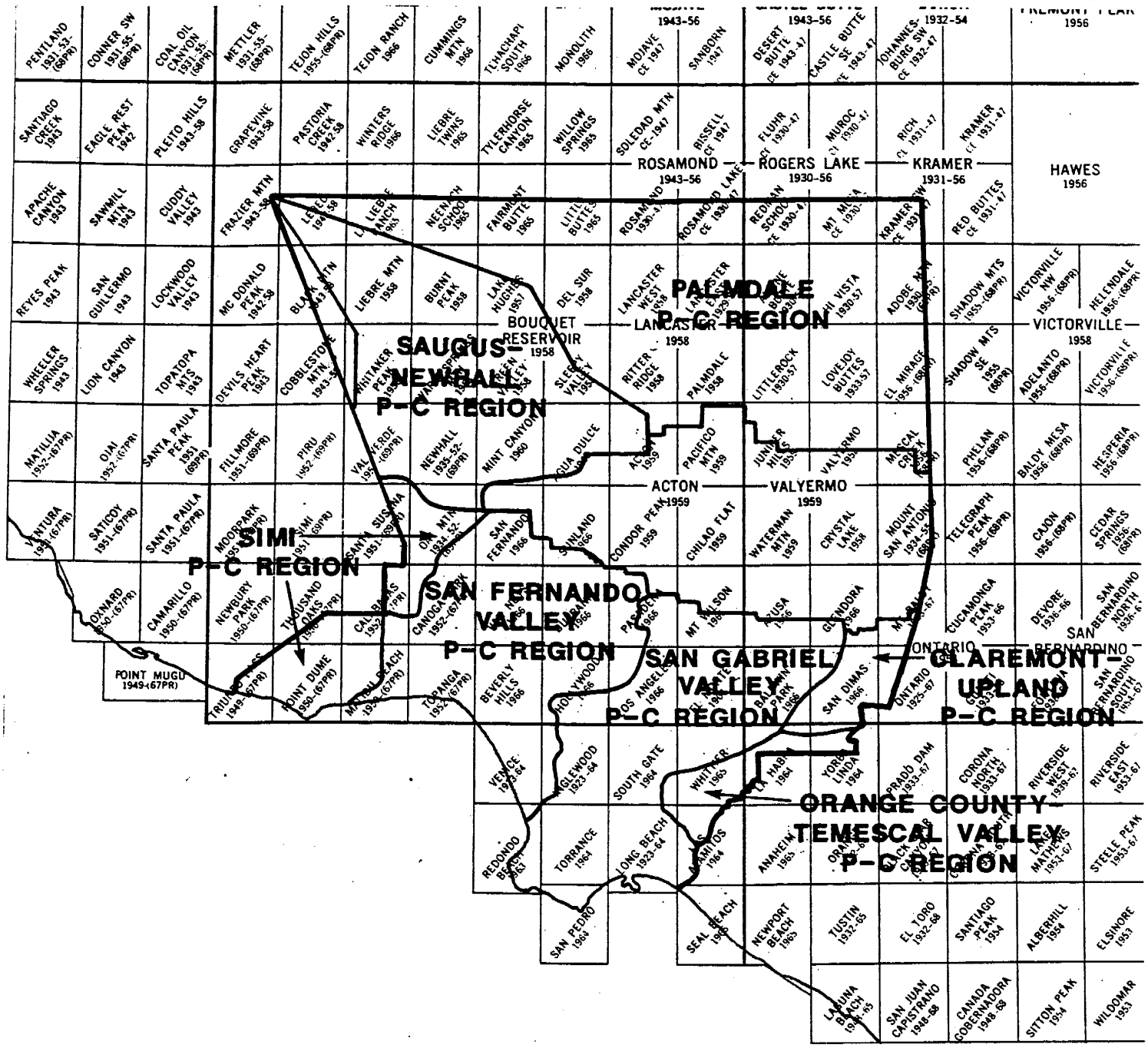


Figure 1. Aggregate production-consumption regions of Los Angeles County.

Table 1. Dates of SMARA mineral land classification/designation in Los Angeles County. The references to the reports are listed as footnotes beneath the table.

P-C REGION	CLASSIFICATION		DESIGNATION	
	ACCEPTANCE BY BOARD	PUBLICATION OF REPORT	ACTION BY BOARD	PUBLICATION OF REPORT
San Fernando Valley	5/25/79	1979[1]	1/7/81	1/7/81[5]
San Gabriel Valley	1982	1982[2]	6/10/83	8/84[6]
Saugus-Newhall	8/27/84	1984[p] 1987[3]	10/2/86	1/87[7]
Palmdale	8/27/84	1984[p] 1987[3]	10/2/86	1/87[7]
Claremont-Upland	8/27/84	1984[p] 1987[4]	10/2/86	1/87[8]

(p) date of publication of preliminary report.

(1) Anderson and others, 1979, Mineral land classification of the greater Los Angeles area, Part II, Classification of sand and gravel resource areas, San Fernando Valley Production-Consumption Region: California Division of Mines and Geology Special Report 143.

(2) Kohler, S.L., 1982, Mineral land classification of the greater Los Angeles area, Part IV, classification of sand and gravel resource areas, San Gabriel Valley Production-Consumption Region: California Department of Conservation, Division of Mines and Geology Special Report 143, Part IV.

(3) Joseph and others, 1987, Mineral land classification of the greater Los Angeles area; Part V, classification of sand and gravel resource areas, Saugus-Newhall Production-Consumption Region and Palmdale Production-Consumption Region: California Department of Conservation, Division of Mines and Geology Special Report 143, Part V.

(4) Cole, W.C., 1987, Mineral land classification of the greater Los Angeles area; Part VI, classification of sand and gravel resource areas, Claremont-Upland Production-Consumption Region: California Department of Conservation, Division of Mines and Geology Special Report 143, Part VI.

(5) California Department of Conservation, 1981, Designation of sand and gravel resources of regional significance in the San Fernando Valley region, Los Angeles County, California: SMARA Designation Report No.1.

(6) California Department of Conservation, 1984, Designation of regionally significant construction aggregate resource areas in the Orange County -Temescal Valley and San Gabriel Valley Production-Consumption Regions: SMARA Designation Report No.3.

(7) California Department of Conservation, 1987, Designation of regionally significant construction aggregate resource areas in the Saugus-Newhall and Palmdale Production-Consumption Regions: SMARA Designation Report No.6.

(8) California Department of Conservation, 1987, Designation of regionally significant construction aggregate resource areas in the Claremont-Upland and San Bernardino Production-Consumption Regions: SMARA Designation Report No.5.

Table 2. Lead agencies (county and incorporated city governments) located within Los Angeles County.

City of Agoura Hills
City of Alhambra
+*City of Arcadia
City of Artesia
City of Avalon
+*City of Azusa
+ City of Baldwin Park
City of Bell
City of Bellflower
City of Bell Gardens
City of Beverly Hills
City of Bradbury
+ City of Burbank
City of Carson
City of Cerritos
+ City of Claremont
City of Commerce
City of Compton
+ City of Covina
City of Cuhady
City of Culver City
City of Diamond Bar
+ City of Downey
+ City of Duarte
+*City of El Monte
City of El Segundo
City of Gardena
+ City of Glendale
+ City of Glendora
City of Hawaiian Gardens
City of Hawthorne
City of Hermosa Beach
City of Hidden Hills
+ City of Huntington Park
+ City of Industry
City of Inglewood
+*City of Irwindale
City of La Canada Flintridge
City of La Habra Heights
City of Lakewood
City of La Mirada
City of Lancaster
+ City of La Puente
City of La Verne
City of Lawndale
City of Lomita
City of Long Beach
+*City of Los Angeles
City of Lynwood
City of Malibu
City of Manhattan Beach
City of Maywood
+ City of Monrovia
+ City of Montebello
City of Monterey Park
City of Norwalk
+*City of Palmdale
City of Palos Verdes Estates
City of Paramount
+ City of Pasadena
+ City of Pico Rivera
City of Pomona
City of Rancho Palos Verdes
City of Redondo Beach
City of Rolling Hills
+ City of Rolling Hills Estates
+ City of Rosemead
+ City of San Dimas
+ City of San Fernando
+ City of San Gabriel
City of San Marino
+ City of Santa Clarita
+ City of Santa Fe Springs
City of Santa Monica
+ City of Sierra Madre
City of Signal Hill
+ City of South El Monte
City of South Gate
+ City of South Pasadena
+ City of Temple City
+ City of Torrance
+ City of Vernon
City of Walnut
+ City of West Covina
City of West Hollywood
City of Westlake Village
City of Whittier
+*County of Los Angeles

+Agencies that have land classified as MRZ-2 for PCC-grade aggregate within their jurisdiction.

*Agencies that have active aggregate operations within their jurisdiction.

Agencies with Aggregate Resource Sectors within their jurisdiction are underlined.

urbanized areas of the county were covered in three other reports: part of the western edge of the county, bordering Ventura County, was included in the Simi P-C Region in Special Report 146, Part II (Anderson and others, 1981); some of the southeastern part of the county was included in the Orange County-Temescal Valley P-C Region in Special Report 143, Part III (Miller and Corbaley, 1981); and part of the eastern area of the county was included in the Claremont-Upland P-C Region that straddles the border of Los Angeles and San Bernardino counties, with about half of that P-C region, but none of the production in Los Angeles County (Special Report 143, Part VI by Cole, 1984).

The four P-C regions within Los Angeles County were reexamined for the availability of aggregate resources in the classified and designated areas and a projected demand for the county was made to the year 2044. The update of the Claremont-Upland P-C Region was limited to a survey of unpermitted aggregate resources, since none of the aggregate reserves in that region are within Los Angeles County. The aggregate consumption forecasts made for each of the four P-C regions within the county are reviewed separately in sections of this report.

A review was made of the present availability (as of January, 1994) of the aggregate resources in the designated areas of Los Angeles County. Designated areas found to be unavailable for mining due to urbanization, regulation, and change of criteria, since the original reports, are shown on Plates 4 though 9, Maps Showing Designated Areas Urbanized, at scales of 1:24,000 and 1:48,000 (Figure 2).

Active mines within Los Angeles County that extract mineral commodities other than PCC-grade aggregate, were not included in this study.

Classification of Aggregate Resources in Los Angeles County

SMARA mandates that guidelines for classification and designation be developed by the Board. The Board originally adopted formal SMARA guidelines on June 30, 1978. Section I.1.a of those guidelines requires the State Geologist to classify specified areas into Mineral Resource Zones (MRZ).

The urbanized and urbanizing areas of Los Angeles County were classified previously in seven reports as follows:

1) Special Report 143, Part II by Anderson and others, 1979. Classifies the San Fernando Valley P-C Region.

2) Special Report 143, Part III by Miller and Corbaley, 1981. Includes a part of southeastern Los Angeles

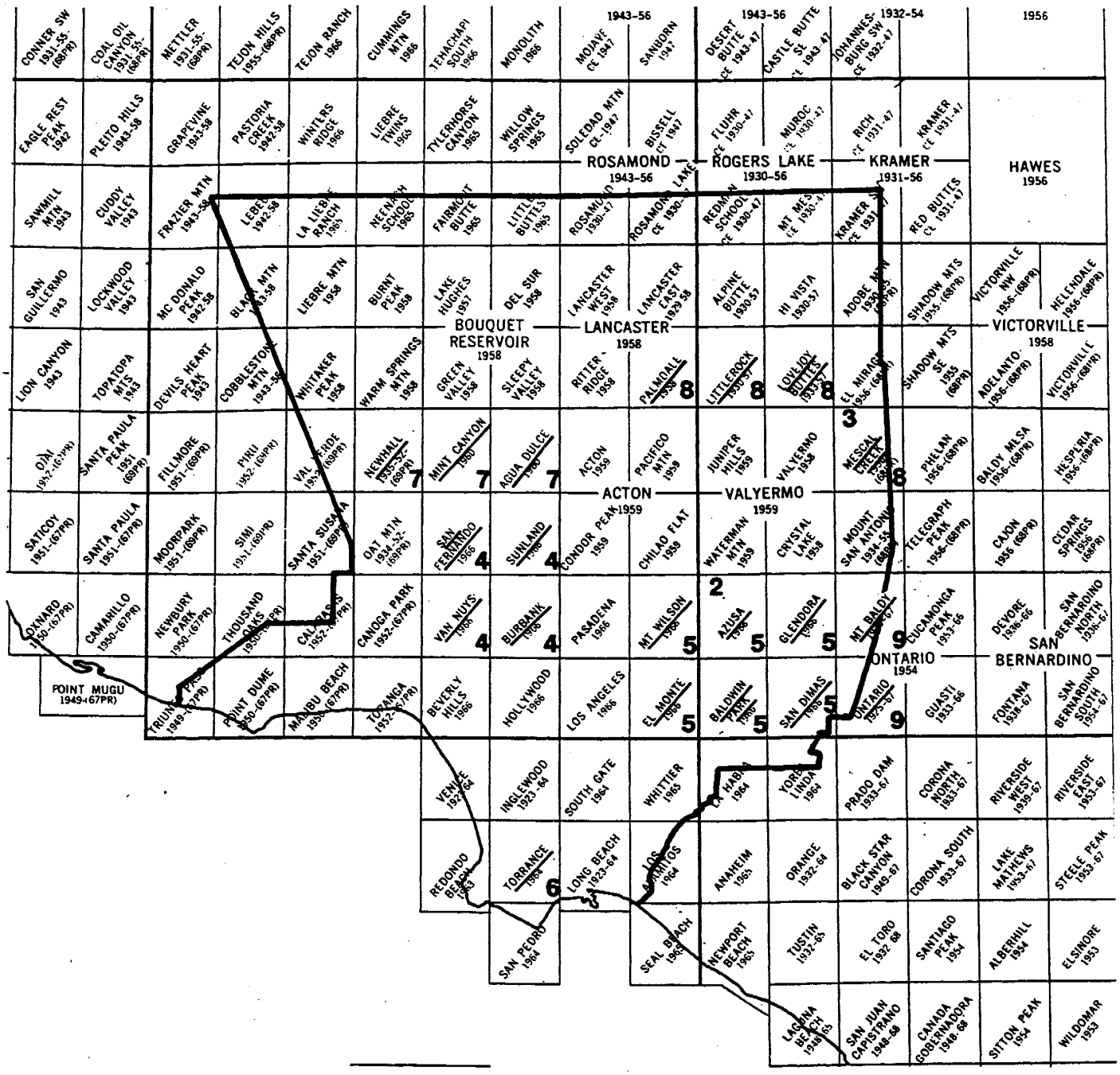


Figure 2. Index map of U.S. Geological Survey 7.5-minute quadrangles covering Los Angeles County. The Mineral Land Classification maps for this report (Plates 2 and 3) are indicated by a plate number in the upper left corner. The maps of Designated Areas Lost to Urbanization, Regulation, and Criteria Change are shown as Plates 4-17 and are indicated by underlined quadrangle names and plate numbers in the lower right corners.

County in classifying the Orange County-Temescal Valley P-C Region.

3) Special Report 143, Part IV by Kohler, 1982. Classifies the San Gabriel Valley P-C Region.

4) Special Report 143, Part V by Joseph and others, 1984. Classifies the Saugus-Newhall and Palmdale P-C Regions.

5) Special Report 143, Part VI by Cole, 1984. Includes part of eastern Los Angeles County in classifying the Claremont-Upland P-C Region.

6) Special Report 146, Part II by Anderson and others, 1981. Includes a part of western Los Angeles County in classifying the Simi P-C Region.

7) Open-File Report 88-23, by Miller, 1988. A classification by petition of the Fish Canyon Quarry site near Azusa in the San Gabriel Valley P-C Region.

The generalized land classification within Los Angeles County, as presented on Plate 1 - Generalized Mineral Land Classification Map of Los Angeles County - at a scale of 1:100,000, is taken from these seven reports. The only change of classified land is the Mescal Creek Fan east of Palmdale as reclassified for this report. The classification nomenclature in use at the time of the original reports has been kept. Two mineral land classification maps showing the reclassification of the Fish Canyon Quarry site and the Mescal Creek fan are included as Plates 2 and 3. Plate 2 - Revised Mineral Land Classification Map of the Azusa Quadrangle - at a scale of 1:48,000, is taken from Plate 1 of Open-File Report 88-23. The Mescal Creek fan was reclassified for this report.

REEVALUATION OF PCC-GRADE AGGREGATE RESOURCES IN LOS ANGELES COUNTY

A reevaluation of aggregate resources in Los Angeles County is presented in this section of the report. The reassessment was conducted on the basis of a quantitative evaluation of suitable aggregate resources classified as MRZ-2 and MRZ-2a. The term "resources" includes both permitted reserves and unpermitted resources.

Concepts Used in Identifying Available Aggregate Resources

The State Geologist is responsible for calculating aggregate resources for those areas classified as MRZ-2 and MRZ-2a for PCC-grade aggregate. Recognizing that there are lands within these areas that have already been urbanized and therefore have a limited opportunity for mineral resource conservation and extraction, the State Geologist has limited the calculation of aggregate resource tonnages to areas classified as MRZ-2 for PCC-grade aggregate that have not been urbanized. These areas were identified as Sectors in the original series of four reports: Mineral Land Classification of the Greater Los Angeles Area, Parts II, IV, V, and VI (Anderson and others, 1979; Kohler, 1982; Joseph and others, 1987; and Cole, 1987). All of the original Sectors and their identification letters are used in this report. Most of the Sectors were subsequently designated by the Board as being regionally significant. Those Sectors that have areas that have since become unavailable for mining are shown on Plates 4 through 9 - Maps Showing Designated Areas Urbanized.

In addition to those areas designated, two areas containing significant deposits of PCC-grade aggregate have been identified since. The Fish Canyon Quarry area, in the San Gabriel Valley P-C Region, was reclassified by petition in 1988 (Miller) and is shown on Plate 2 of this report - Revised Mineral Land Classification Map of the Azusa Quadrangle. The Mescal Creek Fan area, in the Palmdale P-C Region, was reclassified during this study and is shown on Plate 3 of this report - Revised Mineral Land Classification Map of the Mescal Creek Quadrangle.

For purposes of identification of available aggregate resources, incompatible uses of land are defined as improvements of high cost, such as high-density residential developments, intensive industrial developments, commercial developments, and major public facilities. In addition, lands for which the lead agency has approved a tract map or issued an approved Specific Plan are treated as having uses that are incompatible with mining. Lands that have compatible uses are defined as those that are nonurbanized or that have very low density residential

development (1 unit per 10 acres), lands that do not have high-cost improvements, and lands used for agriculture, silviculture, grazing, or open space.

For this report, determination of use of lands classified as MRZ-2 for PCC-grade aggregate was based upon conditions of the lands at the time of the study (as of January, 1994). The use of the lands was determined after review of data from lead agencies, reference to aerial photographs and photo-revised topographic maps, and field reconnaissance.

The calculated reserves and resources of aggregate in a region are compared with the State Geologist's forecast of the 50-year needs of that region. The comparison of regional needs with available reserves and resources provides the opportunity to focus attention on the mineral resource issues confronting the region, such as the need to plan carefully for the use of any lands containing mineral resources, and the need to consider the permitting of additional mining operations in the region as currently mined deposits are depleted.

It is possible there are less available aggregate resources than calculated for this report. There may be political constraints and other considerations confronting local government in making aggregate resources available for extraction that are not accounted for. Considering this, it becomes important for local governments to carefully review the estimated resources.

Calculation of Available Resources

Reserves and Resources

In this report, reserves are calculations of tonnages of aggregate that have been determined to be acceptable for commercial use, that exist within properties owned or leased by aggregate producing companies, and for which permits have been granted to allow mining and processing of the material. Permits may be required by agencies other than the county, as is the case in rivers where a permit may also be required by the Army Corps of Engineers. Resources include reserves as well as all potentially usable aggregate materials that may be mined in the future, but for which no permit allowing mining has been granted, or for which marketability has not been established.

Factors Considered in Calculations

The resource calculations given here are for those PCC-grade aggregate resources in the Sectors designated by the Board (California Department of Conservation, 1981, 1984, 1987a, and

1987b) with the addition of reserves on the reclassified Fish Canyon Quarry property and the resources in the Mescal Creek fan. The changes in the areas available for mining, as identified in this study, are shown on Plates 4-9 of this report - Maps Showing Designated Areas Urbanized.

The factors used in this study to determine the areal extent and tonnage of PCC-grade aggregate resources remaining within the Sectors were the same as those used in Special Report 143, Parts II, IV, V, and VI (Anderson and others, 1979; Kohler, 1982; Joseph and others, 1987; and Cole, 1987). They were as follows:

1. Resource tonnage calculations were based on measurements taken from base maps that have a scale of 1:24,000 or maps obtained from aggregate companies with varying scales.

2. Even in proven PCC-grade aggregate deposits, a small percentage of the aggregate cannot be used in concrete and is considered as "waste." Waste includes pit-run and production waste, both of which may be utilized in non-PCC uses, primarily fill. Known waste percentages were extrapolated to deposits in untested areas from proven, nearby PCC-grade aggregate deposits.

3. Thicknesses of PCC-grade aggregate deposits were determined in the original reports through analysis of water well-log data, examination of active aggregate pits and natural outcrops, and other information provided by persons who have knowledge concerning aggregate deposits in this region.

4. A standard setback of 100 feet from utility and rail lines and urban developments was used in determining the limits of areas available for mining, unless otherwise stipulated on individual mining plans.

5. Side slopes were generally calculated to have a 1:1 gradient, or, if the deposit was permitted for mining, the side slopes of the mining plan.

6. In-place densities of 0.057 to 0.065 tons per cubic foot were assumed in calculating sand and gravel resources and densities of 0.080 to 0.084 tons per cubic foot were assumed in calculating crushed stone resources.

Resource Sectors

All lands in Los Angeles County that were identified in the four original classification reports (Anderson and others, 1979;

Kohler, 1982; Joseph and others, 1987; and Cole, 1987) as containing extractable PCC-grade aggregate deposits were divided into 19 Sectors and designated by the Board. A brief description of the Sectors is given below by P-C region.

San Fernando Valley P-C Region:

- Sector A - Nonurbanized areas of Tujunga Wash east of Hansen Dam.
- Sector B - Alluvial area behind Hansen Dam.
- Sector C - Nonurbanized alluvial areas southwest of Hansen Dam.
- Sector D - Alluvial area of Pacoima Wash upstream of Lopez Dam.

San Gabriel Valley P-C Region:

- Sector A - Nonurbanized areas of northern San Gabriel Wash outside of the Santa Fe Dam Recreation Area.
- Sector B - Santa Fe Dam Recreation Area in northern San Gabriel Wash.
- Sector C - Alluvial areas in the Santa Fe Flood Control Basin and Spillway.
- Sector D - Isolated nonurbanized alluvial areas west and southwest of Santa Fe Dam.
- Sector E - Alluvial areas east and southeast of the Santa Fe Flood Control Basin.
- Sector F - Alluvial channel of Eaton Wash.
- Sector H - Alluvial area of Arroyo Seco in the Devils Gate Reservoir area.
- Sector I - A small nonurbanized area underlain by San Pedro Sandstone on the northeastern flank of the Palos Verdes Hills.

Saugus-Newhall P-C Region:

- Sector A - Nonurbanized areas of the Santa Clara River floodplain.
- Sector B - A conglomeratic unit in the Mint Canyon Formation east of Lang Station, and a sandy unit in the Mint Canyon Formation south of Lang Station.
- Sector C - About 6 square miles underlain by Precambrian anorthosite-gabbro in the western San Gabriel Mountains.

Palmdale P-C Region:

- Sector D - Nonurbanized areas of the Little Rock Creek alluvial fan.
- Sector E - Nonurbanized areas of the Big Rock Creek alluvial fan.

Claremont-Upland P-C Region:

- Sector A - Alluvial area in San Antonio Canyon behind San Antonio Reservoir (a small part of Sector A is in Los Angeles County).

Sector B - Nonurbanized areas of the San Antonio alluvial fan (only the western part of the Sector is within Los Angeles County).

Since the classification and designation of these P-C regions, two additional areas have been identified as containing significant PCC-grade aggregate resources:

San Gabriel Valley P-C Region:
Fish Canyon Quarry - Hard rock quarry at the southern base of the San Gabriel Mountains in the City of Azusa.

Palmdale P-C Region:
Mescal Creek Fan Aggregate Resource Area - Alluvial fan at the northern base of the San Gabriel Mountains, about 9 miles east of the community of Llano.

Aggregate Resources in the San Fernando Valley P-C Region

Since the mineral land designation of PCC-grade aggregate resources in the San Fernando Valley P-C Region in 1981, about 24 percent of the identified unpermitted aggregate resources have been urbanized or have regulations that preclude mining. Also, the resources have been reduced by changes in classification definitions. About 1 percent of the unpermitted resources have been permitting for mining. The reduction of unpermitted aggregate resources in this region has totaled about 232 million tons, or about 47 percent of the 492 million tons available in 1981. This leaves about 260 million tons of unpermitted resources available.

Designated Areas Urbanized

About 2 percent of the unpermitted aggregate resources in designated areas are no longer available due to land-use changes that preclude mining. Most of the area lost to urbanization was due to the construction of the 210 Freeway across Tujunga Wash. The aggregate resources no longer available due to these changes in land use, total approximately 9 million tons.

Designated Areas with Limiting Regulations

Due to County regulations in the Hansen Dam area, another 22 percent of the unpermitted aggregate resources are no longer available for mining. To protect wildlife and other resources behind Hansen Dam, areas were set aside in which excavation is not allowed. About 110 million tons of aggregate resources are in these areas.

Aggregate Resource Reduction Due to Changes in Classification Definitions

In the original mineral land classification of the San Fernando Valley P-C Region, some parts of roadways, golf courses, pipelines, and Hansen Dam were included in Sectors. These areas have been excluded in this update report. The aggregate resources subtracted by this reclassification amount to about 109 million tons, or 22 percent of the total unpermitted resources measured in the original study.

Resources Permitted for Mining

About 1 percent, or 5 million tons, of the unpermitted aggregate resources have been permitted for mining during the previous decade.

Aggregate Resources in the San Gabriel Valley P-C Region

Since the mineral land designation of PCC-grade aggregate resources in the San Gabriel Valley P-C Region in 1984, the reduction of unpermitted aggregate resources has totaled about 383 million tons, or about 19 percent of the 2,028 million tons that were designated in 1984. About 9 percent of the identified unpermitted aggregate resources have been urbanization. Also, changes in classification definitions, and permitting for mining have reduced the total by 2½ percent. New PCC-grade aggregate resources, outside of the designated area, were added by reclassification of the Fish Canyon Quarry to MRZ-2 (Plate 2, Revised Mineral Land Classification Map of the Azusa Quadrangle). This quarry, which opened in 1946, had not previously produced PCC aggregate. Testing of the deposit indicated that some of the material would meet the standards for PCC aggregate, and the area was reclassified by petition in 1988. The amount of resources at the Fish Canyon Quarry are confidential. Table 4 lists the PCC-grade aggregate resources available in the San Gabriel Valley P-C Region.

Designated Areas Urbanized

About 9 percent of the unpermitted aggregate resources in designated areas are no longer available due to land-use changes that precluded mining. Most of the land-use changes that removed aggregate resources from availability were landfilling and industrial development. The one exception was Ecanto Park which was established by the City of Duarte in 1991. The aggregate resources no longer available due to these changes in land use is approximately 182 million tons.

Aggregate Resource Reduction Due to Changes in Classification Definitions

In the original mineral land classification of the San Gabriel Valley P-C Region, the channel on the northwestern side of the Santa Fe Spillway Channel was included in Sector C. This area has been excluded in this report. The reduction of aggregate resources by this reclassification amount to about 50 million tons, or 2½ percent of the total unpermitted resources measured in the original study.

Resources Permitted for Mining

About 6 percent, or 125 million tons, of the unpermitted aggregate resources have been permitted for mining during the previous decade. Most of the unpermitted resources in designated areas were converted to reserves by allowing deeper mining in existing permitted pits. A small amount of the added reserves was on newly permitted ground.

Aggregate Resources in the Saugus-Newhall P-C Region

Since the mineral land designation of PCC-grade aggregate resources in the Saugus-Newhall P-C Region in 1986, about 1.4 percent of the identified unpermitted aggregate resources have been urbanized. A small amount of unpermitted resources have been permitted. However, 278 million tons of reserves that were permitted in 1986 are no longer permitted. The reduction of unpermitted aggregate resources in this region has totaled about 118 million tons, or about 1.6 percent of the 7,279 million tons that were designated in 1986. However, 278 million tons of previously permitted aggregate resources are no longer permitted, bringing the total of unpermitted resources to 7,439 million tons. Table 4 lists the PCC-grade aggregate resources available in the Saugus-Newhall P-C Region.

Designated Areas Urbanized

Most of the land-use changes that removed aggregate resources from availability were industrial and residential development. The aggregate resources no longer available due to these changes in land use are approximately 105 million tons.

Resources Permitted for Mining

Less than 1 percent of the unpermitted aggregate resources have been permitted for mining during the previous decade. This was on previously unpermitted land in Sector B. The exact amount

of resources permitted is proprietary information and cannot be disclosed.

Aggregate Resources in the Palmdale P-C Region

Since the mineral land designation of PCC-grade aggregate resources in the Palmdale P-C Region in 1986, about 67 million tons of the identified unpermitted aggregate resources have been made unavailable due to urbanization. About 158 million tons of aggregate resources have been since permitted for mining. The City of Palmdale has zoned a large part of designated lands of Sector D - the Little Rock Fan - for urban development. If this area is urbanized, the resources would be reduced by a further 318 million tons, or 16 percent. A new area is classified MRZ-2 in this report - the Mescal Creek fan deposit (Plate 3, Revised Mineral Land Classification Map of the Mescal Creek Quadrangle) - which has added about 265 million tons of aggregate resources. Table 4 lists the PCC-grade aggregate resources available in the Palmdale P-C Region.

Designated Areas Urbanized

About 3 percent, or 67 million tons, of the unpermitted aggregate resources in designated areas are no longer available due to land-use changes that precluded mining. The land-use change that removed aggregate resources from availability was predominantly residential development in the western part of Sector D-2. When the western part of Sector D, zoned for residential development by the City of Palmdale is urbanized, an additional 318 million tons will be unavailable for mining.

Resources Permitted for Mining

About 8 percent, or 158 million tons, of the unpermitted aggregate resources have been permitted for mining since the designation of the region. This was on previously unpermitted lands in Sectors D-2, D-3, and D-4.

Newly Identified Aggregate Resource Area - Mescal Creek Fan

The Mescal Creek fan is reclassified from MRZ-3 to MRZ-2 for portland cement concrete aggregate resources (Plate 3, Revised Mineral Land Classification Map of the Mescal Creek Quadrangle). This newly identified Aggregate Resource Area covers a little over 3 square miles of the Mescal Creek alluvial fan, which is located about 27 miles east of Palmdale. The Holocene fanglomerate of the older fan deposits and the alluvium of the active channel were derived from the San Gabriel Mountains to the

south. The deposit has been drilled and tested by the New Owl Rock Products Company and found to be suitable for use as PCC aggregate. Aggregate is not currently being mined from this deposit.

It is estimated that the deposit is at least 60 feet deep in both the fan and the active wash. Assuming a density factor of 0.065 tons per cubic foot and 20 percent waste, a total resource of 265 million tons is calculated for this Aggregate Resource Area. The density and waste factors are the same as those recorded for the Little Rock Creek fan and Big Rock Creek fan deposits.

Aggregate Resources in the Claremont-Upland P-C Region

Only about 20 percent of the designated aggregate resources in the Claremont-Upland P-C region are within Los Angeles County; the remainder is within San Bernardino County. Of the unpermitted aggregate resources within Los Angeles County, about 41 percent are no longer available due to residential development since designation of the region in 1986. This is a total of about 46 million tons.

Summary of Aggregate Resources in Los Angeles County

Table 3 is a summary of the reductions of available unpermitted PCC-grade aggregate resources in Los Angeles County, by P-C region. About 6 percent of the total available unpermitted resources have been urbanized and about 1 percent are unavailable due to regulation changes. The total of newly permitted resources has about equalled the amount of resources that are no longer permitted. Subtracting the resources that have been excluded because of changes in classification criteria, the net change in the unpermitted resources available in Los Angeles County is a reduction of 9 percent, or about 1 billion tons. However, the newly reclassified Mescal Creek fan deposit has added about 0.3 billion tons, making the net loss about 0.7 billion tons.

In the original series of designation reports released by the California Department of Conservation from 1981-1986, it was reported there was a total of 830 million tons of permitted PCC-grade aggregate reserves in all of the four P-C regions with production districts in Los Angeles County. The distribution of those reserves in 1981-1986 showed the San Fernando Valley P-C Region with 45 million tons, the San Gabriel Valley P-C Region with 275 million tons, and the Saugus-Newhall and Palmdale P-C Regions, combined, with 510 million tons.

This study found that, as of January, 1993, there were approximately 750 million tons (rounded to the nearest 50 million tons) of permitted PCC-grade aggregate reserves in those four regions - about 80 million tons, or 10 percent, less than the total reported from 1981 to 1986. About 402 million tons of aggregate have been mined since the original classification studies and about 326 million tons have been newly permitted. The differences in reserves, by P-C region are: the San Fernando Valley P-C Region has about the same reserves as it did in 1979 (giving the exact figure would reveal confidential data); the San Gabriel Valley P-C Region, in 1993, has 334 million tons, or 59 million tons more than in 1980; and the Saugus-Newhall and Palmdale P-C Regions have a combined total of 365 million tons, or 145 million tons less than they did in 1982 (the Saugus-Newhall P-C Region has 158 million tons, which is a substantial decrease, and the Palmdale P-C Region has 207 million tons, which is an increase).

Recycled Aggregate

Recycled construction and demolition waste material has become a significant source of aggregate base material in Los Angeles County. It is estimated that as much as 25 percent of the construction aggregate sold in the greater Los Angeles area is produced from recycled material (personal communications with aggregate operators). Recycled material cannot now be used to make concrete aggregate; its use is limited to base aggregate. Although this report deals only with resources of portland cement concrete aggregate, historically, PCC-grade aggregate resources have been used for base material in southern California. This is because there have been large, high quality aggregate deposits available for mining in most areas. It has been economic to mine these deposits not only for PCC aggregate, but also for all other grades of aggregate, including base material. Now that recycled material is supplying a significant amount of base material in Los Angeles County, a higher percentage of the aggregate mined from the virgin aggregate deposits will be used for PCC aggregate. This will extend the life of the PCC-grade aggregate resources in Los Angeles County.

DESIGNATED SECTOR	UNPERMITTED RESOURCES IN ORIGINAL REPORT	RESOURCES LOST TO URBANIZATION	RESOURCES LOST TO REGULATION	RESOURCE REDUCTION DUE TO CLASSIFICATION CRITERIA CHANGE	RESOURCES PERMITTED (OR LOSS OF PERMIT) SINCE FIRST REPORT	UNPERMITTED RESOURCES IN 1993
San Fernando Valley P-C Region						
A	150	9(1)	14(8)	7(9)	?	120
B	240	0	96(8)	92(9)	?	52
C	95	0	0	10(9)	5	80
D	7	0	0	0	0	7
San Gabriel Valley P-C Region						
A	280	0	0	0	0	280
B	200	48(2)	0	0	0	152
C	602	0	0	51(9)	0	551
D	533	72(3)	0	0	125	336
E	360	63(3)	0	0	25	272
F	4	0	0	0	0	4
H	35	0	0	0	0	35
I	15	0	0	0	0	15
Saugus-Newhall P-C Region						
A	747	105(4)	0	0	0	642
B	1,284	0	0	0	(265)	1,549
C	5,248	0	0	0	0	5,248
Palmdale P-C Region						
D	886	379(5)	0	0	158	349
E	1,161	6(6)	0	0	0	1,155
Claremont-Upland P-C Region (Los Angeles County part only)						
A	14	0	0	0	0	14
B	99	46(7)	0	0	0	53
TOTALS	11,960	728	110	160	48	10,914
% of 1981 Total		6%	1%	1%	<1%	91%

Table 3. Unpermitted PCC-grade aggregate resources lost or reduced in designated areas in Los Angeles County. Figures are given in millions of tons. (Footnotes are on next page).

Table 3. continued

(1) Freeway construction.
(2) Park.
(3) Industrial development and landfill.
(4) Housing and industrial development.
(5) 61 million tons lost to housing development; 318 million tons lost to zoning of large area for residential development.
(6) Power line construction.
(7) Housing development.
(8) Area behind Hansen Dam in which no excavation is allowed.
(9) Some urban development, such as power lines and flood control channels, were included in original Sector.

Table 4. PCC-grade aggregate resources in Los Angeles County in 1994, listed by Production-Consumption Region. All figures are in millions of tons.

Production-Consumption Region	Unpermitted PCC-Grade Aggregate Resources	PCC-Grade Aggregate Reserves
San Fernando Valley	259	**
San Gabriel Valley	1,645	334
Saugus-Newhall	7,439	158
Palmdale	*1,769	207
Claremont-Upland	67	0
TOTALS for Los Angeles County	11,179	+750

* Does not include that part of the designated area zoned by the City of Palmdale for residential development. Includes the newly classified Mescal Creek fan deposit.

** Not shown to protect confidential information.

\+ Rounded to nearest 50 million tons to protect confidential data.

PART II - ESTIMATED 50-YEAR CONSUMPTION OF AGGREGATE IN LOS ANGELES COUNTY

Basis of 50-Year Forecast

The Board, as specified in its guidelines for classification and designation of mineral land (California State Mining and Geology Board, 1983, p. 23) requires that mineral land classification reports for regions containing construction materials classified as MRZ-2 include "An estimate of the total quantity of each such construction material that will be needed to supply the requirements of both the county and the marketing region in which it occurs for the next 50 years. The marketing region is defined as the area within which such material is usually mined and marketed. The amount of each construction material mineral resource needed for the next 50 years shall be projected using past consumption rates adjusted for anticipated changes in market conditions and mining technology."

A 50-year forecast of PCC-grade aggregate demand for Los Angeles County was made on the basis of reported aggregate production and population data for the years 1960-1992. Past studies have shown a correlation between population and aggregate consumption in regions of southern California (Anderson and others, 1979). An analysis of the correlation between the annual population and aggregate production of Los Angeles County from 1960 to 1992 showed a moderate but definite correlation. To estimate the future consumption of aggregate, an average per-capita consumption figure of 3.4 tons per year was derived from population and production records from 1960 to 1992.

Parts of Los Angeles County are assumed, from earlier classification reports, to be supplied by aggregate production districts outside the county. The amount of aggregate estimated to be supplied from outside of the county is about 9 percent of the total. The Simi Valley production district supplies about 2 percent to an area in the western part of the county; the Orange County and Temescal Valley production districts supply about 4 percent to an area in the southeastern part of the county; and the San Antonio Fan production district supplies about 3 percent of the aggregate to an area in the eastern part of the county. No PCC-grade aggregate is exported from Los Angeles County. The imported consumption is excluded from the projection of future aggregate demands on production districts in the county.

AGGREGATE PRODUCTION IN LOS ANGELES COUNTY

At the time of this study, the following 13 companies had permitted mining operations producing PCC-grade aggregate in Los Angeles County:

Antelope Valley Aggregates, Inc.
Arrow Sand and Gravel Company (subsidiary of New Owl Rock Products, Inc.)
Azusa Rock, Inc.
CalMat Company
Channel and Basin Reclamation Company
Curtis Sand and Gravel Company
Granite Construction Company
Hi-Grade Materials Company
Livingston-Graham, A Beazer West, Inc. Company
P.W. Gillibrand Company
SLS&N, Inc.
State Sand and Gravel Company
Transit Mixed Concrete Company, A Division of Southdown
United Rock Products, Inc.

Antelope Valley Aggregates, Inc., located in the Palmdale production district (also called the Little Rock Creek fan production district) has been in continuous operation since purchasing the plant in 1962. The Arrow Sand and Gravel Company has produced aggregate on the Little Rock Creek fan since before 1960. The company was bought by Owl Rock Products, Inc. in 1988.

Azusa Rock, Inc. operates the Fish Canyon Quarry in the San Gabriel Valley production district. This property was not classified as a source of PCC-grade aggregate in the original report, but was subsequently classified MRZ-2 for PCC aggregate in 1988 in response to a petition (Miller, 1988). The quarry opened in about 1946, but only recently began producing PCC aggregate. This deposit also supplies the New Owl Rock Products Company Azusa Plant with aggregate.

CalMat Company owns and operates six active or permitted sand and gravel pits in Los Angeles County. Two of the operations are in the San Fernando Valley production district, the CalMat Boulevard pit, and the CalMat Sun Valley or Sheldon pit. The Boulevard pit is not presently in operation, but has produced aggregate intermittently since about 1970. The CalMat Sun Valley pit was first mined by the Tujunga Rock Company in 1909. In 1929, the operation became part of Consolidated Rock Company which changed its name to Conrock Company and finally to CalMat Company. The CalMat, Durbin and Reliance pits are in the San Gabriel Valley production district. The Durbin pit has been in operation since 1965. However, there was earlier production at this site from 1923 to 1931 under several other operators. The Reliance pit was acquired by the company in 1929 and has been in production since. The CalMat Palmdale plant is in the Palmdale production district, next to Antelope Valley Aggregates, Inc. Production began here before 1955 by Terminal Rock Company.

CalMat bought the plant in 1970. CalMAt also owns the Sweetwater Aggregates Company operation in the Saugus-Newhall production district. This operation was in production from 1990 to 1992.

Channel and Basin Reclamation Company has excavated aggregate material in the San Fernando Valley production district in an area behind Hansen Dam since 1984. Curtis Sand and Gravel Company produces aggregate material from an in-stream mining operation in the Santa Clara River in the Saugus-Newhall production district. Curtis took over this property in 1970 from the A.A. Shirley Ready Mix Concrete Company which had mined it since the 1950s.

Granite Construction Company began mining at their Littlerock pit, in the Palmdale production district in 1988. The Hi-Grade Materials, Inc. began aggregate production a year earlier on the property immediately to the west that had been previously mined by the Blue Diamond Materials Company.

The Livingston-Graham, Inc. El Monte pit began aggregate production in the San Gabriel production district in 1908. The present plant was built in 1967. Livingston-Graham is now owned by Beazer, USA.

P.W. Gillibrand Company began production at its Soledad operation in the Saugus-Newhall production district in 1968. The company produces both crushed rock from the Anorthosite-Gabbro complex and sand and gravel from the Mint Canyon Formation.

SLS&N, Inc. mines small amounts of aggregate from part of the property previously operated by Blue Diamond Materials Company as their Sierra pit.

State Sand and Gravel Company's Palmdale operation in the Palmdale production district on the Little Rock Creek fan began production in 1988 on newly permitted property.

Aggregate production has been continuous on the Transit Mixed Concrete Company property in the San Gabriel Valley production district since the 1920s. Recently the company was bought by Southdown, Inc. United Rock Products, Inc. has four nearly adjacent properties in the San Gabriel Valley production district. At present, only one is being mined for aggregate - pit #2, west of Buena Vista Avenue. The three United Rock Product, Inc. pits adjacent to Arrow Highway used to be operated by Blue Diamond Materials Company as their Irwindale property. The fourth pit, north of Van Meter Street, used to be the Livingston-Graham Company Duarte Pit.

Several changes of ownership and closures of PCC aggregate mines have occurred since the original mineral land classification reports were written. In the Tujunga Fan production district, in the San Fernando Valley P-C Region, two pits have ceased production - the CalMat Company's Cal-Mat pit on the north corner of Glenoaks Boulevard and Peoria Street and the

Livingston-Graham Company's Sun Valley Pit between San Fernando Road and Glenoaks Boulevard. The latter is being used as a landfill.

In the San Gabriel Fan production district in the San Gabriel Valley P-C Region, the Owl Rock Products Azusa pit, located on the southeastern side of the San Gabriel River north of Freeway 210, is shut down and the plant is receiving aggregate from the Azusa Rock Company's Fish Canyon Quarry. Blue Diamond Materials Company stopped operations at its Sierra pit on the southeastern corner of Live Oak Avenue and Peck Road. The deposit is being mined on a small scale by SLS&N, Inc. The Rodeffer pit, west of the San Gabriel River and just north of Lower Azusa Road was mined for a short time between 1981 and 1993.

In the Saugus-Newhall P-C Region (the Upper Santa Clara River production district) the large reserve of PCC-grade aggregate on what was the Curtis Construction Company, Soledad property is no longer permitted.

At the times of the original classification studies, first released from 1979 to 1984, there were ten companies producing PCC aggregate from 19 mines in Los Angeles County - four in the San Fernando production district, nine in the San Gabriel Valley production district, three in the Saugus-Newhall production district, and three in the Palmdale production district on the Little Rock Creek alluvial fan. The total aggregate reserves of the ten companies were 830 million tons.

At present, 13 mining companies operate 16 active aggregate pits - two in the Tujunga Fan production district (San Fernando P-C Region), seven in the San Gabriel Fan production district (San Gabriel Valley P-C Region), two in the Upper Santa Clara River production district (Saugus-Newhall P-C Region), and six in the Little Rock Creek Fan production district (Palmdale P-C Region). In January of 1994, the aggregate reserves of the six operating companies totalled about 750 million tons.

The historical aggregate production data for Los Angeles County were obtained from mining records of the U.S. Department of the Interior, Bureau of Mines and the aggregate companies. The U.S. Bureau of Mines records are compiled from responses to voluntary questionnaires that are sent annually or biennially to all known mining operators. Each producer is requested to divulge the production from each of his producing properties for the preceding year. The accuracy of these figures depends on the producer's response. From information supplied by the mine operators, DMG staff checked current and past production where possible, and modified the U.S. Bureau of Mines data accordingly.

As shown on Table 5, aggregate production in Los Angeles County has increased from less than 10 million tons per year in the early 1960s to over 20 million tons per year in most of the 1980s and 1990s. The annual variations in production result from

changes in urban growth, large construction projects such as freeways, and changes in the economy.

POPULATION PROJECTION FOR LOS ANGELES COUNTY

The population projections for Los Angeles County were estimated from official projections published by the State of California in May 1993 (California Department of Finance). The projections are for the years 2000, 2010, 2020, 2030, and 2040. The interim years were estimated by equally dividing the difference between the decade projections into ten increments. The years 2041 through 2044 were estimated by adding the same yearly increments as were used between the years 2030 and 2040. Subtracted from these population totals were the population estimates for areas of Los Angeles County served by aggregate production districts outside the county - a western area served by the Simi production district, an eastern area served by the Claremont-Upland production district, and a southeastern area served by the Orange County-Temescal Valley production district. To calculate the population of these areas and the four P-C regions within Los Angeles County, the change in percentage of the county total of each area was calculated between the years 1980 and 1990 and carried forward. For instance, the population of the San Fernando Valley P-C Region in 1980 was 2,795,443, which was 37.4 percent of the county total, and in 1990 the population of the region was 3,222,838, which was 36.2 percent of the county total. The difference in the two percentages (-1.2 percent) was carried forward to the years 2000 (35.0 percent), 2010 (33.8 percent), 2020 (32.6 percent), 2030 (31.4 percent), and 2040 (30.2 percent). The population of the San Fernando P-C Region was then derived for each of those years by multiplying the county total by the respective percentage. For the year 2000, the projected county population of 10,180,868 was multiplied by 35.0 percent, giving a population for the San Fernando P-C Region of 3,563,304.

CORRELATION BETWEEN AGGREGATE PRODUCTION AND POPULATION

Although there are many factors that control to some degree, the yearly demand for aggregate in any region, the single factor of population was selected to keep the basis for the forecast as simple as possible. Past studies of marketing areas in California have demonstrated a correlation between the amount of aggregate consumed and the population in the market area over an extended period of time (Anderson and others, 1979). To check the correlation between population and aggregate consumption in Los Angeles County, linear regression analyses were performed on population and production data from 1960 to 1992 for the populations of the four P-C regions within the county and their combined production. The correlation coefficient between population and aggregate production in Los Angeles County was calculated to be $r = .83$. If the correlation between the two were perfect, r would equal 1, and if there were no correlation

Table 5. Aggregate production in Los Angeles County for the years 1960 to 1992. Figures are rounded to nearest 1,000 tons.

YEAR	AGGREGATE PRODUCTION (tons)	YEAR	AGGREGATE PRODUCTION (tons)
1960	5,799,000	1977	20,063,000
1961	7,531,000	1978	21,235,000
1962	9,937,000	1979	24,133,000
1963	10,482,000	1980	23,269,000
1964	11,282,000	1981	21,991,000
1965	11,471,000	1982	17,184,000
1966	17,633,000	1983	21,684,000
1967	16,089,000	1984	24,902,000
1968	18,323,000	1985	29,298,000
1969	18,682,000	1986	35,559,000
1970	17,402,000	1987	37,680,000
1971	15,923,000	1988	40,679,000
1972	17,234,000	1989	40,330,000
1973	23,832,000	1990	38,056,000
1974	19,668,000	1991	25,549,000
1975	19,370,000	1992	24,404,000
1976	18,468,000		

Table 6. Per-capita consumption rates of aggregate for production-consumption regions in Los Angeles County from Special Report 143, Parts II, IV, and V compared with consumption rates since.

Production-Consumption Region	Annual Per-Capita Consumption Projection in Original Reports for Years 1980-1992	Annual Per-Capita Consumption Recorded for Years 1980-1992
San Fernando Valley	1.6 tons	2.4 tons
San Gabriel Valley	4.2 tons	4.0 tons
Saugus-Newhall	10.0 tons	9.9 tons
Palmdale	12.2 tons	12.7 tons
*Averages for total population	3.4 tons	3.6 tons

* These averages are calculated for the total annual populations of the four production-consumption regions, and not by averaging the four figures on the list.

between them, r would equal 0. It can be roughly estimated what percent of the variation in annual production can be accounted for by the annual population by multiplying r-squared by 100. The result - 69 percent - can be interpreted as meaning that about two-thirds of the variation in annual aggregate production can be attributed to change in population, which, for the past 3 decades, has been generally increasing. It is also obvious, from the graph of aggregate production since 1960, that the economy has had a definite influence on aggregate production. The results of the recessions of the early 1980s and 1990s can be seen as dips in aggregate production on the graph. But, to keep the basis for the aggregate demand projection simple, no attempt was made to account for future economic conditions or other factors, such as public construction projects, which can randomly add large amounts of aggregate to consumption.

The average annual per-capita consumption rate of aggregate for Los Angeles County, from 1960 to 1992 was 3.1 tons. However, the rate of consumption during the early 1960s was much lower than the following years. This may be due to incomplete production records. But, it is clear from Figure 3 and Table 7 that the consumption rate of the early 1960s is incongruous with consumption rates since. Therefore, data for the years 1960 to 1965 were excluded from the estimation of an average per-capita consumption figure to be used in projecting future aggregate demand. That figure, from Table 6, is 3.4 tons per person per year. This per-capita consumption rate was used to calculate the projected aggregate demand for the next 50 years for Los Angeles County.

Figure 3. Los Angeles County aggregate production, 1960 to 1992.

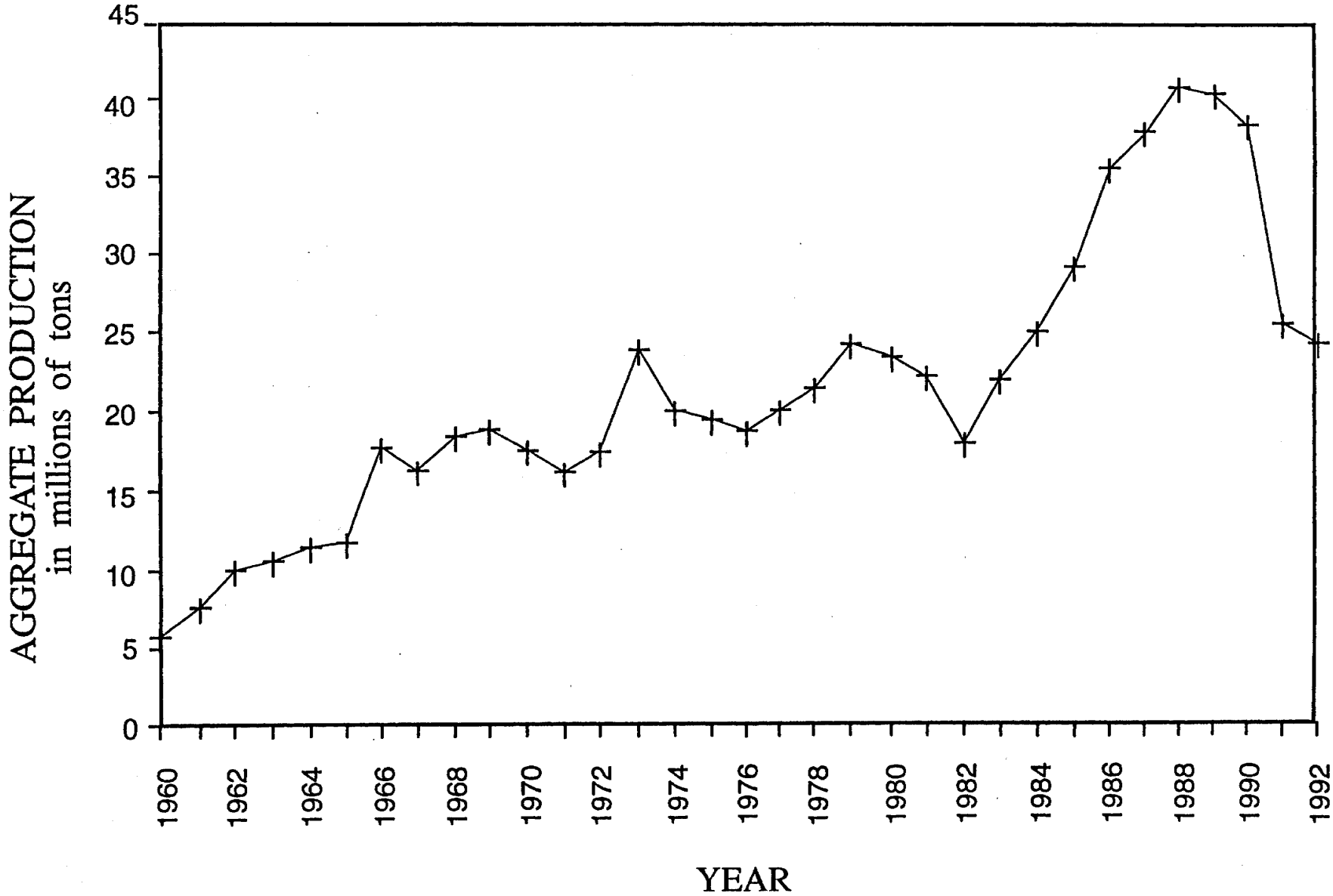


Table 7. Population, aggregate production, and per-capita consumption in Los Angeles County, during the years 1960 to 1992.

YEAR	POPULATION OF LOS ANGELES COUNTY	POPULATION SERVED BY LOS ANGELES COUNTY PRODUCTION	LOS ANGELES COUNTY AGGREGATE PRODUCTION (tons)	ANNUAL PER-CAPITA CONSUMPTION (tons)
1960	6,080,000	5,532,800	5,799,000	1.0
1961	6,207,000	5,648,370	7,531,000	1.3
1962	6,337,000	5,766,670	9,937,000	1.7
1963	6,469,000	5,886,790	10,482,000	1.8
1964	6,604,000	6,009,640	11,282,000	1.9
1965	6,723,000	6,117,930	11,471,000	1.9
1966	6,814,000	6,200,740	17,633,000	2.8
1967	6,880,000	6,260,800	16,089,000	2.6
1968	6,941,000	6,316,310	18,323,000	2.9
1969	7,001,000	6,370,910	18,682,000	2.9
1970	7,045,000	6,410,950	17,402,000	2.7
1971	7,045,000	6,410,950	15,923,000	2.5
1972	6,998,000	6,368,180	17,234,000	2.7
1973	7,013,000	6,381,830	23,832,000	3.7
1974	7,000,700	6,370,637	19,668,000	3.1
1975	6,992,300	6,362,993	19,370,000	3.0
1976	7,018,600	6,386,926	18,468,000	2.9
1977	7,060,700	6,425,237	20,063,000	3.1
1978	7,083,431	6,445,922	21,235,000	3.3
1979	7,146,500	6,503,315	24,133,000	3.7
1980	7,477,421	6,804,453	23,269,000	3.4
1981	7,563,372	6,882,669	21,991,000	3.2
1982	7,649,323	6,960,884	17,184,000	2.5
1983	7,735,274	7,039,099	21,684,000	3.1
1984	7,821,225	7,117,315	24,902,000	3.5
1985	7,911,149	7,199,146	29,298,000	4.1

Table continued on next page

Table 7. continued

YEAR	POPULATION OF LOS ANGELES COUNTY	POPULATION SERVED BY LOS ANGELES COUNTY PRODUCTION	LOS ANGELES COUNTY AGGREGATE PRODUCTION (tons)	ANNUAL PER-CAPITA CONSUMPTION (tons)
1986	8,134,861	7,402,724	35,559,000	4.8
1987	8,265,060	7,521,205	37,680,000	5.0
1988	8,480,647	7,717,389	40,679,000	5.3
1989	8,608,264	7,833,520	40,330,000	5.2
1990	8,863,064	8,065,388	38,056,000	4.7
1991	9,030,750	8,217,983	25,549,000	3.1
1992	9,144,050	8,321,086	24,404,000	2.9
Average per-capita consumption - 1960 to 1992				3.1
Average per-capita consumption - 1966 to 1992				3.4

PROJECTED AGGREGATE DEMAND FOR LOS ANGELES COUNTY THROUGH THE YEAR 2044

The simple analysis of the historical aggregate production explained in the preceding section was used to forecast the aggregate demand in Los Angeles County through the year 2044 (Table 8 and Figure 4). An annual per-capita consumption rate of 3.4 tons was multiplied times the annual projected population, derived from figures published by the California Department of Finance (1993). The portland cement concrete aggregate demand through the year 2044 is based on PCC aggregate consumption in 6 years from 1978 through 1992. For Los Angeles County, the PCC aggregate demand is estimated to be 55 percent of the total aggregate consumption.

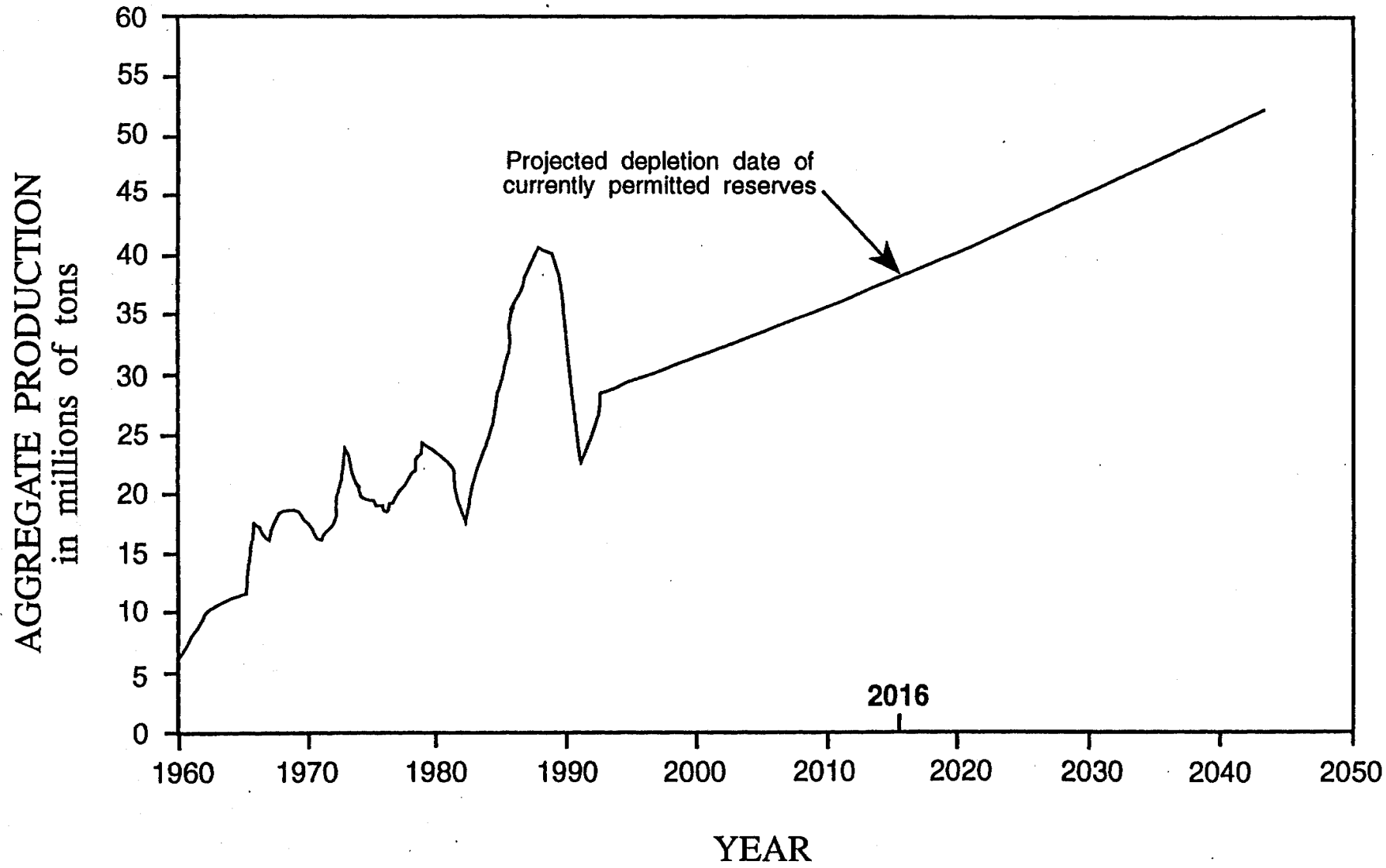
The results of these projections show that an estimated 2 billion tons of aggregate will be needed to satisfy the future demand through the year 2044 in the area supplied by aggregate produced in Los Angeles County. Of this total, 55 percent, or 1.1 billion tons must be of PCC grade.

Table 8. Projected aggregate demand through the year 2044 for Los Angeles County. (All tonnage figures rounded to nearest 100,000).

YEARS	PROJECTED DEMAND FOR ALL AGGREGATE (tons)	*PROJECTED CONSUMPTION OF PCC AGGREGATE (tons)
1995-1999	151,400,000	83,300,000
2000-2004	161,200,000	88,700,000
2005-2009	171,000,000	94,100,000
2010-2014	181,400,000	99,800,000
2015-2019	192,800,000	106,000,000
2020-2024	204,700,000	112,600,000
2025-2029	217,500,000	119,600,000
2030-2034	230,200,000	126,600,000
2035-2039	242,900,000	133,600,000
2040-2044	255,600,000	140,600,000
TOTALS	2,008,700,000	1,104,900,000

* This figure is based on the estimate that 55 percent of the aggregate consumed will be used in PCC.

Figure 4. Los Angeles County aggregate production, 1960 to 1992, with projected demand to 2044.



Factors Affecting Aggregate Demand

The wide variations from year to year in the historic aggregate production rate (Figure 3) probably reflect to a large degree, changes in urban growth rates and intermittent large construction projects (for example: freeways, dams, and canals). In part, these variations also result from incompleteness and inaccuracies in the production records supplied by the U.S. Bureau of Mines. Certainly the economic climate is a powerful variable that influences aggregate demand. Very high interest rates, for example, as in California in 1979 and 1980, tended to lower the amount of new construction and consequently lower the demand for aggregate. Also, the economic recession at the beginning of the 1990s caused a sharp drop in aggregate production. High consumption of aggregate occurred in the county in the mid-1960s due to construction of freeways, and in the mid- and late-1980s as the construction industry recovered after the economic recession in the early 1980s. Also, major unforeseen events such as disaster reconstruction in the wake of an earthquake like the Northridge Earthquake or a major economic recession would cause aggregate demand to change radically.

COMPARISON OF THE 50-YEAR AGGREGATE DEMAND WITH CURRENT RESERVES

The PCC-grade aggregate reserves in Los Angeles County are projected to last 21 years, until the year 2016. However, the reserves are not evenly distributed within the regions of the county. The reserves in the San Fernando Valley production district will last little more than 7 years. If reserves are depleted in the San Fernando Valley region, aggregate must be hauled from other, distant production districts to supply this market.

According to the U.S. Bureau of Mines aggregate production statistics for the years 1978 to 1992, about 55 percent of the total aggregate consumed in the region was used in PCC. This estimate is based only on the records that contained separate figures for PCC aggregate production, 6 of the 15 years. This percentage equates to 1.1 billion tons of PCC aggregate that will be needed within the next 50 years. If all the PCC-grade aggregate reserves were used exclusively for PCC aggregate, the supply would theoretically last nearly 50 years. In reality, much of the PCC-grade aggregate reserves will be used for other products, and a depletion date of 2016 is more likely. Table 9 is a summary of present aggregate resources and future aggregate demands for Los Angeles County.

For the three original classification reports, Los Angeles County was divided into four main P-C regions - San Fernando Valley, San Gabriel Valley, Saugus-Newhall, and Palmdale - each encompassing a production district and the urban consumption area of that district. To transport aggregate from the production district of one to the consumption area of another other would add to the haul distance. At current transport rates set by the

California Public Utilities Commission, such extra haul distances would add significantly to the cost of the aggregate.

The additional transport costs from one P-C region to another could be reduced if alternative transport methods were used, such as unit trains. Truck transport is presently the primary mode of aggregate transport in the southern California area; however, train transport is used by one company in the Palmdale P-C Region.

Table 9. Summary of aggregate resources and 50-year demand for Los Angeles County (excluding areas served by production districts outside the county - Simi, Claremont-Upland, and Orange County-Temescal Valley). Figures rounded to nearest 1 million tons.

o	PCC-grade aggregate resources (includes PCC-grade aggregate reserves)	11,929,000,000 tons
o	PCC-grade aggregate reserves	*750,000,000 tons
o	50-year demand, all aggregate	2,009,000,000 tons
o	50-year demand, PCC aggregate	1,105,000,000 tons

* Rounded to nearest 50 million tons to preserve the confidentiality of the reserve figure for the San Fernando Valley P-C Region.

PART III - ALTERNATIVE SOURCES OF AGGREGATE

The potential sources of PCC aggregate, in addition to the deposits classified as MRZ-2, which exist within and near Los Angeles County were discussed in Special Report 143, Parts II, IV, V, and VI. Included were potential resources within Los Angeles County that were classified as MRZ-3 and aggregate production districts in neighboring production-consumption regions.

Further information has been developed on two of the potential resources within Los Angeles County noted in the original reports. The first is part of the metamorphic and granitic basement rocks at the northern edge of the San Gabriel P-C Region, on the Fish Canyon Quarry property. This deposit was geologically investigated and found to be suitable for use as PCC aggregate. The quarry has been in production since 1946, but has never before produced PCC aggregate. The Fish Canyon Quarry property was subsequently reclassified by petition (Miller, 1988). This new information increases the likelihood that other parts of the bedrock in the San Gabriel Mountains may also be suitable sources of PCC-grade aggregate.

The second site is the Mescal Creek fan at the northern toe of the San Gabriel Mountains. A deposit on this fan was tested and found to be suitable as a source of PCC-grade aggregate. Consequently the entire fan is herein reclassified from MRZ-3 to MRZ-2. No further information has been developed concerning the other alternative sources of PCC-grade aggregate in Los Angeles County that were mentioned in the original reports.

Aggregate resource availability in the Orange County-Temescal Valley P-C Region, which borders Los Angeles County on the southeast, was detailed in Special Report 143, Part III (Miller and Corbaley, 1981). In that report it was concluded that the region would be depleted of PCC aggregate reserves in a little more than 2 decades. However, a later report on the Temescal Valley area published in 1991 (Miller and others) reported that an increased reserve base of construction aggregate in the area could last until the year 2028. It is assumed, then, that the Corona and Mayhew-Coldwater fan production districts in Temescal Valley could provide aggregate to parts of Los Angeles County in the future. However, it was also noted in the report that in parts of the Temescal Valley area, aggregate mining is being limited by encroaching urbanization. It was also reported that significant amounts of aggregate being produced in Temescal Valley were being consumed by San Diego County as well as Riverside and Orange counties.

Information on the availability of PCC aggregate resources in Ventura County was updated in 1993 (Miller). It was reported that the reserves of aggregate in Ventura County could last about 22 years. As the Simi production district in Ventura County already supplies aggregate to a western part of Los Angeles

County, it is expected that this will continue for the life span of that district. However, the 156 million tons of reserves in that district could probably not supply a much larger area of Los Angeles County without rapidly depleting.

The Claremont-Upland P-C Region includes about 3 percent of the population of Los Angeles County. The aggregate reserves of the production district in that region are in San Bernardino County. It was concluded in the 1984 report on that region (Cole) that the reserves would last about 10 years. Even though there has been some additional reserves permitted in the Claremont-Upland production district (personal communications with producers), it probably cannot be relied on as a future source of aggregate for other areas of Los Angeles County.

PART IV - REVIEW OF PRODUCTION-CONSUMPTION (P-C) REGIONS IN LOS ANGELES COUNTY

REVIEW OF THE SAN FERNANDO VALLEY P-C REGION

The original mineral land classification of aggregate resources in the San Fernando Valley P-C Region was published in 1979 as Part II of Special Report 143 - Mineral Land Classification of the Greater Los Angeles Area (Anderson and others). The report's projection for aggregate consumption of the San Fernando Valley P-C Region to 1992 was based on an annual per-capita consumption of 1.6 tons and a population projection by the California Department of Finance and DMG staff.

The 1979 report by Anderson and others projected that aggregate demand in the San Fernando Valley P-C Region would be 57,987,000 tons from 1980 to 1992 (Figure 5). Table 10 shows that, in reality, from 1980 to 1992, 122,109,000 tons of aggregate were produced by mines in the San Fernando Valley P-C Region. This is a 111 percent greater demand than was anticipated 15 years ago. This increase in aggregate consumption was probably due to two causes: a) the population growth from 1980 to 1992 (Figure 6) in the San Fernando Valley P-C Region was 16 percent more than the projection made in the 1979 report - a total population increase of about 450,000 more people than was projected, and b) the local per-capita consumption rate of aggregate was greater than anticipated due to a surge in economic growth, primarily increasing commercial redevelopment in the region. The per-capita consumption rate increased from an average of 1.6 tons in the period from 1960 to 1976 to 2.7 tons in the years 1980 to 1992.

An updated projection of aggregate consumption for the San Fernando Valley P-C Region was not calculated, as the region is now included in the Los Angeles County study presented in this report.

Table 10. Population, aggregate consumption, and per-capita consumption in the San Fernando Valley Production-Consumption Region during the years 1980-1992.

YEAR	POPULATION	AGGREGATE CONSUMPTION (tons)	ANNUAL PER-CAPITA CONSUMPTION (tons)
1980	2,795,443	7,850,000	2.8
1981	2,822,031*	6,488,000	2.3
1982	2,848,618*	4,435,000	1.6
1983	2,875,206*	5,726,000	2.0
1984	2,909,885	6,640,000	2.3
1985	2,935,385	8,406,000	2.9
1986	3,006,220	11,615,000	3.9
1987	3,060,063	13,322,000	4.4
1988	3,133,595	15,992,000	5.1
1989	3,162,615	15,676,000	5.0
1990	3,222,838	14,583,000	4.5
1991	3,264,705*	6,375,000	2.0
1992	3,310,093*	5,001,000	1.5
TOTAL		122,109,000	

* Population estimated by DMG staff.

Average annual per-capita consumption for 1980-1992 was 3.1 tons.

Figure 5. Comparison of aggregate production in the San Fernando Valley Production-Consumption Region for the years 1980 to 1992, with the forecast in Special Report 143, Part II (Anderson and others, 1979).

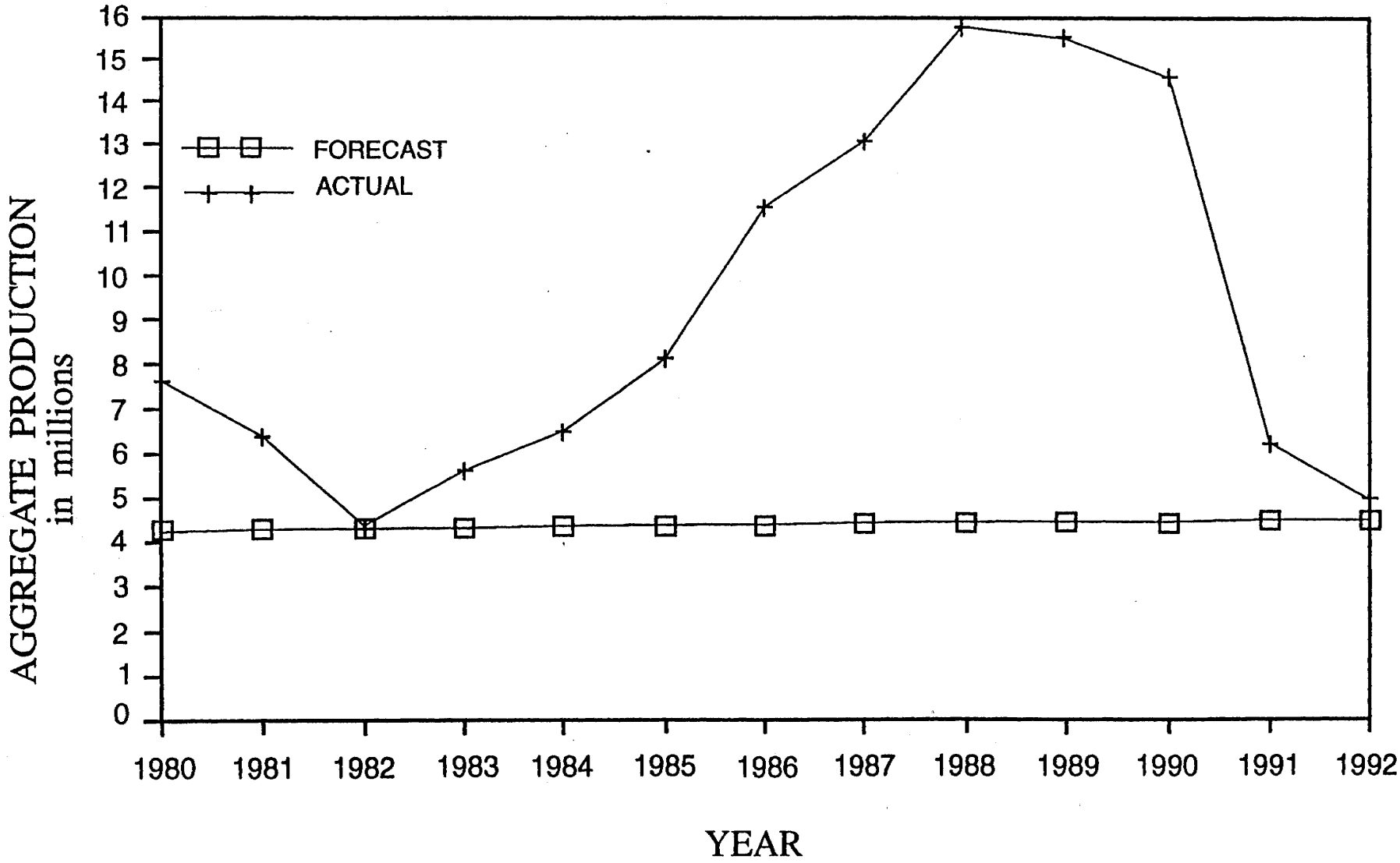
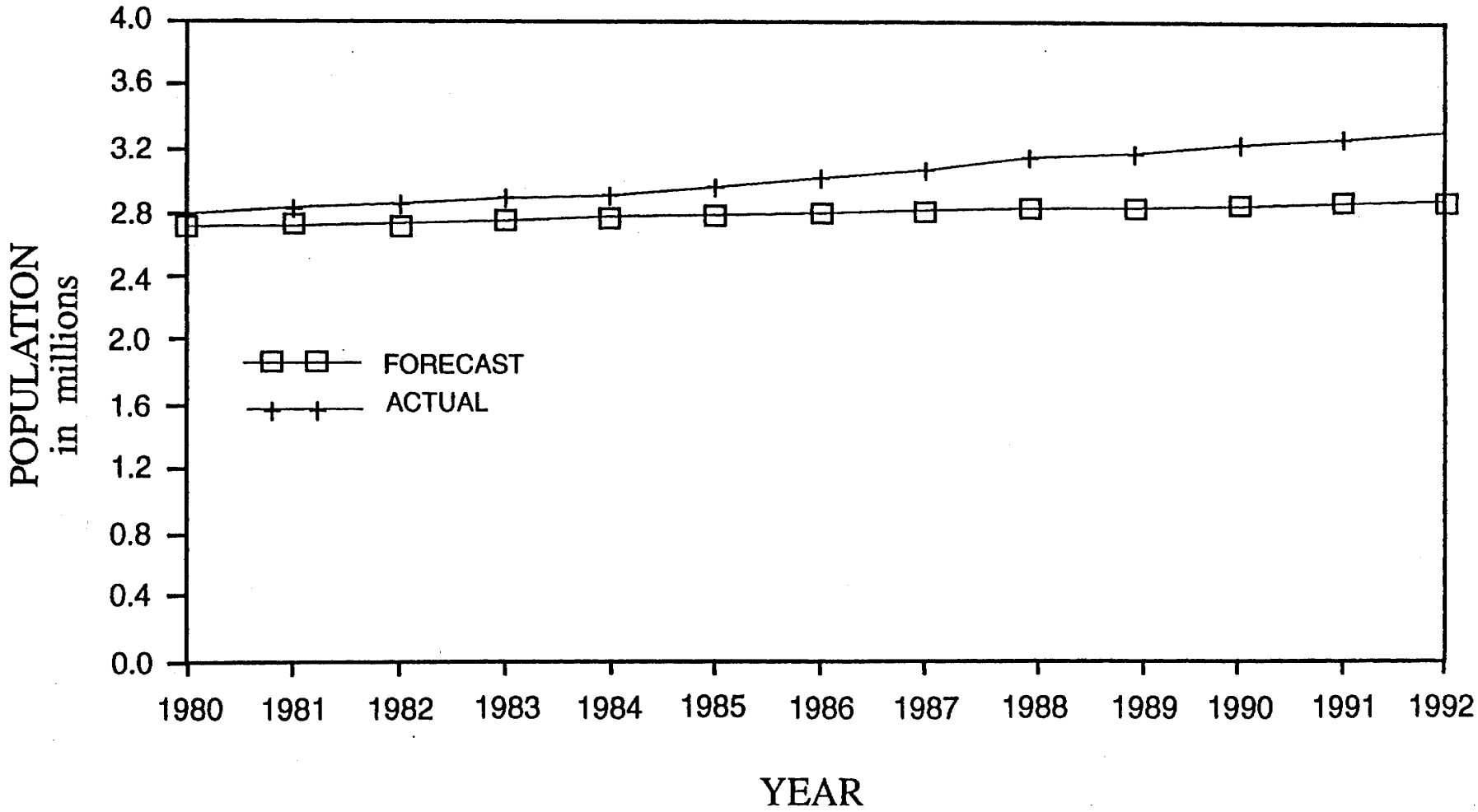


Figure 6. Comparison of population in the San Fernando Valley Production-Consumption Region for the years 1980 to 1992, with the forecast in Special Report 143, Part II (Anderson and others, 1979).



REVIEW OF THE SAN GABRIEL VALLEY P-C REGION

The original mineral land classification of aggregate resources in the San Gabriel Valley P-C Region was published in 1982 as Part IV of Special Report 143 - Mineral Land Classification of the Greater Los Angeles Area (Kohler). The report's projection for aggregate consumption of the San Gabriel Valley County P-C Region to 1992 was reviewed. The projection was based on a declining annual per-capita consumption calculation from 4.3 tons in 1980 to 4.2 tons in 1992, and a population projection by the California Department of Finance and DMG staff. The declining per-capita consumption rate was projected because of the relative urban maturity, or population density of the region. As an area approaches full urban maturity, construction materials are used primarily to maintain existing development rather than to supply further development.

Table 11 shows that between 1980 and 1992, 216,073,000 tons of aggregate were produced by mines in the San Gabriel Valley P-C Region. The 1982 report projected that aggregate demand in the San Gabriel Valley P-C Region would be 205,302,000 tons for that time period (Figure 7). The 5 percent greater aggregate demand can be attributed, in part, to the greater increase in population than was predicted. The population increased 19 percent more than was projected (Figure 8). There were 736,000 more people in the region in 1992 than were predicted by the 1982 report. The actual per-capita consumption rate, from 1980 to 1992, was 4.0 tons per year - a little lower than was predicted. This may have been because of the two economic recessions, one in the early 1980s and another in the early 1990s. These recessions are clearly reflected by the aggregate consumption of the region as shown in Figure 7. Another factor which may have contributed to the lower per-capita consumption rate was the increased population density, or urban maturity of the region, which would tend to accelerate the decline in per-capita consumption.

An updated projection of aggregate consumption for the next 50 years for the San Gabriel Valley P-C Region was not calculated, as the region is now included in the Los Angeles County study presented in this report.

Table 11. Population, aggregate consumption, and per-capita consumption in the San Gabriel Valley Production-Consumption Region during the years 1980-1992.

YEAR	POPULATION	AGGREGATE CONSUMPTION (tons)	ANNUAL PER-CAPITA CONSUMPTION (tons)
1980	3,829,121	13,650,000	3.6
1981	3,868,534*	13,836,000	3.6
1982	3,910,655*	11,345,000	2.9
1983	3,952,776*	13,926,000	3.5
1984	3,998,220	16,164,000	4.0
1985	4,043,888	17,728,000	4.4
1986	4,140,363	20,428,000	4.9
1987	4,177,949	19,730,000	4.7
1988	4,235,913	19,939,000	4.7
1989	4,278,468	19,296,000	4.5
1990	4,422,880	18,131,000	4.1
1991	4,497,422*	15,279,000	3.4
1992	4,555,888*	16,621,000	3.7
TOTAL		216,073,000	

* Population estimated by DMG staff.

Average annual per-capita consumption for 1980-1992 was 4.0 tons.

Figure 7. Comparison of aggregate production in the San Gabriel Valley Production-Consumption Region for the years 1980 to 1992, with the forecast in Special Report 143, Part IV (Kohler, 1982).

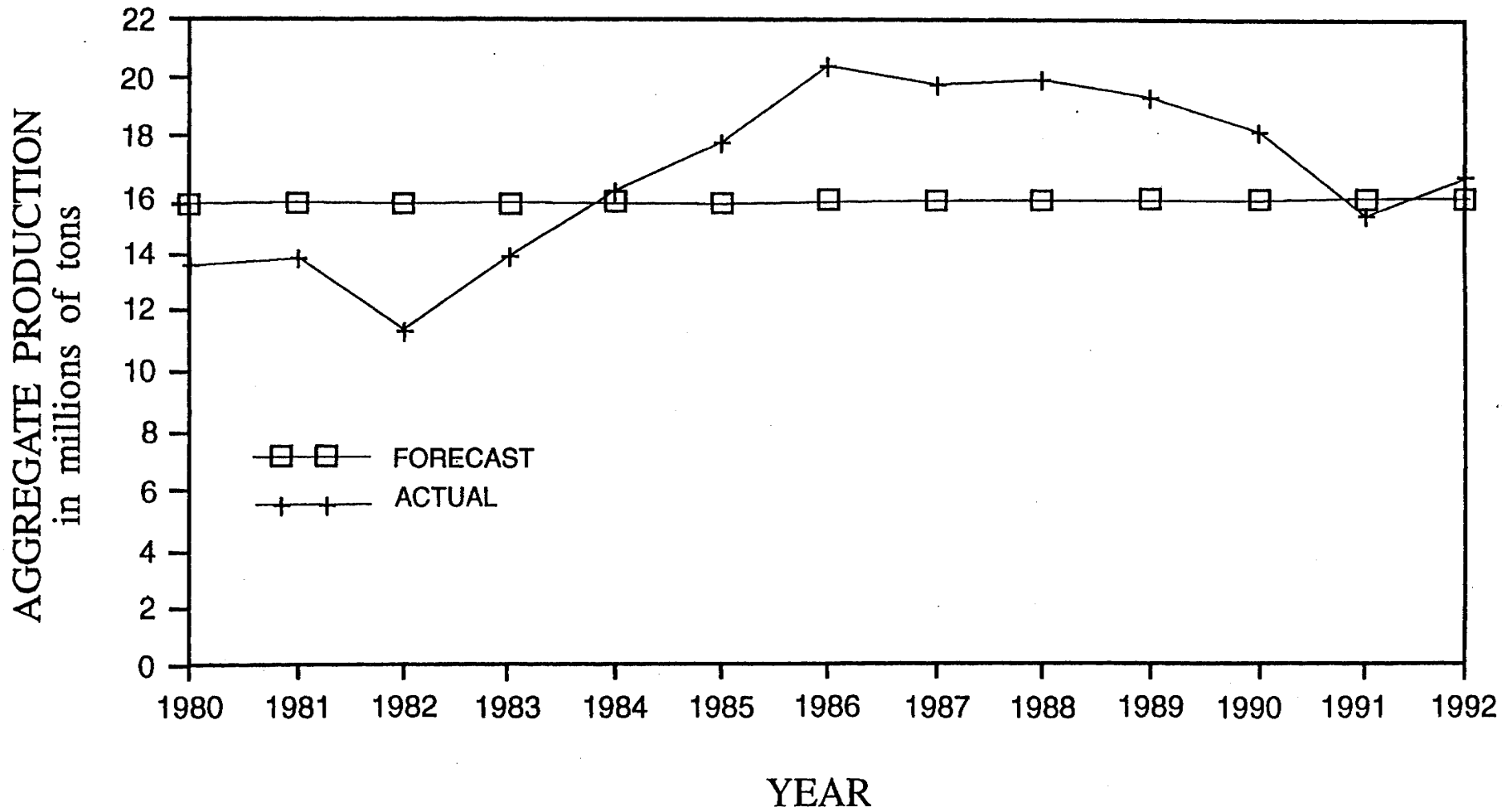
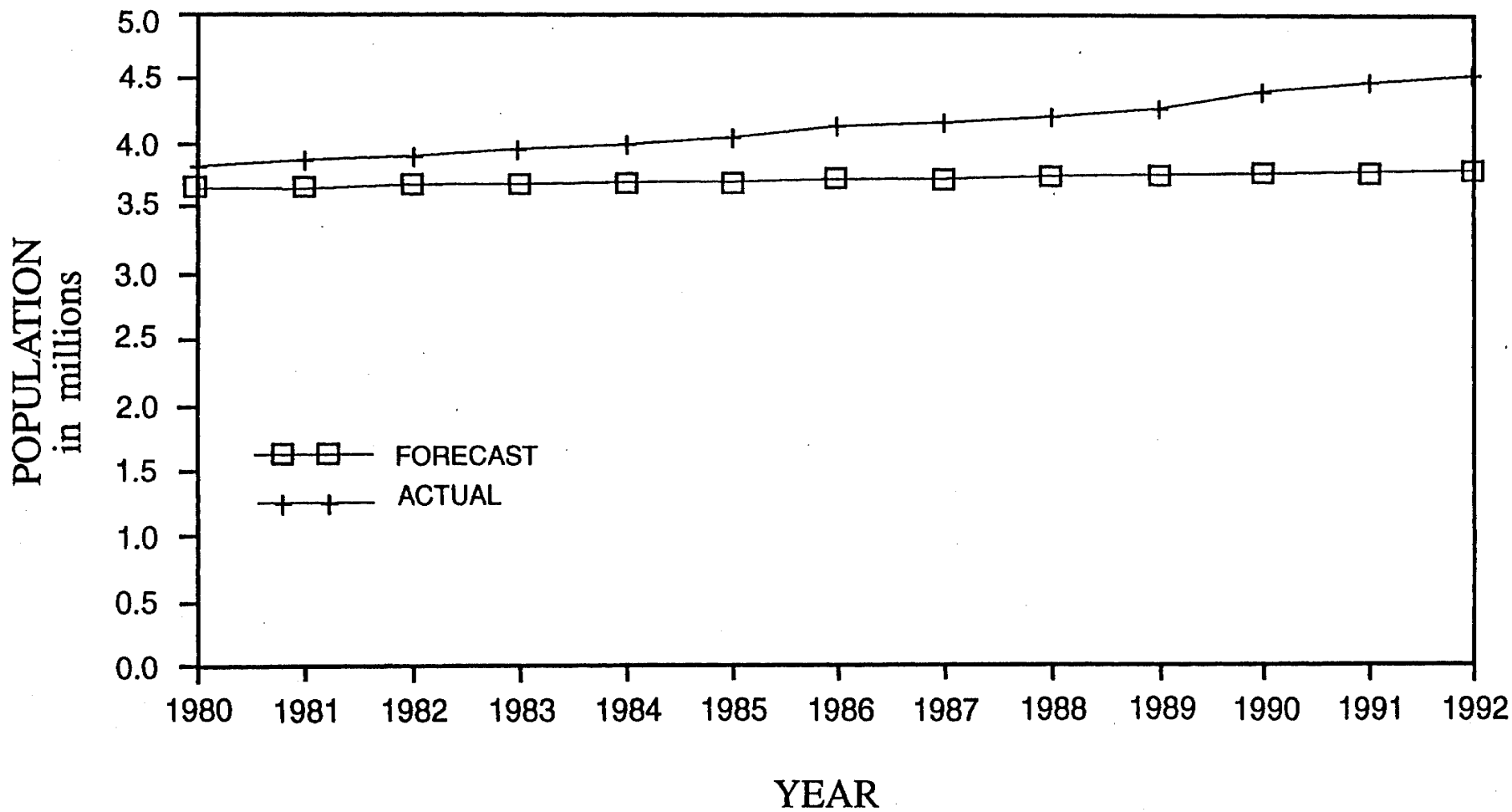


Figure 8. Comparsion of population in the San Gabriel Valley Production-Consumption Region for the years 1980 to 1992, with the forecast in Special Report 143, Part IV (Kohler, 1982).



REVIEW OF THE SAUGUS-NEWHALL P-C REGION

The original mineral land classification of PCC aggregate resources in the Saugus-Newhall P-C Region was first made available in preliminary form in 1984 and published in 1987 as Part V of DMG Special Report 143 (Joseph and others). The report projected that the aggregate consumption of the Saugus-Newhall P-C Region, from 1982 to 1992 would be 9,167,000 tons. The recorded production of the region for those years was 13,560,000 tons, about 48 percent more than the projection (Table 12 and Figure 9). However, the per-capita consumption was almost the same as that used in the original prediction - 9.9 tons per year actual compared to 10 tons per year as predicted by past production patterns. The 48 percent greater aggregate production then, can be accounted for by the greater than projected increase in population for the region (Figure 10). The actual aggregate consumption was within 5 percent of the total that would have been projected if the population projection had been accurate.

An updated projection of PCC aggregate consumption for the Saugus-Newhall P-C Region was not calculated, as the region is now part of the Los Angeles County study area.

Table 12. Population, aggregate consumption, and per-capita consumption in the Saugus/Newhall Production-Consumption Region during the years 1982-1992.

YEAR	POPULATION	AGGREGATE PRODUCTION (tons)	*ANNUAL PER-CAPITA CONSUMPTION (tons)
1982	89,776**	785,000	8.7
1983	94,165**	975,000	10.3
1984	98,554	935,000	9.5
1985	101,441	1,256,000	12.4
1986	115,959	1,650,000	14.2
1987	125,375	1,834,000	14.6
1988	149,156	1,963,000	13.2
1989	161,691	1,656,000	10.2
1990	155,121	1,141,000	7.4
1991	167,631**	851,000	5.1
1992	170,984**	514,000	3.0
TOTAL		13,560,000	

* The figures in this column assume that all aggregate production of the region is consumed within the region.

** Population estimated by DMG staff.

Average annual per-capita consumption for 1982-1992 was 9.9 tons (assuming all production was consumed in the region).

Figure 9. Comparison of aggregate production in the Saugus-Newhall Production-Consumption Region for the years 1982 to 1992, with the forecast in Special Report 143, Part V (Joseph and others, 1987).

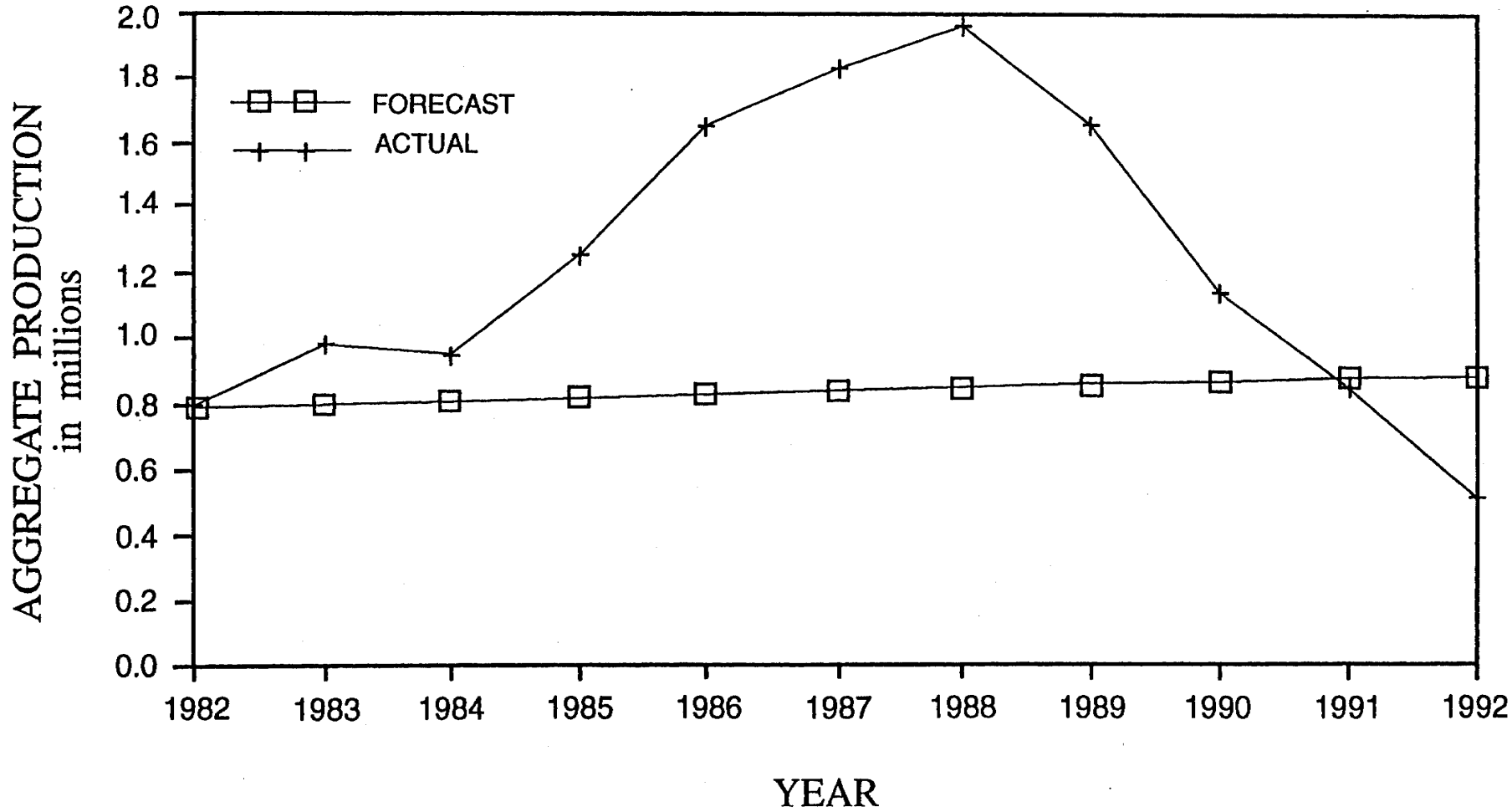
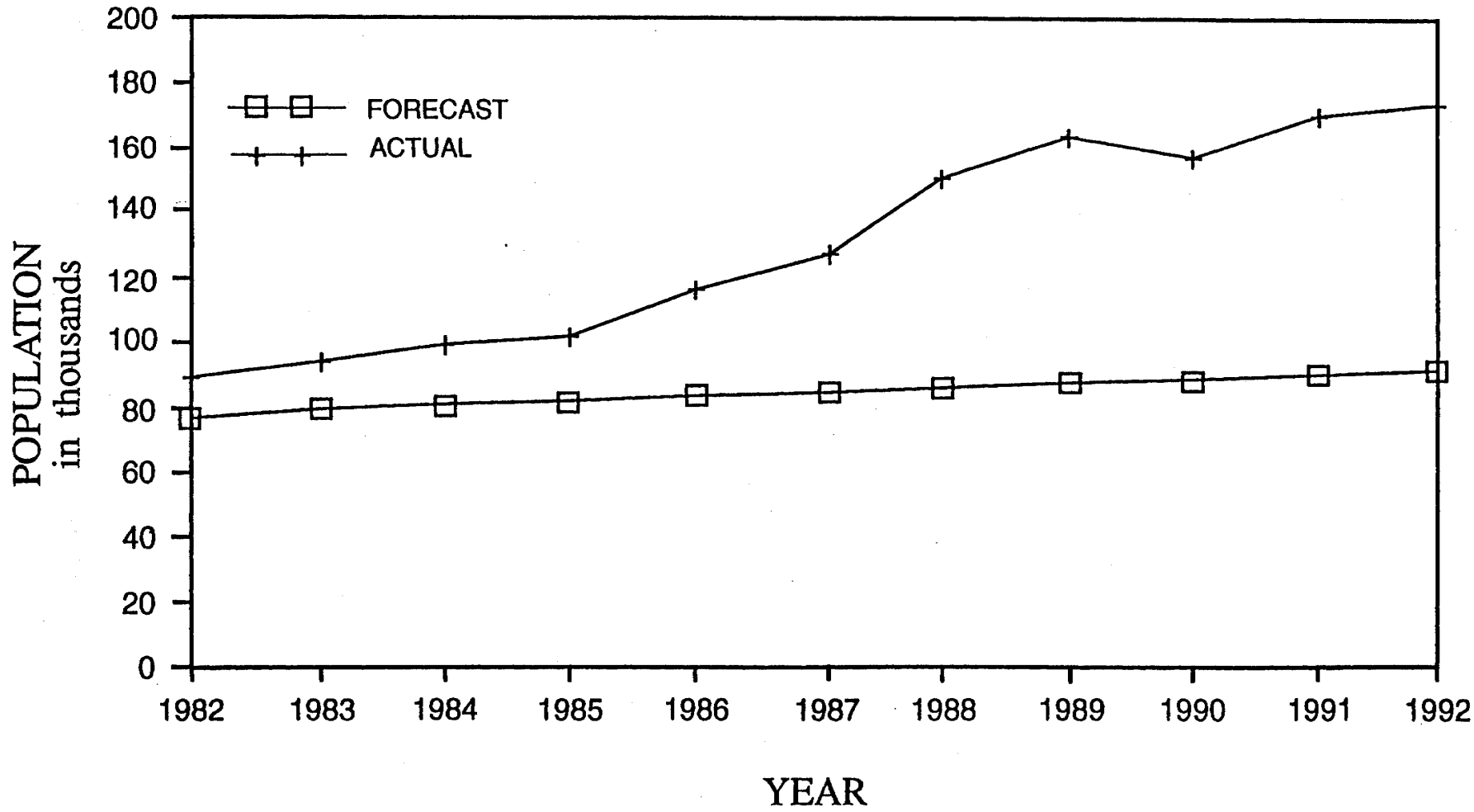


Figure 10. Comparison of population in the Saugus-Newhall Production-Consumption Region for the years 1982 to 1992, with the forecast in Special Report 143, Part V (Joseph and others, 1987).



REVIEW OF THE PALMDALE P-C REGION

The original mineral land classification of PCC aggregate resources in the Palmdale P-C Region was first made available in preliminary form in 1984 and published in 1987 as Part V of DMG Special Report 143 (Joseph and others). The report projected that the aggregate consumption of the Palmdale P-C Region, from 1982 to 1992 would be 17,714,000 tons. The recorded production of the region for those years was 24,354,000 tons, about 37 percent more than the projection (Table 13 and Figure 11). However, the per-capita consumption was almost the same as that used in the original prediction - 12.7 tons per year actual and 12.2 tons per year as predicted by past production patterns. The 37 percent greater aggregate production then, can be accounted for by the greater than projected increase in population for the region (Figure 12). The actual aggregate consumption was about 9 percent greater than the total that would have been projected if the population projection had been accurate. Small amounts of aggregate are being shipped by rail to the Los Angeles area. Exports could account for some of the excess production; although, urbanizing area with relatively small populations and large areas for growth, such as the Palmdale region, typically have erratic aggregate consumption rates. This is probably due to the need of such regions for many infrastructure construction projects that have a large effect on aggregate consumption.

An updated projection of PCC aggregate consumption for the Palmdale P-C Region was not calculated, as the region is now in the Los Angeles County study area.

Table 13. Population, aggregate consumption, and per-capita consumption in the Palmdale Production-Consumption Region during the years 1982-1992.

YEAR	POPULATION	AGGREGATE CONSUMPTION (tons)	ANNUAL PER-CAPITA CONSUMPTION (tons)
1982	104,912*	619,000	5.9
1983	106,754*	1,058,000	9.9
1984	108,597	1,163,000	10.7
1985	117,110	1,908,000	16.3
1986	132,755	1,811,000	13.6
1987	146,517	1,795,000	12.3
1988	178,507	2,785,000	15.6
1989	202,067	3,702,000	18.3
1990	232,809	4,201,000	18.0
1991	271,209*	3,044,000	11.2
1992	282,057*	2,268,000	8.0
TOTAL		24,354,000	

* Population estimated by DMG staff.

Average annual per-capita consumption for 1982-1992 was 12.7 tons.

Figure 11. Comparison of aggregate production in the Palmdale Production-Consumption Region for the years 1982 to 1992, with the forecast in Special Report 143, Part V (Joseph and others, 1987).

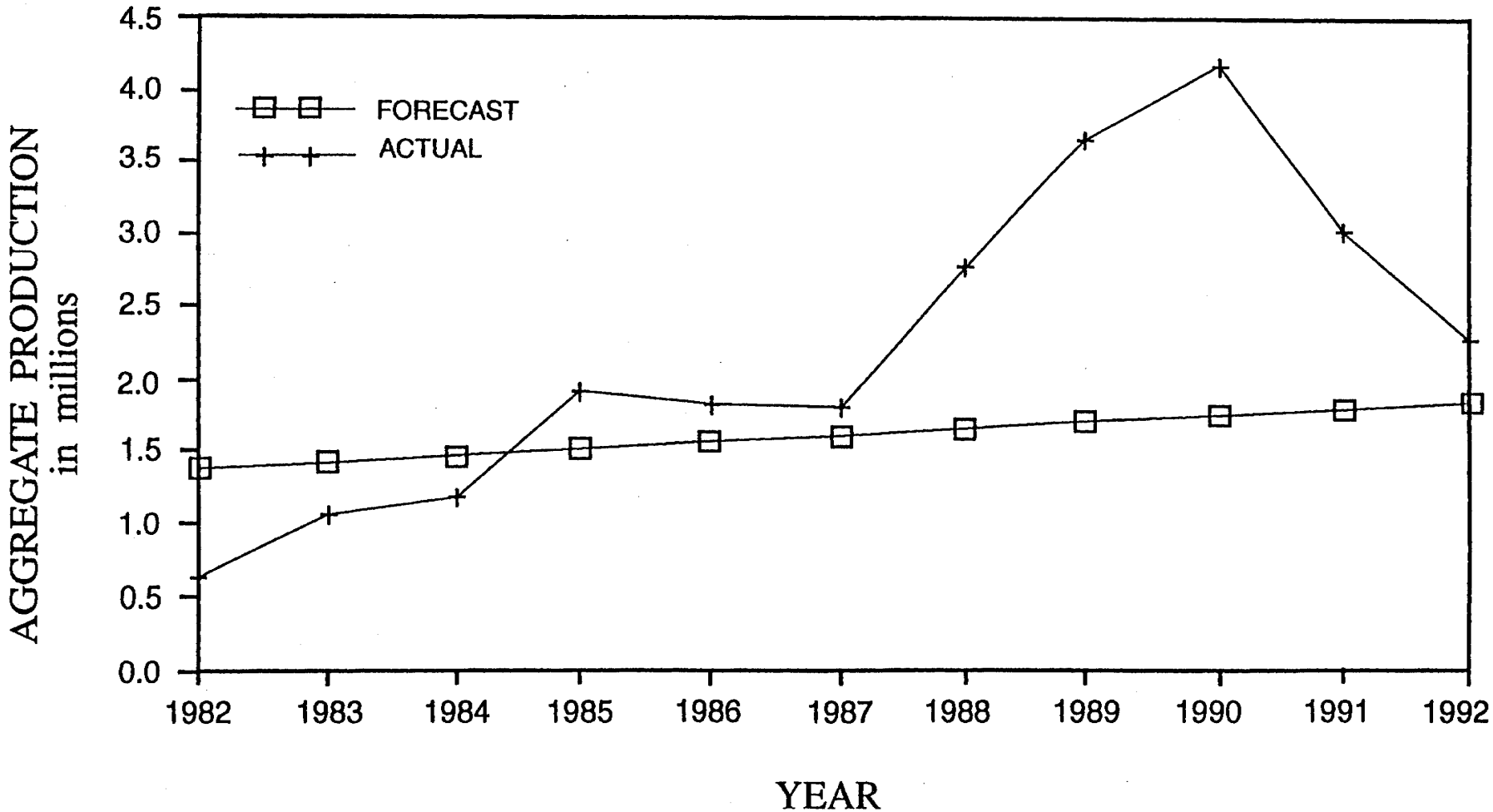
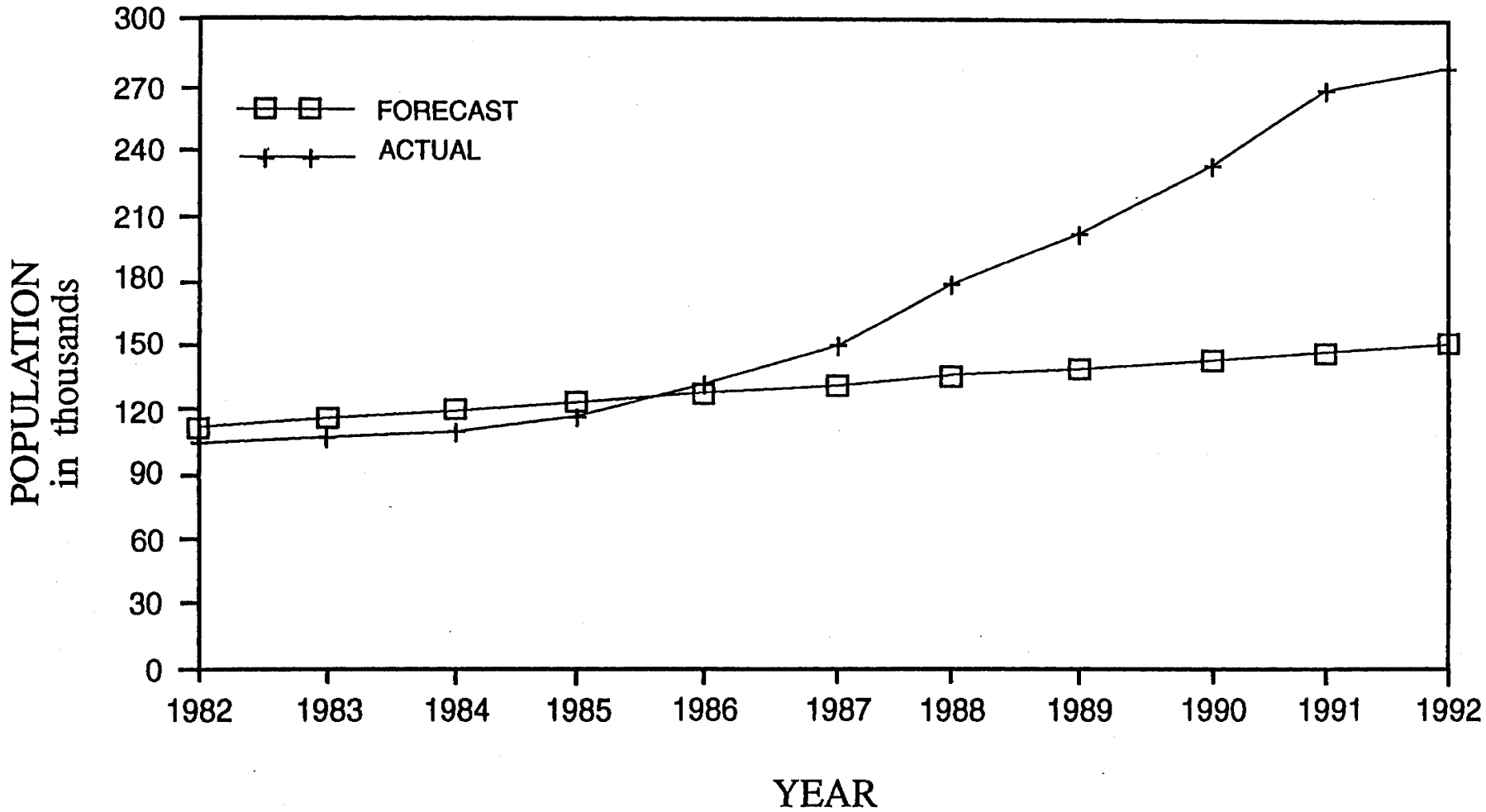


Figure 12. Comparison of population in the Palmdale Production-Consumption Region for the years 1982 to 1992, with the forecast in Special Report 143, Part V (Joseph and others, 1987).



PART V - CONCLUSIONS

Within Los Angeles County, 19 Aggregate Resource Sectors have previously been classified, and two areas have been reclassified (one in this report), as containing significant resources of PCC-grade aggregate. The 19 Aggregate Resource Sectors are also designated by the Board as being of regional significance. A reevaluation of PCC-grade aggregate resources shows that the designated areas contain an estimated total of 11,664 million tons of PCC-grade aggregate resources, with another 265 million tons in the newly reclassified Mescal Creek fan MRZ-2.

Based upon available production data and population projections, Los Angeles County will need to produce about 2 billion tons of aggregate during the next 50 years. Of this projected demand, approximately 55 percent, or 1.1 billion tons, must be suitable for use in PCC. The presently permitted aggregate reserves will last to the year 2016, 21 years from the present. This is approximately 34 percent of the projected aggregate demand of the next 50 years. Unless new resources are permitted for mining, or alternative resources are utilized, existing reserves may be depleted by the year 2016. If a major earthquake or similar unforeseen catastrophic event strikes the county and necessitates reconstruction, existing reserves will be depleted sooner. The use of recycled materials for aggregate base has significantly reduced the total demand on the virgin PCC-grade aggregate deposits in the county.

Of the four major production districts in Los Angeles County, the Tujunga Fan Production District is estimated to be depleted the soonest. It is estimated that the permitted reserves in the Tujunga Fan Production District (San Fernando Valley P-C Region) will last about 7 years.

The aggregate demand forecasts for the four P-C regions in Los Angeles, made in the three original classification reports, were all less than the actual demand recorded since. The total reported aggregate production for the four regions was 24 percent more than the projected total. This was apparently due to two main factors: 1) the official population forecasts used in the projections were all less than the actual population growths for the measured period - 1980 to 1992, and 2) the economic growth of the regions was very high during the middle and late 1980s. This indicates that the aggregate demand forecasts given in this and other classification reports may be conservative due to underestimation of population and economic growth potentials.

No conclusion on the effectiveness of designation was reached. Other than the urban zonation of a large part of the designated lands on the Little Rock Creek fan by the City of Palmdale, the urbanization of available aggregate resources in Los Angeles County has been small - about 3 percent of the total. However, most of the designated lands in the San Fernando Valley

and San Gabriel Valley regions are either controlled by aggregate companies or are within active river channels and flood control basins. As these lands are not easily developed, the effectiveness of designation in protecting the those aggregate resources is not clear.

ACKNOWLEDGMENTS

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APPENDIX H

COMMENTS AND RESPONSES TO COUNTY DEPARTMENTAL REVIEWS NOVEMBER 1995 AND JULY 1998

Response to Mr. K.E. Weary, Traffic and Lighting Division, County of Los Angeles Department of Public Works, dated December 7, 1995.

The Traffic Section of the DEIR is based on the 1992 traffic impact study. The information contained in the study are outdated. We recommend the study be revised to update the following. A copy of our Traffic/Access Guidelines is attached for reference.

- *Show both peak-hour and daily traffic counts for the intersections and roads analyzed in the study.*

- *Related projects should include all pending, approved, and recorded projects in the area that will be built and occupied by the project Phase I and II build out year.*

- *Indicate whether the project's a.m./p.m. peak-hour trips shown in Tables 2 and 3 area in PCE's or truck trips.*

- *Indicate daily operation capacity for Phases I and II used in the trip generation analysis.*

- *The Level of Service (LOS) analyses of intersections and roadways analyzed should be conducted for the following traffic scenarios.*

  a) Existing
  b) Existing plus ambient growth (three percent)
  c) Scenario (b) plus Phase I
  d) Scenario (c) plus related projects by Phase I build out year
  e) Scenario (d) plus ambient growth to Phase II build out year
  f) Scenario (e) plus Phase II
  g) Scenario (f) plus related projects by Phase II build out year

- *Include all LOS analyses back up and calculation work sheets.*

- *An evaluation of the pavement integrity of the affected roadways and their ability to handle the increase of truck traffic resulting from this project.*

Response: The traffic impact study has been revised in accordance with the Division's Traffic Impact Analysis Report Guidelines which were revised and published January 1997. Upon further consultation with the Division, specific scenarios to be included in the analysis were determined and analyzed. The revised Traffic Impact Study has been submitted to the Division for review.

An evaluation of pavement integrity, traffic index analysis, has been prepared and will be submitted to the Division for review in the near future. The results of the pavement analysis are included in the revised EIR.

We recommend the State of California Department of Transportation and City of Santa Clarita also review this report for the impacts/mitigations within their jurisdiction.

Response: The revised Traffic Impact Study will be reviewed by these agencies during the formal Draft EIR public review period.

* * *

Response to Mr. Barry S. Witler, Transportation Planning Assessments, dated December 13, 1995.

1. *The Applicant must dedicate 50 feet of right-of-way from centerline and any applicable slope easements, based on latest Interdepartmental Engineering Committee - (IEC) approved alignment of Soledad Canyon Road.*

Response: TMC's surface rights are limited to use the land surface for purposes "incidental to mining". TMC does not have authority to dedicate right-of-way or otherwise convey property rights.

In addition, there is no approved alignment of Soledad Canyon Road that meets current standards. Final determination of a condition relative to right-of-way dedication will be the responsibility of the Regional Planning Department.

2. *While the Applicant discussed using turnouts as mitigation measures for minimizing any possible safety hazards, opportunities to use turnouts between the project and SR-14 are limited by existing topographic features of the road. Therefore, we recommend that the Applicant analyze the feasibility of upgrading the road alignment of Soledad Canyon Road to further enhance sight distance.*

Response: Sight distance has been considered in the Traffic Impact Study. The study recommended turn outs at several locations and includes left turn and right turn entry lanes (at the new project entrance) and merge lanes for the exiting traffic. The facilities and improvements will be designed with adequate sight distances. Upgrading the overall road alignment is the responsibility of the County.

3. *A review of the project indicates that it may add more than 50 peak hour vehicles to a Congestion Management Plan (CMP) Highway System Intersection. If project adds more than 50 peak hour trips to a CMP intersection, a "CMP analysis" is required.*

Response: The current Traffic Impact Study analyzes CMP intersections and roadways and provides appropriate mitigation measures where required. According to Kerwin Chih, Assistant Section Head, Impact Analysis, Department of Regional Planning, County of Los Angeles, TMC would not be required to provide a "CMP Analysis," because the original traffic study predates the LA County CMP Requirements, were not adopted until November 1992. However, the current Traffic Study has identified mitigation consistent with CMP requirements even though not required.

Further, Section III of "Los Angeles County Congestion Management Program Land Use Analysis Guidelines", indicates that the TMC Project Traffic Impact Study is not subject to CMP procedures because the effective date of the "Guidelines" is March 30, 1995, which is more than three years after the date of the Notice of Preparation of an Environmental Impact Report for the TMC Project.

* * *

Response to Mr. Ron Lacayo, Department of Public Works, Building and Safety Division, dated December 14, 1995.

1. *Provide a Reclamation Plan for our review and approval in conformance with SMARA (The Surface Mining and Reclamation Act of 1975) and the Los Angeles County Code Title 22. The Reclamation Plan must include information, among others, related to drainage and grading issues and must be approved by this Department prior to approval of the Surface Mining Permit by the Department of Regional Planning.*

Response: The Applicant, TMC, has prepared and submitted the requested Mining and Reclamation Plan. Based on Department comments, the plan has been revised twice and is now acceptable to Department of Public Works.

2. *An approved Reclamation Plan for this project, may require revisions to the environmental documents.*

Response: The environmental documents, including the EIR, drainage plans, and geotechnical reports have been revised to respond to comments of the Department of Public Works.

* * *

Response to Ms. Janet Rodriquez, Environmental Programs, dated December 14, 1995.

1. *Current estimates indicate that a shortfall in permitted daily land disposal capacity in Los Angeles County will occur within the next few years. The proposed development will increase the generation of solid waste and will negatively impact solid waste management facilities in the County. Therefore, the proposed Environmental Impact Report must identify what measures the project proponent will implement to mitigate the impact. These measures may include, but are not limited to, implementation of waste reduction, recycling and composing programs, as well as programs to divert the construction waste from the landfills.*

Response: Potentially, there will be five types of waste generated by the proposed facility as discussed below:

A. <u>Construction waste</u>: There will be a minimal amount of waste generated by the construction of the facility. The waste will be the result of constructing;

55' x 62' maintenance building

Two (2) 70' x 14' scales
10' x 22' scale house
55' x 35' office building

The Applicant, TMC, does not anticipate generating any demolition waste during the construction phase.

B. Mining Operations waste: Mining operations will not create wastes that will be sent to a landfill. The fines generated during processing of minerals at the facility will either be sold or stored onsite and used for reclamation.

C. Green waste: Green wastes will be generated when land is cleared for mining. The applicant, TMC, expects to clear 68 acres during the initial construction phase and will probably clear another 10 acres per year during the mining phase. However, because this site is sparsely vegetated, a significant amount of green waste will not be generated. All green waste will be retained on-site and composed for use in the proposed concurrent revegetation program.

The proposed facility is not designed to have landscaping that will generate green waste.

D. Employee waste: There will be 15 employees working at this site during Phase 1 and 30 employees during Phase 2. Most of these employees will be equipment operators and will only generated a small amount of waste from meals and the maintenance shop.

E. Office waste: Of the employees listed above, a few will be office employees who will generate office waste. The majority of office waste are paper products and will be separated for recycling. There will be a minimal amount of waste sent to a landfill.

To summarize, the proposed project will generate very minimal amounts of waste requiring disposal in County waste management landfills. Recycling will occur through composting of green wastes and separation of recyclable office wastes office wastes. Because of these factors, the proposed project would not have a significant impact on County landfills.

2. *The report discussed the issues related to possible Storm Water Pollution. Best Management Practices (BMPs), Spill prevention Plan and other Stormwater Pollution prevention programs were discussed. The document highlighted the following pollutants of concern:*

   a. *Migration of chloride ions derived from dust palliatives.*
   b. *Undetected leaks of grease, fuel, and/or oil.*
   c. *Septic tank leaks.*
   d. *Leaching of the chemical flocculent, Hydrofloc 437.*

It is not clear how the possible impacts to groundwater quality are being addressed with regard to the pollutants of concern listed above.

Water quality monitoring may be needed to ensure that the measures taken to prevent migration are effective and also to alert fort the need to modify any BMPs.

Response: The proposed project incorporates the following with respect to the pollutants of concern.

A. Migration of chloride ions derived from dust palliatives - The Storm Water Pollution Prevention Plan (SWPPP) has been modified to analyze storm water samples if chloride-containing dust palliatives are used at the facility.

B. Undetected leaks of grease, fuel, and/or oil - Section 4.3 of the Spill Prevention Control and Countermeasures (SPCC) Plan, included in the EIR Technical Appendices, contains procedures for conducting daily, biweekly, semi-annual, and annual inspections. These inspections are designed to identify leaks of grease, fuel, or oil. In addition, fuel and oil will be stored in above ground tanks equipped with lined spill containment areas to minimize the possibility of these materials entering the environment.

C. Septic tank leaks - The applicant, TMC, will perform tests to determine the feasibility of installing a septic tank system at the Soledad Canyon facility. If it is not feasible to install a septic tank system, self-contained toilets that will be pumped out on a regular basis will be installed. If it is feasible and TMC decides to install a septic tank system, it will be designed and installed to meet applicable Los Angeles County Codes.

D. Leaching of chemical flocculent, Hydrofloc 437 - Hydrofloc 437 was listed in the EIR as an example of a chemical flocculent that may be used at the project site. The actual flocculent(s) to be used will be products that are approved for such use.

Regarding Hydrofloc 437 specifically, Section 3.1.4.2 of the EIR states that, "the product is chemically stable to extreme temperatures, has been approved by the EPA, and is commonly used for potable water treatment ... These compounds are commonly used in the water treatment and sand and gravel industries and their use has not been a matter of concern to the RWQCB."

Water quality monitoring should not be necessary for this project. The inspection and monitoring programs outlined in the SWPPP and the SPCC have been designed to minimize the impact of operations on groundwater. In addition, the SWPPP contains a storm water sampling plan to test storm water effluent for parameters that may be present at the facility. These programs and the use of approved flocculents and dust palliatives make ground water monitoring unnecessary.

3. *The California Solid Waste Reuse and Recycling Access Act of 1991, as amended, established requirements for each "development project" to provide adequate storage area (s) for collection and removal of recyclable materials.*

The Environmental Impact Report should discuss standards to provide adequate "waste storage areas" for collection/storage of recyclable and green waste materials for this project.

Response: As mention above in response to Item 1 of this letter, the recycling of office waste and green waste will be accommodated at the site.

* * *

Response to Mr. Robert D. Pedigo, Hydraulic/Water Conservation Division, dated December 18, 1995.

The EIR contains 100-year frequency rainfall data including an isoheytal map and lengthy descriptions of historical rainfall amounts. While this data may be required for federal agencies, the County's criteria is the Department's design standard, the Capital Flood. Although the consultant states on page 3-95 that drainage facility requirements were based on the Department's criteria, our Division has not been requested to conduct review of the applicant's drainage concept. Additionally, it is our understanding that a drainage concept has not yet been submitted to Building and Safety/Land Development Division (BS/LC) for review. Therefore, we are unable to comment as to the validity of the applicant's claims or the adequacy of the proposed improvements. A drainage concept must be submitted to BS/LD for review of conformity to Department standards prior to our Department's recommendations for approval or denial of the Surface Mining Permit.

Response: The drainage concept plan for the project, entitled, "DRAINAGE CONCEPT FOR TRANSIT MIXED CONCRETE COMPANY SOLEDAD CANYON PROJECT", by C.A. Rasmussen Company, has been submitted to Building and Safety/Land Development Division (BS/LC) for review along with a proposed Mining and Reclamation Plan. Based on this review, the Applicant refined the drainage concept and has resubmitted the plan for subsequent review.

In Section V, Hydrologic Evaluation of the Site, the design criteria used to calculate runoff and size drainage and debris basins is discussed. As stated in the first paragraph of Section V., "The quantitative characterization of site hydrology is based on the methodology established by the Los Angeles County Department of Public Works. The 50-year capital flood was the basis of the analysis of the design storm for which drainage facility requirements would be determined."

Additionally, culvert design and desilting basin sizes are given in the report, but no hydrology study or calculations are included. Plans and calculations for these facilities and for the proposed diversion of flow resulting from the cutting back of the ridge line must be submitted to our Land Development/Building and Safety Division prior to issuance of a building permit.

Response: As mentioned above, the drainage concept and associated drainage calculations have been submitted to the County. The Summary Calculations, on pages 11 through 13 of the drainage concept report have tables which indicate that the size of the debris basins are calculated for the maximum debris conditions in all cases. These tables are currently included in the EIR.

Final design of the sediment basins will be submitted to Public Works for review after project approval and prior to construction. The final design will be based on the LACDPW Hydrology/Sedimentation Manual. The design will be according to LACDPW policy B IV, which states "waterways shall be designed to maintain an equilibrium between sediment supply

and the waterway and sediment transport through the waterway". With those design criteria satisfied, no impacts should occur when the project is active. Because the area will be reclaimed with native plant species, post project and pre-project sediment production rates will also be equivalent.

In addition, the conceptual design of the debris basins, spillways, and outlet structures are shown on the "Grading Plans and Facility Layouts" dated April 1991 by Environmental Solutions, Inc. (and have been attached is an excerpt from these plans showing the basin. The final design of the basins, outlet structures and energy dissipation structures will be furnished after project approval and prior to construction.

On Page 3-102, the consultant states that a culvert under the access road is a private culvert and is not subject to County design requirements, If the private culvert is undersized and causes the flows to back-up and exit the property at a location other than the natural/historical location, or if the culvert is subject to plugging and causes failure of the road, the culvert may need to be upgraded to avoid impacts to adjacent properties.

Response: Comment is noted. It is the Applicant's contention that the existing condition of this culvert will be improved by implementation of the Project drainage plan. As stated in the text and confirmed by the hydrology study, the major downstream drainage facility has adequate capacity for all scenarios of the Project.

On page S-9, the consultant states that the project mining operation and facilities are located outside the 100-year floodplain of the river. The facilities must also be located outside the floodplain resulting from the Department's Capital Flood. The Department completed a floodway map for the project reach of the rivers; however, the map has not been adopted. The Department's Capital Flood flow rate for the river at the project location and the resulting water surface elevation area available from the Department.

Response: In reviewing the Department's Capital Flood map for the area, it is noted that project facilities are outside of the floodway. The floodway boundary has been added to the FEMA flood boundary exhibit in the EIR.

* * *

Response to Mr. Lynn D. Nicholson, Materials Engineering Division, dated December 18, 1995.

Geology: The reports provided identify geotechnical issues and provide mitigation recommendations that appear feasible from a geologic standpoint.

Response: No response required.

Soils: It must be demonstrated, by slope stability calculations, that for the temporary slopes the intersection of a hypothetical slope gradient yielding a minimum factor of safety of 1.5, and the ground surface will not be closer than 50 feet to the property line.

Response: The slope configuration of the Project has been modified to comply with the stipulated criteria from minimum factor of safety of 1.5. Slope stability calculations are provided in the various project geotechnical reports provided under separate cover to the Department and are reflected in the Mining and Reclamation Plan, also submitted to the Department under separate cover.

* * *

Response to Mr. Paul H. Rippens, Chief, Forestry Division Prevention Bureau, dated December 19, 1995.

PLANNING DIVISION

The assessment of adequacy of fire protection services on p. 3-170 is inconsistent with our response to the Notice of Preparation. Please refer to our letter of December 17, 1991, (reproduced in Appendix A), especially the section entitled "Project Impact on Services".

Response: In the Fire Department's December 27, 1995 letter, it is concluded that, "Additional manpower, equipment, and facilities will be needed to serve this development". The EIR reached the conclusion that it was not expected additional manpower, equipment, and facilities would be necessary to serve the Project. The EIR reached the conclusion based on the following:

- The Mining Plan is not a typical development project. The mining industry has a good record with respect to fire prevention and suppression.
- The potential for fires on site is controlled through formal employee fire prevention training. There are no permanent inhabitants of the site.
- The site is presently sparsely vegetated and will not require annual vegetation control for fire prevention.
- No explosives will be stored on the site and all other 1994 Uniform Fire Code regulations will be implemented.
- In the event of a fire affecting the Project property, TMC will make available to County firefighters on site earthmoving equipment and manpower to help in wildfire suppression.
- A 600,000 gallon water storage tank will be located on site and will be available for use in firefighting situations.

However, it is recognized (last paragraph of EIR Section 3.1.6.2) that additional provisions for fire protection may be necessary, given the present situation with County Fire Department funding. TMC acknowledges that such provisions will be established through consultation with the Fire Department and will add this requirement under mitigation measure. TMC proposes to conduct this consultation prior to project implementation rather than prior to project approval. In this case, it is assumed that the consultation will result in acceptable mitigation of the impact.

SERVICE RESPONSIBILITY

The applicant shall participate in an appropriate financing mechanism to provide funds for fire protection facilities which are required by new commercial, industrial, or residential development in an amount proportionate to the demand created by this project. The developer shall contact the County of Los Angeles Fire Department at (213) 881-2404 to discuss mitigation arrangements.

Response: TMC acknowledges that mitigation fees will be established through consultation with the Fire Department and will add this requirement under mitigation measures.

FORESTRY DIVISION

We have reviewed the Draft Environmental Impact Report for the proposed surface mining project located in Section 9 and 16 of Township 4 North, Range 14 West, of the San Bernardino Base Meridian in the area of Canyon Country and located in the unincorporated area of Los Angeles County.

The statutory responsibilities of the Forestry Division of the Los Angeles County Fire Department include erosion control, watershed management, rare and endangered species, vegetation, fuel modification for high fire severity areas, archeological and cultural resources and the County Oak Tree Ordinance.

The following subjects have not been fully addressed in the screencheck DEIR and (sic) endangered species, vegetation, fuel modification for high severity areas, archaeological and cultural resources and the County Oak Tree Ordinance.

The project involves removal of 187 acres of natural vegetation and wildlife habitat over 20 years. Four sensitive plant species have been identified on site. Revegetation and landscape plans, including details on mitigations to reduce these impacts to less than significant area needed to evaluate the effects to the existing flora and fauna.

Response: The mitigation for loss of habitat is the proposed extensive concurrent reclamation and revegetation effort that will occur over the 20-year project operations period. The plan is described in Section 1.5 of the EIR. Specifically, the revegetation specification (Section 1.5.1) calls for a total of 232 acres to be reclaimed and revegetated. This acreage includes 187 acres of native vegetation and 45 acres of disturbance by the former mining operator. When nothing further is planned for a particular disturbed area, revegetation will occur consistent with preexisting density of vegetation. Upon completion of TMC's contract after 20-years, TMC will revegetate all disturbed areas not previously revegetated, unless BLM directs otherwise due to its decision to continue mining the site.

The Reclamation and Revegetation Plan for the site (as discussed in Section 1.5), includes specifications for collection and propagation of plant materials, site preparation, seed and container plant palettes, methods for seeding and planting, maintenance measures, and performance monitoring specifications. In addition, several documents were prepared that were

not provided to your office. The reclamation plan has been included in the Final Biological Assessment prepared for U.S. Fish and Wildlife Service and Bureau of Land Management pursuant to Section 7 of the federal Endangered Species Act. The Reclamation Plan is also detailed in a separate Mining and Reclamation Plan which has been reviewed by Los Angeles County Department of Public Works. Both U.S. Fish and Wildlife Service and Bureau of Land Management have agreed that the proposed Reclamation Plan adequately mitigates for the loss of vegetation and habitat that occurs over time with mining.

In addition, an as-built plan will be prepared as mining proceeds because placement of container plants will depend on micro sites that will result after grading for reclamation of the mine. The Reclamation Plan requires periodic reports to be filed with the responsible agencies regarding the installation and establishment of vegetation, as well as monitoring of the progress of the revegetation.

The four sensitive plant species occurring on site do not have state or federal protection status; however, the EIR analysis considers them sensitive and provides mitigation in the form of seed collection and planting/propagation as mining proceeds in habitats where these plants are found (see EIR Section 3.1.8.4 under the paragraph heading Sensitive Plants). Of the sensitive plants noted, Pierson's morninglory (*Calystegia peirsonii*) appears to thrive in disturbed areas (caused by either fire other reason) and the proposed mitigation (seed collection and planting) has been reviewed and approved by SEATAC, U.S. Fish and Wildlife Service, and BLM biologists. It is also assumed that the three sensitive species of mariposa lily (*Calchortus* sp.) will reestablish in disturbed areas as well.

Based on the above, it is concluded that TMC's Reclamation Plan adequately mitigates for the loss of native vegetation and fauna and that the impact is less than significant after mitigation.

We have not received an Oak Tree Permit application or report for review. An Oak Tree Permit may be required for this project.

Under the Los Angeles County Oak Tree Ordinance, a permit is required to cut, destroy, remove, relocate, inflict damage or encroach into the protected zone of any tree of the oak genus which is 25 inches or more in circumference (eight inches in diameter), as measured 4 ½ feet above mean natural grade.

Listed as an alternative is the North Fines Storage Area an alternative considered in detail to the Proposed TMC Project, which states on Page S-24"... oak trees that would require removal." Verification that the property include oak trees needs to be included in the EIR.

The applicant should incorporate innovated design to reduce or eliminate the impact to the oak resources.

Response: As stated in the EIR, no oak trees are found on the Project site and no permit is required. Though the site does contain California inland scrub oak (*Quercus berberidifolia*) as a component of the mixed chaparral community, this species is not sensitive and does not usually meet the criteria of protected oak species. The project has already been reviewed by SEATAC and no oak tree permit was required.

An Alternative North Fines Storage Area was considered in the EIR and was, in part, considered not feasible due to the occurrence of oak trees. The reference on Page S-24 indicates that the alternative would have greater impact than TMC's Project due to "... oak trees that would require removal". It is assumed that should the County choose to select an alternative North Fines Storage Area that contains oak trees, an Oak Tree Report and Permit will be required prior to construction.

The Archaeological and Historical records check and field survey findings should be included in the EIR. Any specific measures to retain cultural or archaeological areas on the project area should be included in the EIR.

Response: The EIR's Cultural Resources section (Section 3.1.9) provides the results and findings of the archival records search and field survey. A report documenting the findings will be retained on file at Los Angeles County Department of Regional Planning. The contents of such reports contain sensitive information that the County would prefer not to publish in the EIR (or appendices).

This project borders Significant Ecological Area #23 identified by the County. Creative environmental design to protect and preserve this sensitive area is necessary. It is important that the SEATAC report and its recommendations be included in the EIR.

Response: The project was reviewed by SEATAC on May 2, 1994. All comments by the committee were acted on and included in the November 1995 Screencheck Draft EIR as well as the federal Biological Assessment. The incorporation of SEATAC comments in the EIR was reviewed and approved by Darryl Koutnik of Los Angeles County Department of Regional Planning, and head of SEATAC.

Potential impacts from uncontrolled pumping of subsurface water, excess siltation, and uncontrolled discharges into the Santa Clara River could have significant detrimental effects on aquatic biota. The Habitat Protection Plan details the monitoring of Threespined Stickleback habitat but fails to properly address the issue of subsurface water withdrawal: Mitigation measures that would reduce this impact to less than significant needs further explanation and should be included in the EIR.

Response: As thoroughly discussed in the EIR in the sections on Flooding (Section 3.1.3), Water Resources (Section 3.1.2), Water Quality (Section 3.1.4), and Biota (Section 3.1.8), the project will not result in uncontrolled discharges to the Santa Clara River nor will there be uncontrolled pumping of the Santa Clara River underflow. Plans for discharges from the site are included in the EIR project description and preliminary engineering design which is part of the Mining and Reclamation Plan. Additional details of water discharges from the site are contained in the project Storm Water Pollution Prevention Plan and the Spill Prevention Control and Countermeasures Plan (these plans are included in the EIR Technical Appendices, Appendix B1 and B2.

There will be no uncontrolled pumping of the underflow of the Santa Clara River. As indicated in the EIR, under Water Resource mitigation measures, surface and subsurface water flows and levels will be monitored and mining activities curtailed if necessary to conserve water resources.

Specific design and operational criteria for the monitoring plan are included in the mitigation measures. In addition, water withdrawals and use will be subject to rules and regulations of the State Department of Water Resources and all associated agencies. Additionally, the plans for monitoring of water resources have been reviewed and approved by SEATAC and U.S. Fish and Wildlife Service.

The revised Recovery Plan for the Unarmored Threespined Stickleback (USFS 1985) should be included in the EIR.

Response: The USFS, 1985 Recovery Plan is a published document that has been used in the preparation of the EIR and has been added to the EIR appendix.

The proposed 45" culvert under Soledad Canyon Road to accommodate project runoff will increase water flow if (sic) the Santa Clara Rivers and possibly create significant hazards to the endangered unarmored threespined Stickleback. Mitigations to reduce this impact to less than significant need to be determined.

Response: The proposed 45-inch culvert improves an existing drainage inadequacy and does not increase runoff from the site. The concrete culvert will be discharging water that previously has been detained in a debris/desilting basin on the project site. Impacts to the Stickleback could only occur through the addition of silt, which has been taken into account and will be removed by the debris/desilting basins. It is noted that a portion of this flow originates off of TMC's site and can not be controlled by TMC.

Cumulative impacts of the project in conjunction with other past, present, and probable future projects whose impacts collectively might compound or interrelate with the proposed project need to be addressed particularly the proposed Bee Canyon Trailer Park.

Response: Cumulative impacts are discussed in EIR Section 3.4. Table 3.4-1 lists projects that are considered from a cumulative standpoint. Project number 93147 is the Bee Canyon Mobile Home Park which has been included in the cumulative analysis. This project is currently proposed for 650 mobile homes.

A comprehensive monitoring plan that clearly defines which agencies are responsible for the various monitoring processes of the project should be included in the Draft EIR.

Response: A Mitigation Monitoring and Reporting Plan (MMRP) is required by CEQA and will include the suggested information. It is the discretion of the County of Los Angeles Department of Regional Planning when to require the MMRP and whether it is to be included in the EIR.

A fuel management/modification and fire hazard reduction plan should be developed and implemented prior to construction.

Response: Since the proposed project is a mining operation, fuel modification will be accomplished around various operations areas as mining proceeds. The Reclamation Plan requires retaining as much vegetation as possible, with removal just prior to mining in specific areas. This is done to minimize silt laden site runoff, protect wildlife habitat, and at the same

time, accommodate any fuel modification and fire hazard reduction requirements in active mining areas. As has been stated in the Reclamation Plan (EIR Section 1.5), this is a phased project and areas will be sequentially cleared and revegetated over the 20-year contract mining period. All County ordinances with respect to fuel management and fire hazard reduction will be followed.

* * *

Response to Mr. Jack Petralia, Director of Environmental Protection, dated December 22, 1995.

This Department is not the Local Enforcement Agency for hazardous materials. This responsibility has been transferred to the Fire Department, Health Hazardous Materials Division.

Response: The comment is noted. The Fire Department has commented relative to hazardous materials.

The construction of water wells and monitoring wells must meet the requirements of Title 11 of the Los Angeles County Code and applicable regulations of the State of California. Well Drilling Permit(s) must be obtained from this Department prior to the drilling/construction of any water and monitoring wells.

Response: Comment is noted. The applicant is in the process of obtaining the right to appropriate water through the California State Department of Water Resources. In addition, the applicant will comply with County requirements relative to water and monitoring wells.

Section 11.22.280 of Title 11 of the Los Angeles County Code requires that every place of employment where two or more persons are employed shall be adequately supplied at all times with running water under pressure for use by human beings for both drinking and face and body washing purposes. Such supply and the facilities and the location of such facilities, must be approved by the director of health services.

Response: Comment is noted. The applicant intends to comply with County standards concerning the potable water and will display the facilities on plans during final design and prior to issuance of building permits.

Potable water supply to the project must be approved by the director of health services, and depending upon the number of persons at the project site each day, may require the establishment of a public water supply system meeting the requirements of the California Health and Safety Code and Title 22 of the California Code of Regulations.

Response: The applicant intends to comply with County and state standards relative to potable water supply. TMC is considering options for such supply including, bringing water to the site, using a portion of the requested entitlement (including associated testing and treatment), and hooking up to an existing water supply system.

The use of an on-site sewage system (septic tank and leach field) may require the approval of the California Regional Water Quality Control Board - Los Angeles Region. The on-site sewage disposal system must meet the requirements of the Los Angeles County plumbing code. Before any building permit can be issued for an on-site sewage disposal system, plans, specifications, and required geologic data must be submitted with applicable fees to this Department for review and approval.

Response: Comment is noted and the applicant will submit plans, reports, and fees at the appropriate time.

If reclaimed water becomes available, its quality and use must meet the requirements of Title 22 of the California Code of Regulations and other requirements established by the California Department of Health Services and this Department.

Response: It is not likely that reclaimed water will be available for the project, however, the Applicant will obtain approval from the California Department of Health Services and the Environmental Protection Department should use of reclaimed water become feasible in the future.

December 7, 1995

TO: Dave Yamahara
Planning Division

FROM: K. E. Weary
Traffic and Lighting Division

REVISED SCREENCHECK
DRAFT ENVIRONMENTAL IMPACT REPORT (DEIR)
SOLEDAD CANYON SAND AND GRAVEL MINING
PROJECT NO. 91165
SANTA CLARITA AREA

As requested, we have reviewed the subject document. The proposed project consists of a sand and gravel extraction and processing facility and a ready-mixed concrete batch plant. The site is located 2.5 miles east of the Antelope Valley Freeway on Soledad Canyon Road entirely within the unincorporated area of the County of Los Angeles.

The operation of the proposed project is planned in two phases, Phase I from 1996 to 2005 and Phase II from 2006 to 2015. Phase I production is expected to peak at 2.15 million tons of processed aggregate per year and Phase II at 4.2 million tons of processed aggregate per year. The project is estimated to generate approximately 1,591 passenger car equivalent (PCE) trips per day with Phase I and approximately 2,470 PCE trips per day with Phase II.

The Traffic Section of the DEIR is based on the 1992 traffic impact study. The information contained in the study are outdated. We recommend the study be revised to update the following. A copy of our Traffic/Access Guidelines is attached for reference.

- Show both peak-hour and daily traffic counts for the intersections and roads analyzed in the study.

- Related projects should include all pending, approved, and recorded projects in the area that will be built and occupied by the project Phase I and II build out year.

- Indicate whether the project's a.m./p.m. peak-hour trips shown in Tables 2 and 3 are in PCE's or truck trips.

- Indicate daily operation capacity for Phases I and II used in the trip generation analysis.

- The Level of Service (LOS) analyses of intersections and roadways analyzed should be conducted for the following traffic scenarios.

  a) Existing
  b) Existing plus ambient growth (three percent)
  c) Scenario (b) plus Phase I
  d) Scenario (c) plus related projects by Phase I build out year
  e) Scenario (d) plus ambient growth to Phase II build out year
  f) Scenario (e) plus Phase II
  g) Scenario (f) plus related projects by Phase II build out year

- Include all LOS analyses back up and calculation work sheets.

- An evaluation of the pavement integrity of the affected roadways and their ability to handle the increase of truck traffic resulting from this project.

We recommend the State of California Department of Transportation and City of Santa Clarita also review this report for impacts/mitigations within their jurisdictions.

If you have any questions, please contact Suen Fei Lau of our Traffic Investigations and Studies Section at Extension 5909.

SFL:lg
T-2/SOLEDAD

Attach.

cc: Ronald J. Ornee

TRAFFIC/ACCESS GUIDELINES

Generally, the Department staff is concerned with adverse impacts on traffic when: (1) traffic generated by a project considered alone or cumulatively with other projects, if added to existing traffic volumes, exceeds the design capacity of an intersection or roadway, contributes to an unacceptable Level of Service (LOS), or exacerbates an existing congested condition; and/or (2) project generated traffic interferes with the existing traffic flow (e.g., due to the location of access roads, driveways, parking facilities); and/or (3) proposed access locations do not provide for adequate safety (e.g., due to limited visibility on curving roadways); and/or (4) nonresidential uses generate commuter or truck traffic through a residential area; and/or (5) project generated traffic significantly increases on a residential street and alters its residential character.

(Note: Access as associated with the use of emergency vehicles is discussed under "Fire Hazard".)

These guidelines provide an outline of the information generally to be included in the Environmental Impact Report (EIR) you prepare or have prepared. Depending upon the specific concern(s) of the Department staff, all of the material listed may not be required. A traffic report should be prepared by a registered civil or traffic engineer. A traffic report is generally needed if a project generates over 500 trips per day unless other possible adverse impacts (see page 3) are identified.

Project Description

Note: This information may be included in another section of the EIR (e.g., Section I - Project Description).

1. A description of the project, including those factors which quantify traffic generators, e.g., dwelling units, square feet of office space, persons to be employed, restaurant seats, acres of raw land, etc. For residential developments, the description should indicate the type of residence, e.g., one level or townhouse condominiums, and if its use is for families, adults, or retirees.

2. A plot plan showing proposed driveways, streets, internal circulation, and any parking facilities on the project site.

Setting

1. A description of existing streets and roadways, both within the project site (if any) and in the surrounding area. Include information on the roadways' classifications, the number of lanes and roadway widths, signalized intersections, separate turn lanes, and the signal phases for turning movements.

2. Existing daily directional and peak-hour through and turning traffic volumes on the roadways surrounding and/or logically associated with the project site, including Secondary and Major highways and freeways. Local streets affected by the project should also be shown. If the proposed project is to be completed in several years, existing traffic volumes should be projected to that future date. Each report shall include appendices providing count data used in the preparation of the report. The source and date of the traffic volume information shall be indicated. Count data should not be over one and a half years old. Since peak volumes vary considerably, a ten percent daily variation is not uncommon, especially on recreational routes or roadways near shopping centers; therefore, representative peak-hour volumes are to be chosen carefully.

Analysis and Impact

1. Tabulate the estimated number of daily trips and peak-hour trips (a.m. and p.m.) generated by the proposed project entering and exiting the site. Trip generation factors and source are to be included. Institute of Transportation Engineers rates should generally be used, except in the case of condominiums/townhomes when the following rates should be used per unit: eight trips/day; 0.54 trips/a.m. peak, 0.48 outgoing, 0.06 incoming; 0.73 trips/p.m. peak, 0.26 outgoing, 0.47 incoming. Also, show a similar trip generation tabulation and a map of other nearby projects which would add traffic to the locations under study.

2. Diagrams should be provided showing the project and nearby project's peak-hour trips logically distributed on the roadway system, superimposed with current or projected peak-hour volumes. The study area should include arterial highways, freeways, and intersections generally within a one mile radius of the project site. (Note: This distance may be greater than one mile for rural areas depending on the proximity to nearby signalized intersections and the availability of master plan access routes).

3. If it appears that the project's generated traffic alone or together with other projects in the area, could worsen the LOS of an intersection or roadway a "before" and "after" LOS analysis is necessary. The Intersection Capacity Utilization (ICU) or Critical Movement Analysis are two methods often used to access existing and future LOS at intersections.

   If using the ICU method, a maximum of 1,600 vehicles per hour per lane should be used (dual left-turn lanes have a capacity of 2,880 vehicles per hour) and a ten percent yellow clearance cycle should be included. Intersection LOS analysis and calculation work sheets shall be included in the report for the following conditions: (a) existing traffic; (b) existing plus ambient growth to the year the project will be completed; (c) traffic in (b) plus project traffic; and (d) traffic in (c) plus the cumulative traffic other known developments. The project's impact on two-lane roadways should also be analyzed if those two-lane roadways are the principal or only access to more fully developed Master Plan Highways.

   LOS C (Volume to Capacity (V/C) ratio of 0.8) is considered acceptable. For most areas of the County, mid-range LOS D or V/C ratio of 0.85 is the point beyond which mitigation measures are required. For roadways in a highly urbanized area, such as East Los Angeles, LOS D (V/C ratio of 0.9) is the point beyond which mitigation measures are required.

   If it is assumed that new routes will alter traffic patterns, adequate backup including traffic distribution maps should be provided showing how and why these new routes will alter traffic patterns.

   Also, if it appears that the project's generated traffic, alone or with other projects in the area, could warrant traffic signals, signal warrant data should be provided.

4. Discuss other possible adverse impacts on traffic. Examples of these are: (1) the limited visibility of access points on curved roadways; (2) the need for pavement widening and left-turn lanes at access streets and driveways; and (3) the impact of increased traffic volumes on local residential streets.

5. Discuss conclusions regarding the adverse impacts caused by the proposed project on the roadway system. If the cumulative of this and other projects require mitigation measures, such as a traffic signal, estimate the percent share. When the proposed project and other nearby developments are expected to significantly impact adjacent roadways, the developer may be required to enter into a secured agreement to contribute to a benefit district to fund major roadway and bridge improvements in the region.

Mitigation Measures

Note: Identify mitigation measures which are to be incorporated into the project and those which will be implemented by others.

1. Locate access points to optimize visibility and reduce potential conflict.

2. Design parking facilities to avoid queuing into public streets during peak arrival periods.

3. Provide additional off street parking.

4. Dedicate visibility easements to assure adequate sight distance at intersections and driveways.

5. Signalize or modify traffic signals at an intersection.

6. Install left-turn phasing and/or multiple turning lanes to accommodate particularly heavy turning movements.

7. Widen the pavement to provide left or right turnout lanes to lessen the interference with the traffic flow.

8. Prohibit left turns to and from the proposed development.

9. Restrict on-street parking during peak hours to increase street capacity.

10. Widen intersection approaches to provide additional capacity.

11. Construct a grade separation.

12. Complete an alley to provide an alternate means of access.

13. Improve or construct alternate routes.

14. Complete proposed routes shown on the Los Angeles County Highway Plan.

15. Improve freeway interchanges (bridge widening, ramp modifications, etc.).

16. Transportation System Management

    a. Establish working hours which do not coincide with street peak-hour traffic.

    b. Encourage employee use of carpools and public transportation (specific measures must be indicated).

    c. Establish preferential parking for carpools.

    d. Restrict truck deliveries to Major and Secondary highways, and encourage delivery during the off-peak hours.

17. Contribute funds to a benefit district along with other developers to fund new routes in a region.

RM:df
T-2/ACCESS
02-09-93

December 13, 1995

TO: Terri M. Grant
Environmental and Special Studies

FROM: Barry S. Witler Barry S. Witler
Transportation Planning/Assessments

DRAFT ENVIRONMENTAL IMPACT REPORT
SOLEDAD CANYON SAND AND GRAVEL MINING
PROJECT NO. 91165

As requested, we have reviewed the subject document and offer the following comments.

The applicant is correct in acknowledging that Soledad Canyon Road is a designated major highway on the County Highway Plan. Consequently, the applicant must dedicate 50-feet of right of way from centerline and any applicable slope easements based on the latest Interdepartmental Engineering Committee (IEC) approved alignment for Soledad Canyon Road.

We agree with the applicant that the significant increase in truck traffic could potentially pose significant impacts due to conflicts between slow moving trucks and other vehicles along Soledad Canyon Road. While the applicant discussed using turnouts as mitigation measures for minimizing any possible safety hazard, opportunities to use turnouts between the project and SR-14 are limited by existing topographic features of the road. Therefore, we recommend that the applicant analyze the feasibility of upgrading the road alignment of Soledad Canyon Road to further enhance sight distance.

Additionally, our review indicates that the project may add more than 50 peak hour vehicles to a Congestion Management Program (CMP) Highway System intersection. Therefore, in accordance with the Los Angeles County CMP Land Use Analysis Guidelines, the following question should be addressed by the applicant under the Transportation/Circulation Section of the document:

> Will the CMP Transportation Impact analysis threshholds of 50 peak hour vehicles added by project traffic to a CMP Highway System (see Exhibit A of the attached Procedures for CMP Transportation Impact Analysis) intersection or 150 peak hour trips added by project traffic to a mainline freeway link be exceeded?

If a threshhold is exceeded, the analysis described in the attached Procedures is required.

If you have any CMP related questions, please contact Anna M. Gabriel at Extension 4315. Any other questions may be referred to Andy Narag at Extension 4356.

AHN/AMTG:nr
P-3:pro91165

Attach.

cc: Planning (Witler)

Exhibit D-5 describes a general approach to applying the preceding factors. Project trip distribution must be consistent with these trip distribution and purpose factors; the basis for variation must be documented.

Local agency travel demand models disaggregated from the Southern California Association of Governments regional model are presumed to conform to this requirement, as long as the trip distribution functions are consistent with the regional distribution patterns. Development of more specific consistency criteria is being considered by MTA.

For retail commercial developments, alternative trip distribution factors may be appropriate based on the market area for the specific planned use. Such market area analysis must clearly identify the basis for the trip distribution pattern expected. This would also apply to public facility projects which have a defined area of usage, such as court houses, hospitals, law enforcement offices, fire stations, or libraries.

Impact Analysis

Intersection LOS Analysis

In order to promote consistency in the TIAs prepared, CMP TIAs must conduct intersection LOS calculations using either of the following methods:

- The Intersection Capacity Utilization method as specified for CMP highway monitoring; or
- The Critical Movement Analysis/Circular 212 method.

Variation from the standard assumptions under either of these methods for circumstances at particular intersections must be fully documented.

Freeway Segment (Main Line) Analysis

For the purpose of CMP TIAs, a simplified analysis of freeway impacts is required. This analysis consists of a volume-to-capacity calculation for the affected segments and is indicated in Exhibit D-6.

Identification and Evaluation of Mitigation

Criteria for Determining a Significant Impact

For the purpose of a CMP TIA, a significant project impact occurs when the proposed project increases traffic demand on a CMP facility by two percent of capacity ($V/C \geq 0.02$), causing or worsening LOS F ($V/C > 1.00$).

Identification of Mitigation

Once the project has been determined to cause a significant impact, measures should be identified which will mitigate the impact of the project. Mitigation measures proposed must clearly indicate the following:

- Cost estimates, indicating the fair share costs to mitigate the impact of the proposed project.

  If the improvement from a proposed mitigation measure will exceed the impact of the project, the TIA must indicate the proportion of total mitigation costs which is attributable to the project. This fulfills the statutory requirement to exclude the cost of mitigating interregional trips.

- Implementation responsibilities.

  Where the agency responsible for implementing mitigation is not the lead agency (the agency for which the report is being prepared), the TIA must document consultation with the implementing agency regarding project impacts, mitigation feasibility, and responsibility.

Final selection of mitigation measures remains at the discretion of the lead agency. The TIA must, however, provide a summary of impacts and mitigation measures.

Project Contribution to Planned Regional Improvements

If the TIA concludes that project impacts will be mitigated by anticipated regional transportation improvements, such as rail transit or high occupancy vehicle facilities, the TIA must document:

- The project's contribution to the improvement; and
- The means by which trips generated at the site will access the regional facility.

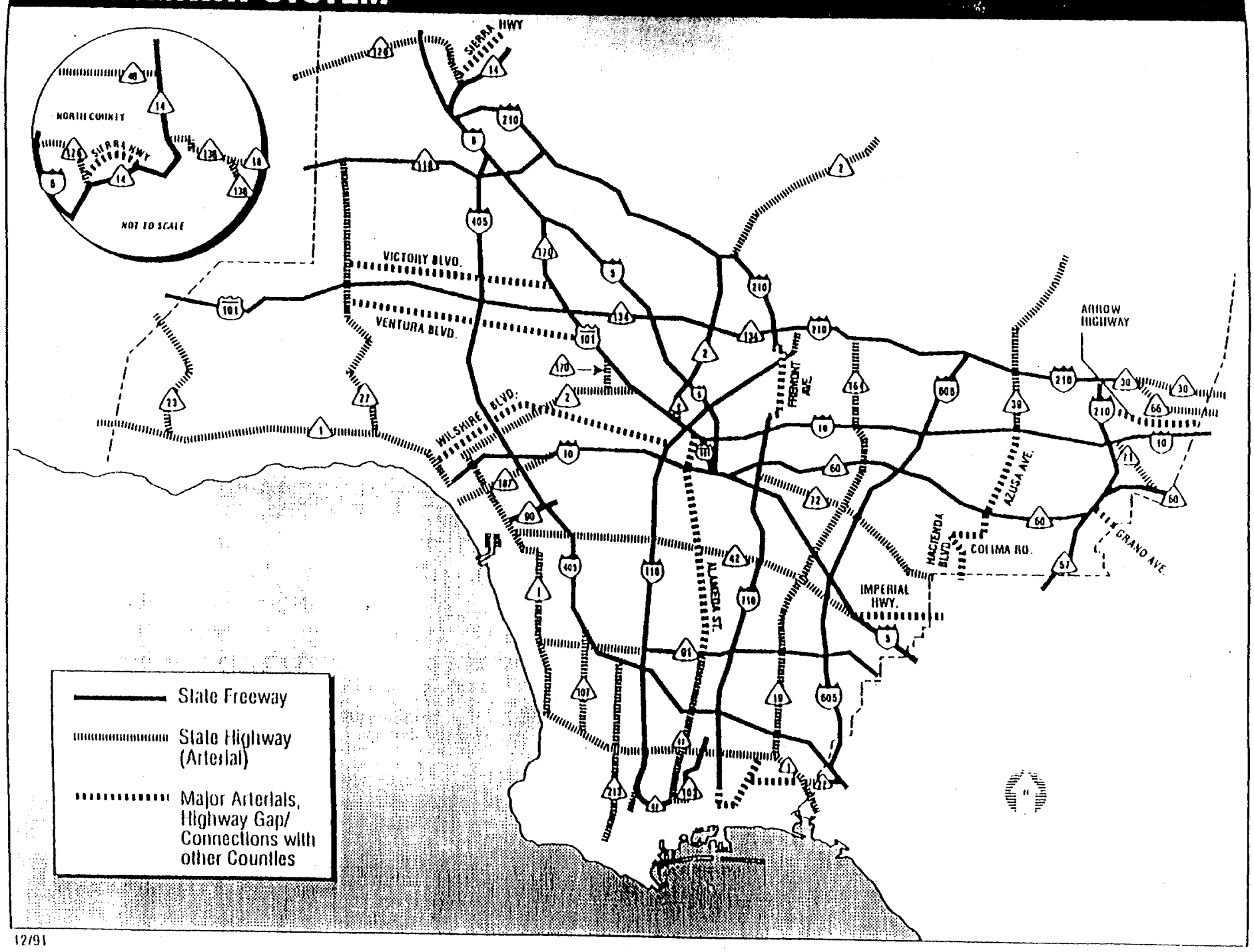
Transportation Demand Management (TDM)

If the TIA concludes or assumes that project impacts will be reduced through the implementation of TDM measures, the TIA must document specific actions to be implemented by the project which substantiate these conclusions.

RM:df
T-2/CMP
02-25-93

EXHIBIT A

CMP HIGHWAY SYSTEM



12/91

CMP HIGHWAY SYSTEM

State Route	Freeway/Arterial Name
1	Pacific Coast Highway, Palisades Beach Road, Lincoln Boulevard, Sepulveda Boulevard
2	Lincoln Boulevard, Santa Monica Boulevard, Alvarado Street, Glendale Boulevard, GLENDALE FREEWAY, Angeles Crest Highway
5	SANTA ANA FREEWAY, GOLDEN STATE FREEWAY
10	SANTA MONICA FREEWAY, SAN BERNARDINO FREEWAY
14	ANTELOPE VALLEY FREEWAY
18	Pearblossom Highway
19/164	Lakewood Boulevard, Rosemead Boulevard
22	7th Street, GARDEN GROVE FREEWAY
23	Decker Canyon Road
27	Topanga Canyon Boulevard
30	FOOTHILL FREEWAY, Baseline Road, Williams Avenue, College Way
39	Azusa Avenue, San Gabriel Canyon Road
42/105	Manchester Boulevard, Firestone Boulevard
47	Vincent Thomas Bridge, Henry Ford Avenue, Alameda Street
48	Neenach Road, Avenue D
57	ORANGE FREEWAY
60	POMONA FREEWAY
66	Foothill Boulevard
71	Corona Expressway
72	Whittier Boulevard
90	Marina Expressway, MARINA FREEWAY
91	Artesia Boulevard, GARDENA FREEWAY, ARTESIA FREEWAY
101	SANTA ANA FREEWAY (SPUR), HOLLYWOOD FREEWAY, VENTURA FREEWAY
103	TERMINAL ISLAND FREEWAY
107	Hawthorne Boulevard
110	Gaffey Street, HARBOR FREEWAY, PASADENA FREEWAY, Arroyo Parkway
118	SIMI VALLEY FREEWAY, SAN FERNANDO VALLEY FREEWAY
126	Henry Mayo Drive, Magic Mountain Parkway, San Fernando Road
134	VENTURA FREEWAY
138	Neenach Road, Palmdale Boulevard, 47th Street East, Fort Tejon Road, Pearblossom Highway, Antelope Highway
170	Highland Avenue, HOLLYWOOD FREEWAY
187	Venice Boulevard
210	FOOTHILL FREEWAY
213	Western Avenue
405	SAN DIEGO FREEWAY
605	SAN GABRIEL RIVER FREEWAY
710	LONG BEACH FREEWAY, Pasadena Avenue, St. John Avenue

HIGHWAY GAPS/CONNECTORS WITH OTHER COUNTIES

Street	Limits
Arrow Highway	Route 210 to San Bernardino County
Azusa Avenue	Colima Road to Route 10
Colima Road	Hacienda Boulevard to Azusa Avenue
Fremont Avenue	Valley Boulevard to Columbia Street
Grand Avenue	Route 57 to San Bernardino County
Hacienda Boulevard	Orange County to Colima Road
Imperial Highway	Route 5 to Orange County
Valley Boulevard	Route 710 to Fremont Avenue

MAJOR ARTERIALS

Street	Limits
Alameda Street	Port of Los Angeles to Route 101
Alamitos Avenue	Ocean Boulevard to Pacific Coast Highway
Seventh Street	Alamitos Avenue to Pacific Coast Highway
Sierra Highway	Route 126 to Route 14 (at Red Rover Mine Road)
Shoreline Drive	Route 710 to Ocean Boulevard
Ventura Boulevard	Topanga Canyon Boulevard to Lankershim Boulevard
Victory Boulevard	Topanga Canyon Boulevard to Route 170
Wilshire Boulevard	Ocean Boulevard to Route 110

12/11/91

DEPARTMENT OF PUBLIC WORKS - COUNTY OF LOS ANGELES
BUILDING AND SAFETY/LAND DEVELOPMENT DIVISION - PLAN CHECKING SECTION
DRAINAGE AND GRADING UNIT

December 14, 1995

TO: Planning Division
Attn: Kristin

RE: REVIEW OF D.E.I.R. FOR SOLEDAD CANYON SAND AND GRAVEL MINING PROJECT NO. 91-165

We have reviewed the sections of the subject environmental document addressing drainage and grading issues and have the following comments:

1. Provide a Reclamation Plan for our review and approval in conformance with SMARA(The Surface Mining and Reclamation Act of 1975) and the Los Angeles County Code Title 22. The Reclamation Plan must include information, among others, related to drainage and grading issues and must be approved by this Department prior to approval of the Surface Mining Permit by the Department of Regional Planning.

2. An approved Reclamation Plan for this project, may require revisions to the environmental documents.

If you have any questions regarding the comments above, please contact the undersigned at (818) 458-4921.

Prepared by Ron Lacayo

RL
soledad.eir

December 14, 1995

TO: Dave Yamahara
Planning Division

Attention Vik Bapna

FROM: Janet Rodriguez
Environmental Programs

DRAFT ENVIRONMENTAL IMPACT REPORT (DEIR)
SOLEDAD CANYON SAND AND GRAVEL MINING
LOS ANGELES COUNTY UNINCORPORATED AREA
TRANSIT MIXED CONCRETE COMPANY
SURFACE MINING PROJECT

This division has reviewed the above mentioned document in reference to our area of responsibility and provide the following comments:

1. Current estimates indicate that a shortfall in permitted daily land disposal capacity in Los Angeles County will occur within the next few years. The proposed development will increase the generation of solid waste and will negatively impact solid waste management facilities in the County. Therefore, the proposed Environmental Impact Report must identify what measures the project proponent will implement to mitigate the impact. These measures may include, but are not limited to, implementation of waste reduction, recycling and composting programs, as well as programs to divert the construction waste from the landfills.

2. The report discussed the issues related to possible Storm Water Pollution. Best Management Practices (BMPs), Spill Prevention Plan and other Stormwater Pollution prevent programs were discussed. The document highlighted the following pollutants of concern:

   a. Migration of chloride ions derived from dust palliatives.

   b. Undetected leaks of grease, fuel and/or oil.

   c. Septic tank leaks.

   d. Leaching of the chemical flocculent, Hydrofloc 437.

   It is not clear how the possible impacts to groundwater quality are being addressed with regard to the pollutants of concern listed above.

   Water quality monitoring may be needed to ensure that the measures taken to prevent migration are effective and also to alert for the need to modify any BMPs.

3. The California Solid Waste Reuse and Recycling Access Act of 1991, as amended, established requirements for each "development project" to provide adequate storage area(s) for collection and removal of recyclable materials.

   The Environmental Impact Report should discuss standards to provide adequate "waste storage areas" for collection/storage of recyclable and green waste materials for this project.

If you have any questions concerning this matter, please contact me at Extension 3564.

JR:jr
WM-2\jr8\SoledaEI

December 14, 1995

TO: David Yamahara
Planning Division

FROM: Robert D. Pedigo
Hydraulic/Water Conservation Division

SOLEDAD CANYON SAND AND GRAVEL MINING-EIR

We have reviewed the Revised Screencheck Draft Environmental Impact Report for the proposed Soledad Canyon Sand and Gravel Mining Operation and have the following comments:

The EIR contains 100-year frequency rainfall data including an isoheytal map and lengthy descriptions of historical rainfall amounts. While this data may be required for federal agencies, the County's criteria is the Department's design standard, the Capital Flood. Although the consultant states on page 3-95 that drainage facility requirements were based on the Department's criteria, our Division has not been requested to conduct review of the applicant's drainage concept. Additionally, it is our understanding that a drainage concept has not yet been submitted to Building and Safety/Land Development Division (BS/LD) for review. Therefore, we are unable to comment as to the validly of the applicant's claims or the adequacy of the proposed improvements. A drainage concept must be submitted to BS/LD for review of conformity to Department standards prior to our Department's recommendations for approval or denial of the Surface Mining Permit.

Additionally, culvert and desilting basin sizes are given in the report, but no hydrology study or calculations are included. Plans and calculations for these facilities and for the proposed diversion of flow resulting from the cutting back of the ridge line must be submitted to our Land Development/Building and Safety Division prior to issuance of a building permit.

On Page 3-102, the consultant states that a culvert under the access road is a private culvert and is not subject to County design requirements. If the private culvert is undersized and causes the flows to back-up and exit the property at a location other than the natural/historical location, or if the culvert is subject to plugging and causes failure of the road, the culvert may need to be upgraded to avoid impacts to adjacent properties.

On page S-9, the consultant states that the project mining operation and facilities are located outside the 100-year floodplain of the river. The facilities must also be located outside the floodplain resulting from the Department's Capital Flood. The Department completed a floodway map for the project reach of the river; however, the map has not been adopted. The Department's Capital Flood flow rate for the river at the project location and the resulting water surface elevation are available from the Department.

Your materials are returned herewith.

If you have any questions regarding these comments, please contact Keith Lilley at Extension 6139.

KAL:jr
SOLEMIN.MEM

Attach.

cc: Building and Safety/Land Development (Lacayo)
H/WC (2) (Nasseri, Files)

December 18, 1995

TO: Dave Yamahara
Planning Division

Attention Vikram Bapna

FROM: Lynn D. Nicholson
Materials Engineering Division

REVIEW OF ENVIRONMENTAL DOCUMENTS

The attached documents for the Santa Clarita Project, No. 91165, have been reviewed by the Materials Engineering Division.

Comments are attached.

If you have any questions regarding this matter, please contact Fred Gharib at (818) 458-4925.

sm
ME-0/EIR:91165

Attach.

GEOTECHNICAL DEVELOPMENT REVIEW OF ENVIRONMENTAL DOCUMENTS

DEPARTMENT OF PUBLIC WORKS
MATERIALS ENGINEERING DIVISION

	Geotechnical Engineer	Engineering Geologist
DENTIFICATION 91165		
Santa Clarita (Lang)		
IVED 11/27/95 DEADLINE 12/14/95		
EWED supplemental slope stability analyses by Hilltop Geotech. & Screencheck Draft Environmental Impact Report		
d project has no significant effects on the checked environmental n a geology and soils standpoint, provided the appropriate nd codes are followed.		
e ~~initial study~~/geotechnical report indicates that the proposed ~~will not~~ have significant effects on the checked environmental n a geology and/or soils standpoint. See discussion.	X	X
nental document is inadequate from a geology and soils standpoint. on.		
N COMPLETED	12/18/95	12/14/95

DISCUSSION OF POTENTIALLY SIGNIFICANT EFFECTS AND/OR REPORT INADEQUACIES

rts provided identify geotechnical issues and provide mitigation ations that appear feasible from a geologic standpoint.

be demonstrated, by slope stability calculations, that for the y slopes the intersection of a hypothetical slope gradient a minimum factor of safety of 1.5, and the ground surface be closer than 50 feet to the property line.

lanning Division or
DMA/Processing Center Section
nent Review Section File

COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

900 SOUTH FREMONT AVENUE
ALHAMBRA, CALIFORNIA 91803-1331
Telephone: (818) 458-5100

HARRY W. STONE, Director

ADDRESS ALL CORRESPONDENCE TO:
P.O.BOX 1460
ALHAMBRA, CALIFORNIA 91802-1460

DATE December 20, 95

IN REPLY PLEASE REFER TO FILE: P-4

Mr. Frank Meneses
Section Head, Impact Analysis Section
Department of Regional Planning
County of Los Angeles
320 West Temple Street
Los Angeles, CA 90012-3828

Attention Kerwin Chin

Dear Mr. Meneses:

RESPONSE TO REVIEW OF ENVIRONMENTAL DOCUMENTS

Enclosed are comments from the following Divisions within this Department regarding 91165, Soledad Surface Mining Project:

- [✓] Land Development - Drainage and Grading
- [✓] Materials Engineering - Geology and Soils
- [✓] Traffic and Lighting
- [ ] Waterworks and Sewer Maintenance
- [✓] Environmental Programs
- [✓] Other Transportation Planning, Hydraulic/Water Con

If you have any questions regarding the comments, please contact the person listed on the enclosed comments. For additional information, please contact Mr. Vik Bapna at (818) 458-4363.

Very truly yours,

HARRY W. STONE
Director of Public Works

Teri M Grant

TERRI M. GRANT
Planning Division
Environmental/Special Studies Section

KD FORM.36/my

VB

Enc.

L.A. COUNTY

(213) 881-2481 1996 DEC 23 AM 9:05

DEPARTMENT OF
REGIONAL PLANNING

December 19, 1995

Mr. Kerwin Chih
Department of Regional Planning
Impact Analysis Section
320 West Temple Street
Los Angeles, CA 90012

Dear Mr. Chih:

SUBJECT: ENVIRONMENTAL IMPACT REPORT -- PRELIMINARY DRAFT (SCREENCHECK) -- SOLEDAD CANYON SURFACE MINING PROJECT SCH #911111066, (EIR #305, 1995)

PLANNING DIVISION

The assessment of adequacy of fire protection services on p. 3-170 is inconsistent with our response to the Notice of Preparation. Please refer to our letter of December 17, 1991, (reproduced in Appendix A), especially the section entitled "Project Impact on Services."

SERVICE RESPONSIBILITY

The applicant shall participate in an appropriate financing mechanism to provide funds for fire protection facilities which are required by new commercial, industrial or residential development in an amount proportionate to the demand created by this project. The developer shall contact the County of Los Angeles Fire Department at (213) 881-2404 to discuss mitigation arrangements.

Post-it® Fax Note 7671	Date 12/18 # of pages ▶ 4
To Tom Ryan	From Kerwin Chih
Co./Dept.	Co.
Phone #	Phone #
Fax # 714-261-8950	Fax #

FORESTRY DIVISION

We have reviewed the Draft Environmental Impact Report for the proposed surface mining project located in Section 9 and 16 of Township 4 North, Range 14 West, of the San Bernardino Base Meridian in the area of Canyon Country and located in the unincorporated area of Los Angeles County.

The statutory responsibilities of the Forestry Division of the Los Angeles County Fire Department include erosion control, watershed management, rare and endangered species, vegetation, fuel modification for high fire severity areas, archeological and cultural resources and the County Oak Tree Ordinance.

The following subjects have not been fully addressed in the screencheck DEIR and endangered species, vegetation, fuel modification for high fire severity areas, archeological and cultural resources and the County Oak Tree Ordinance.

The project involves removal of 187 acres of natural vegetation and wildlife habitat over 20 years. Four sensitive plant species have been identified on site. Revegetation and landscape plans, including details on mitigations to reduce these impacts to less than significant are needed to evaluate the effects to the existing flora and fauna.

We have not received an Oak Tree Permit application or report for review. An Oak Tree Permit may be required for this project.

Under the Los Angeles County Oak Tree Ordinance, a permit is required to cut, destroy, remove, relocate, inflict damage or encroach into the protected zone of any tree of the oak genus which is 25 inches or more in circumference (eight inches in diameter), as measured 4-1/2 feet above mean natural grade.

Listed as an alternative is the North Fines Storage Area an alternative considered in detail to the Proposed TMC Project, which states on Page S-24 "...oak trees that would require removal." Verification that the property include oak trees needs to be included in the EIR.

The applicant should incorporate innovative design to reduce or eliminate the impact to the oak resources.

The Archaeological and Historical records check and field survey findings should be included in the EIR. Any specific measures to retain cultural or archaeological areas on the project area should be included in the EIR.

This project borders Significant Ecological Area #23 identified by the County. Creative environmental design to protect and preserve this sensitive area is necessary. It is important that the SEATAC report and its recommendations be included in the EIR.

Potential impacts from uncontrolled pumping of subsurface water, excess siltation, and uncontrolled discharges into the Santa Clara River could have significant detrimental effects on aquatic biota. The Habitat Protection Plan details the monitoring of Threespine Stickleback habitat but fails to properly address the issue of subsurface water withdrawal. Mitigation measures that would reduce this impact to less than significant needs further explanation and should be included in the EIR.

The revised Recovery Plan for the Unarmored Threespine Stickleback (USFS 1985) should be included in the EIR.

The proposed 45" culvert under Soledad Canyon Road to accommodate project runoff will increase water flow if the Santa Clara River and Possibly create significant hazards to the endangered Unarmored Three Spine Stickleback. Mitigations to reduce this impact to less than significant need to be addressed.

Cumulative impacts of the project in conjunction with other past, present, and probable future projects whose impacts collectively might compound or interrelate with the proposed project need to be addressed particularly the proposed Bee Canyon Trailer Park.

A comprehensive monitoring plan that clearly defines which agencies are responsible for the various monitoring processes of the project should be included in the Draft EIR.

A fuel management/modification and fire hazard reduction plan should be developed and implemented prior to construction.

This project will require an EIR Fee deposit of $1,000 payable to the Los Angeles County Fire Department at the time the DEIR is submitted for review (see attached).

If you have any additional questions, please contact this office at (213) 881-2481.

Very truly yours,

PAUL H. RIPPENS, CHIEF, FORESTRY DIVISION
PREVENTION BUREAU

PHR:jmb

Enclosure

cc: Gubrud E/R, Deagon, Div. III, EIR File, Engineering, Planning, Pac copy, (EIR305/b-7wp)

Orig was signed

COUNTY OF LOS ANGELES ■ DEPARTMENT OF HEALTH SERVICES
ENVIRONMENTAL HEALTH
BUREAU OF ENVIRONMENTAL PROTECTION
2525 Corporate Place Rm.150, Monterey Park, CA 91754 (213) 881-4011

December 22, 1995

To: Kerwin Chih, Assistant Section Head
Impact Analysis Section
Department of Regional Planning

From: Jack Petralia
Director of Environmental Protection

Subject: **PRELIMINARY DRAFT ENVIRONMENTAL IMPACT REPORT, PROJECT NO. 91165 SOLEDAD CANYON SURFACE MINING PROJECT**

This is in response to your November 27, 1995 request for comments regarding the above project.

This Bureau has reviewed the sections of the Preliminary Draft Environmental Impact Report (PDEIR) that we have regulatory responsibilities for and submits the following comments:

Hazardous Materials Handler Permit
This Department is not the Local Enforcement Agency for hazardous materials. This responsibility has been transferred to the Fire Department, Health Hazardous Materials Division.

Water Supply
The construction of water wells and monitoring wells must meet the requirements of Title 11 of the Los Angeles County Code and applicable regulations of the State of California. Well Drilling Permit(s) must be obtained from this Department prior to the drilling/construction of any water and monitoring wells.

Section 11.22.280 of Title 11 of the Los Angeles County Code requires that every place of employment where two or more persons are employed shall be adequately supplied at all times with running water under pressure for use by human beings for both drinking and face and body washing purposes. Such supply and the facilities and the location of such facilities, must be approved by the director of health services.

Potable water supply to the project must be approved by the director of health services, and depending upon the number of persons at the project site each day, may require the establishment of a public water supply system meeting the requirements of the California Health and Safety Code and Title 22 of the California Code of Regulations.

On-Site Sewage Disposal

The use of an on-site sewage system (septic tank and leach field) may require the approval of the California Regional Water Quality Control Board - Los Angeles Region. The on-site sewage disposal system must meet the requirements of the Los Angeles County plumbing code. Before any building permit can be issued for an on-site sewage disposal system, plans, specifications and required geological data must be submitted with applicable fees to this Department for review and approval.

Reclaimed Water

If reclaimed water becomes available, its quality and use must meet the requirements of Title 22 of the California Code of Regulations and other requirements established by the California State Department of Health Services and this Department.

Thank you for the opportunity to review the PDEIR. If you have any questions or need additional information, please let me know.

j:91165.eir

RESPONSE TO COMMENTS FROM COUNTY DEPARTMENT REVIEW OF SOLEDAD CANYON SAND AND GRAVEL MINING PROJECT SCREENCHECK DRAFT EIR

1. **Letter from Shari Afshari, Environmental Programs Division, August 20, 1998.**

A. Comment 1: The California Solid Waste Reuse and Recycling Access Act of 1991 requires each "development project" to provide an adequate storage area for collection and removal of recyclable materials. The EIR should include/discuss standards to provide adequate "waste storage areas" for recyclables and green wastes. In response to this previous comment, it was shown that the proposed project would not generate a significant amount of solid waste.

B. Response 1: In order to satisfy this comment, we propose to add the following language to the EIR text.

On Page 1-55, add new section 1.4.3.5 Solid Waste Recycling, as follows:

1.4.3.5 Solid Waste Recycling

The proposed project will generate very minimal amounts of solid waste requiring disposal in County waste management landfills. However, recycling will be implemented by the Project through composting of green wastes stripped from mining areas and the separation of recyclable office wastes, consistent with the requirements of the California Solid Waste Reuse and Recycling Access Act of 1991. All green waste will be retained on-site and composted for use in the proposed concurrent revegetation program. Composting areas for green wastes could occur at various areas throughout the site and are not specifically designated.

Other wastes, consisting primarily of paper products, will be separated from any food wastes and will be stored in containers at the site office building.

On Page 3-413, add new section called Generation of Solid Wastes, after the paragraph entitled Significance Criteria, as follows:

Generation of Solid Waste

The Project will generate a minimal amount of solid wastes during construction and operations. Potentially, there will be five types of waste generated, including:

Construction wastes: There will be a minimal amount of waste generated by the construction of the facility. The waste will be the result of constructing;

- 55' x 62' maintenance building
- Two (2) 70' x 14' scales
- 10' x 22' scale house
- 55' x 35' office building

TMC does not anticipate generating any demolition waste during the construction phase.

Mining Operations wastes: Mining operations will not create wastes that will be sent to a landfill. The excess natural fines generated during processing of minerals at the facility will either be sold, stored onsite, or used for revegetation.

Green wastes: Green wastes will be generated when land is cleared for mining. TMC expects to clear 68 acres during the initial construction phase and will probably clear another 10 acres per year during the mining phase. However, because this site is sparsely vegetated, a significant amount of green waste will not be generated. All green waste will be retained on-site and composted for use in the proposed concurrent revegetation program.

The proposed facility is not designed to have landscaping that will generate green waste.

Employee waste: There will be 15 employees working at this site during Phase 1 and 30 employees during Phase 2. Most of these employees will be equipment operators and will only generate a small amount of waste from meals and the maintenance shop.

Office waste: Of the employees listed above, a few will be office employees who will generate office waste. The majority of office wastes are paper products and will be separated for recycling. There will be a minimal amount of waste sent to a landfill.

The California Solid Waste Reuse and Recycling Access Act of 1991 requires recycling of solid wastes. The Project includes separation of recyclables consistent with the Act and generates a minimal amount of such wastes. Consequently, there are no significant adverse impacts of the Project and no mitigation measures are required.

C. Comment 2: Environmental Programs Division points out that permits will be required for underground storage tanks and industrial waste control or disposal facilities.

D. Response 2: TMC will, of course, obtain any required permits and otherwise comply with local, state, and federal laws, however, no underground storage tanks or waste facilities are planned. No changes to the EIR text are proposed.

E. Comment 3: It is suggested that the EIR needs to fully address the impact of the Project on the quality of stormwater runoff, and reference to the County's storm water permit should be made.

F. Response 3: We propose that the following text be inserted in Section 3.1.4.2 Impacts. The text would be inserted on page 3-134 replacing the sentence that starts with, " An SWPPP has been prepared...", ending at the bottom of page 3-135 with, "...are summarized in Table 3.1.4-14."

> Storm water discharges are regulated by the federal Clean Water Act. In California, the State Water Resources Control Board elected to issue a statewide general permit (Permit) that applies to all discharges requiring a permit except construction activities. This statewide permit was last updated on April 17, 1997. In addition, the County of Los Angeles and 85 incorporated cities adopted Order No. 96-054, National Pollutant Discharge Elimination System Permit CAS614001. This order is designed to help cities in, and the County of, Los Angeles control discharges from Municipal Separate Storm Sewer Systems (MS4).
>
> A SWPPP has been prepared for the Project that meets the requirements of the April 1997 statewide general permit and Order No. 96-054. This SWPPP identifies potential sources of pollutants that may affect the quality of storm water discharges from the site and describes practices to reduce those pollutants in storm water discharges (West Coast Environmental, 1997b). The SWPPP mitigates potentially significant impacts related to pollutant constituents in site runoff (see Mitigation Measure WQ2). A copy of the SWPPP is presented in Appendix B1. Potential pollutants associated with each outfall and its corresponding drainage area are summarized in Table 3.1.4-14. A brief summary of the findings and recommendations of the SWPPP is provided here. Additional analysis is included in the discussion of mining activities in the water quality section.
>
> Mining operations and activity areas were identified in the SWPPP that are potential sources of pollutants to storm water runoff from the site. Mining areas will disturb the natural ground cover, and potential sources of pollution from these areas include suspended solids, oil and grease from machinery, and hydraulic oil from machinery failure. Activities that occur in the process area can contribute suspended solids from aggregate processing, oil and grease from machinery, and chemical flocculents from the fines separation and water treatment process. After mining and processing, material storage piles and excess fines material storage at the NFSA have the potential to release suspended solids from storage. The batch plant can contribute suspended solids from processing and transfer of aggregate and concrete,

and oil and grease from machinery operations. Fueling areas are located at the maintenance building and the concrete batch plant. These areas will be sloped to drain toward a sump, and the fuel storage tanks will have secondary containment. Unpaved roads and some material storage piles will be treated with a chemical dust palliative which can increase biochemical oxygen demand (BOD) and dissolved solids.

Insert as a new paragraph on bottom of page 3-139, before paragraph starting with, "Spills of hazardous materials...".

The facility has been designed to minimize storm water runoff contact with petroleum hydrocarbons. Fueling areas at the maintenance building and the concrete batch plant will be sloped to drain toward a sump, and the fuel storage tanks will have secondary containment.

2. **Letter from Kenneth H. Erhard, Flood Maintenance Division, August 26, 1998.**

A. Comment 1: The Flood Maintenance Division did not have specific comments on the EIR text. One unrelated comment had to do with requesting review of the final design of the debris basins. TMC has already committed to review of the debris basin final design prior to construction.

B. Response 1: Relative to final design of debris basins, the EIR includes Mitigation Measure F1 requiring plans for final design of the basins to be approved by DPW prior to commencement of grading.

C. Comment 2: Another unrelated comment, but with potential EIR implications, is the request for Public/Private Partnership Agreement for establishment of the proposed Soledad Canyon facility as a County sediment placement site (SPS).

D. Response 2: To clarify Flood Maintenance Division's comments relative to the issue of a public/private partnership agreement for disposal of debris basin sediment, John Hecht (West Coast Environmental), met with Wayne L. Snively of Flood Maintenance on October 28, 1998. We believe that all issues are resolved as follows:

Relative to sediment placement, TMC indicates that it is open to such a partnership to the extent that sediment placement is feasible and will cooperate with the County to establish a Memorandum of Understanding (MOU) relative to a SPS at Soledad Canyon. TMC is also open to a condition of approval (not a mitigation measure) establishing that TMC will cooperate with the County to establish such a MOU. Flood Maintenance Division estimates that the volume of material generated would not exceed 10,000 cubic yards per year or 50,000 cubic yards over the 20 year life of the project. The material to be deposited at the facility would come from various debris basins, but mostly from Bouquet, Plum, and Sand Canyons, and consists primarily of sand, silt, and small-sized gravel. These volumes of material are relatively small compared to the

production rates of the facility. TMC has initially agreed that use of the site for sediment placement could be done within the general operating parameters of the Project (i.e., there would be no substantial increase in truck traffic or material processed as a result of accepting the material from the County). The impact analysis would not need to be revised; however, it is proposed to add a statement to the Project Description to acknowledge that the facility may be used as a County sediment placement site, as follows:

On Page 1-55, add new section 1.4.3.5 Sediment Placement Site, as follows:

1.4.3.5 Sediment Placement Site

To the extent feasible, the Soledad Canyon facility may be designated as a County of Los Angeles Sediment Placement Site (SPS). Upon completion of a Memorandum of Understanding (MOU), the County of Los Angeles Flood Maintenance Division may deposit sand, silt, and small gravel materials excavated during maintenance of County debris basins at the Soledad Canyon facility. The County estimates that the volume of material generated would not exceed 10,000 cubic yards per year or 50,000 cubic yards over the 20 year life of the project. At a minimum, no material would be deposited at the facility. The County's material would come from various debris basins, but mostly from Bouquet, Plum, and Sand Canyons. The operation of the sediment placement site will be accommodated within the parameters of project operations with no net increase in material processed or truck operations. Accordingly, there are no additional environmental impacts associated with this potential operational modification relative to the project analysis presented in this EIR.

3. **Letter from Thomas V. Schriber, Hydraulic/Water Conservation Division, August 25, 1998.**

A. Comments: The Hydraulic/Water Conservation Division had no comments on the analysis in the EIR. However, the Division would like to review the final design of the debris basins. They also commented that the outer grading areas in the canyons are extensive and may need to be protected by additional debris basins. They could not review this aspect due to the small scale of the maps in the EIR.

B. Response: No changes to the EIR text are proposed. Large scale mining plan maps previously have been submitted to public works. TMC will contact the Division to let them know that the detailed Mining Plan has been submitted and previously reviewed by Public Works, Land Development - Grading and Drainage section, without requirements for additional basins. TMC has agreed that the final design of the drainage basins will be reviewed by Public Works prior to issuance of grading permits.

4. Letter from Materials Engineering Division, August 18, 1998.

A. Comments: The Division commented that the project has no significant impact on geology or soils.

B. Response: No changes to the EIR text are proposed.

5. Letter from K.E. Weary, Traffic and Lighting Division, August 26, 1998.

To clarify Traffic and Lighting Division's comments in several specific areas, John Hecht (West Coast Environmental), Dick Poole, Dan Dawson (both of Associated Transportation Engineers), and Thomas Ryan (Chambers Group) met with James Chon and Suen Fei Lau of Traffic and Lighting on November 18, 1998. Clarifications were needed with respect to calculation of fair share percentage, traffic index analysis, and the widening of Soledad Canyon Road to four lanes. We believe that all issues are or will be resolved as follows:

A. Comment 1: Relative to the Project site access at Soledad Canyon Road, the commentor listed four mitigation measures that are the sole responsibility of the Project. These measures are as follows:

1. Provide one shared left-turn/through lane and one exclusive right-turn lane on the north approach and align with the existing access road for the CA Rasmussen mining facility.

2. Provide sufficient pavement on Soledad Canyon Road to provide a left-turn lane and one shared through/right-turn lane on both the east and west approaches.

3. Provide adequate sight distance and a westbound merging lane to the satisfaction of this Department.

4. Detailed striping plans for these improvements should be prepared and submitted to this Department for review and approval.

B. Response 1: The configuration of the intersection of the project site and Soledad Canyon has been clarified by provision of a diagram. It is proposed to add Figure 3.1.11-4 to the EIR text (call out will be made in Mitigation Measure T2 description). Several additional items should be noted as follows:

1. As stipulated, a combination left turn/through lane on the Project site will be provided.

2. Mitigation measure T2 will be modified to add the sentence, "The intersection will include separate left turn lanes and shared through/right turn lanes in the east and west directions".

3. The EIR proposes 500 feet sight distance and a 1,000-foot merging lane (700-foot lane with 300 foot taper). The County did not comment on the

adequacy of this design but merely states that site distance must be provided to the satisfaction of the County. We have assumed that the design included in the EIR is adequate. No changes are proposed.

4. It is assumed that the detailed striping plan may be submitted subsequent to the EIR during consideration of final design.

C. Comment 2: The County commented that the project will have significant impacts at the SR-14 Northbound Ramps and Soledad Canyon Road and indicated the following mitigation:

1. Widen and modify the east approach of Soledad Canyon Road to provide two through lanes and one exclusive right-turn lane (add one westbound through lane).

2. The Project's percent share for this improvement is estimated to be 9.1 percent.

D. Response 2: This mitigation is greater than that currently included in the EIR.

1. Item 5C1 seems to stem from the County's proposed measure requiring widening of Soledad Canyon Road to four lanes between Bee Canyon and the SR-14 (see Comment 5E below). There would be no other reason for requiring two through lanes and one exclusive right turn lane at the intersection. In discussing the requirement for four lanes with Traffic and Lighting, it was noted that the Project Traffic Report predicts LOS B with project + cumulative projects + growth, indicating that widening would not be necessary. Traffic and Lighting agreed to reconsider the LOS and revise the requirement as necessary. Traffic and Lighting will provide any revised conclusions to Department of Regional Planning as soon as they are available.

   It was acknowledged by the Division that similar mitigation was removed from the Bee Canyon EIR (which considered essentially the same cumulative traffic). Traffic and Lighting indicated that their recommendations are advisory and can be overridden by planning. No changes to the EIR text are proposed at this time.

   TMC's traffic consultant notes that the existing intersection has enough room and existing pavement for the required two through lanes in each direction on the east approach but does not have room for the exclusive right turn lane. However, TMC does not interpret Traffic and Lighting's request as requiring an additional lane under the SR-14 bridge.

2. TMC has noted differences in the fair share percentage calculations. TMC has determined the reason for the differences relates to calculation methods and will revise the EIR to reflect Traffic and Lighting's fair share percentages. One difference was that Traffic and Lighting did not include

ambient growth in their calculation. TMC acknowledges this but reserves the right to evaluate the fair share percentage calculations for road widening or other additional mitigation measures that may be required.

E. Comment 3: The County commented that the Project plus cumulative traffic will require widening of Soledad Canyon Road to four lanes between SR-14 northbound ramps and the proposed Bee Canyon most easterly access road. Project fair share percentage was determined to be 22.3 percent.

F. Response 3: As noted above, the need for widening was discussed with Traffic and Lighting. The Project traffic study does not indicate that widening would be required in the project 20-year lifetime. The traffic study concluded that Soledad Canyon Road between Bee Canyon and SR-14 is projected to operate at LOS B. Traffic and Lighting agreed to review the analysis and revise their recommendations as warranted.

G. Comment 4: The County will require TMC to pay fair share or pro-rata share of the cost of traffic signal installation at several intersections.

H. Response 4: TMC agrees with this requirement.

I. Comment 5: A traffic index study was requested to include 10-year projection, project traffic index calculation work sheets, backup, and related truck counts.

J. Response 5: TMC contacted Traffic and Lighting and determined that they missed the traffic index study that is contained in the project Traffic Report in the EIR appendix during their review. Traffic and Lighting agreed to review the existing traffic index study and provide the results of their review to DRP as soon as possible.

K. Comment 6: It was recommended that the State of California Department of Transportation and the City of Santa Clarita review the Project for significant impacts/mitigation within their jurisdictions.

L. Response 6: TMC representatives have met with the City of Santa Clarita and consulted with Caltrans during preparation of the environmental documents. It is anticipated that these agencies will have the opportunity to review the Traffic Impact Study and EIR during the formal Draft EIR public review period.

6. Letter from Barry Witler, Transportation Planning Assessments, September 1, 1998.

To clarify Transportation Planning Assessment's comments in several specific areas, John Hecht (West Coast Environmental), Dick Poole, Dan Dawson (both of Associated Transportation Engineers), and Thomas Ryan (Chambers Group) met with Barry Witler, Andy Narag, and Hubert Seto of Transportation Planning on November 18, 1998. Clarifications were needed with respect to requirements

for right-of-way acquisition and reference to the need for turnouts. We believe that all issues are or will be resolved as follows:

A. Comment 1: Transportation Planning asserts that reservation of a 50-foot right-of-way and slope easements along Soledad Canyon Road is an important mitigation and recommends that TMC acquire the necessary right-of-way.

B. Response 1: Soledad Canyon Road crosses the project on the south east corner for a total distance of 1,800 linear feet. Of this distance, 1,500 feet of the frontage is on property leased from C.A. Rasmussen and 300 feet is on the Federal Contract Area for which TMC has contracted for the mineral rights. TMC has researched the possibility and practicality of obtaining the requested right-of-way (ROW) and easements and will be able to provide easements over the C.A. Rasmussen portion of the site, which comprises 83% of the project frontage on Soledad Canyon Road.

The remaining 17% is on the Federal Contract Area. TMC has reviewed this portion of Soledad Canyon Road and has concluded that a ROW and easement over this portion would be of questionable feasibility due to physical constraints including steep topography and railroad right-of-way. In addition, right-of-way requirements can be modified, as stated in the Highway Manual Section 2.2-01.

Upon discussion and clarification, Transportation Planning held that a portion of the right-of-way would still need to be acquired, but agreed to the following:

1. Transportation Planning wants the full 100-foot right-of-way at this time for the portion of Soledad Canyon Road crossing the C.A. Rasmussen-owned parcel (NE ¼ of NE ¼, Section 16, T4N R14W, SBBM). Transportation Planning will not require right-of-way dedication on the Federal Contracts Area due to lack of need for widening within the 20-year time frame of the project.

2. Regarding slope easements for the potential full right-of-way, Transportation Planning will consider proposed language that provides an offer of dedication of slope easements "as required" for the 20-year life of the project. No slope easements are required in the Federal Contracts Area.

3. The extent of slope easements is based on provision of 1:1 slopes on the C.A. Rasmussen-owned parcel; TMC will provide technical evidence that 1:1 slopes are feasible.

C. Comment 2: Transportation Planning indicates that they agree with the use of turnouts to mitigate possible safety conflicts between slow moving trucks and other vehicles, and further states that though the Applicant recommends using turnouts, such measures were not included in the mitigation plan in Table S-1.

D. Response 2: The current EIR and traffic report do not include turnouts as mitigation measures. According to TMC's traffic consultant, turnouts are not recommended because they could actually result in more delay in the traffic

stream. Upon discussing the ramifications of turnouts, Transportation Planning has agreed to defer to Traffic and Lighting on the issue. It is noted that Traffic and Lighting has not required turnouts.

7. **Letter from T. M. Alexander, Road Maintenance Division, September 16, 1998.**

A. Comments: This letter addresses several aspects of the Project, including flooding, runoff from the north fines storage area, excavation effects, blasting, and road maintenance. Other County departments have reviewed and commented on these specific aspects, as well. Road Maintenance's comments; however, appear to be primarily concerned with ensuring that the Applicant is financially responsible for mitigating potential damage caused by the Project.

B. Response: It is anticipated that the County will include in the general conditions of approval adequate measures relative to financial responsibility. No additional measures are proposed for the EIR.

8. **Letter from Michael Wilkinson, Chief, Forestry Division, September 30, 1998.**

A. Comment 1: The Fire Department indicates that the project, by introducing human activity into previously vacant areas, will contribute to an increased demand for fire protection and emergency medical services. It also adds that the project, in combination with other developments, could cumulatively result in the need for additional facilities, equipment and staffing.

B. Response 1: No changes to the EIR text are proposed. TMC believes that the heavy equipment, personnel, and water storage that will be located at the site and available to assist with fire suppression will offset the County's need to additional fire fighting personnel and equipment for the Project. Also, the cumulative impacts section of the EIR (page 3-459) acknowledges that cumulative development would have adverse and potentially significant impacts on fire services.

C. Comment 2: The Fire Department recommended six specific items that the Project should implement, including access to the water storage facilities, minimum onsite road widths, maximum access road slopes, and fuel breaks around mining areas.

D. Response 2: TMC will comply with the Fire Department recommendations. As a further point of clarification, the TMC mining plan includes and the EIR text states in some locations, that two 600,000 gallon storage tanks will be provided. One tank would be provided for each Project phase. We propose to modify the text of the EIR to be consistent relative to water storage requirements.

The fire department recommendations will be added to the appropriate EIR mitigation section as follows:

On Page 3-194, after Section 3.1.6.3, measures PS3 and PS4 are amended and combined to read as follows:

In addition, the project will incorporate County Fire Department recommended measures to mitigate fire hazard as follows:

PS3. The water storage facilities on site will be accessible to fire equipment by an all weather road capable of supporting 50,000 pounds. The road width should be a minimum of 26 feet within 25 feet of either side of the tank connection.

PS4. The water storage tanks should have a 4 inch and 2 ½ inch outlet with National Standard threads. These outlets should be no more than 6 feet from the road.

PS5. The minimum road width shall be 20 feet throughout the mining operation and must reach to within 150 feet of all buildings and equipment.

PS6. Grades on gravel roads should not exceed 10%. If the are paved, then a 15% grade is acceptable.

PS7. Turnarounds should be provided on any road that exceeds 300 feet or one every ¼ mile to ½ mile. The minimum radius is 32 feet.

PS8. A minimum 200-foot fuel break will be provided around any mining operation.

August 20, 1998

TO: Scott Schales
Planning Division

Attention Vik Bappa

FROM: Shari Afshari
Environmental Programs Division

SCREENCHECK DRAFT ENVIRONMENTAL IMPACT REPORT (DEIR)
SOLEDAD CANYON SAND AND GRAVEL MINING
UNINCORPORATED LOS ANGELES COUNTY

We have reviewed the subject Screencheck DEIR in concert with our December 14, 1995, comments on the project's previously submitted DEIR, and we are providing the following comments:

1. The California Solid Waste Reuse and Recycling Access Act of 1991, as amended, requires each "development project" to provide an adequate storage area for collection and removal of recyclable materials. The Environmental Impact Report (EIR) should include/discuss standards to provide adequate "waste storage areas" for collection/storage of recyclable and green waste materials for this project.

2. Should any operation within the subject development include the modification, removal, or installation of underground storage tanks and/or industrial waste control or disposal facilities, Environmental Programs Division must be contacted for required approvals and operating permits.

3. The EIR needs to fully assess the impact of this project on the quality of stormwater runoff. The EIR should reference Order No. 96-054, National Pollutant Discharge Elimination System Permit CAS614001 issued by the California Regional Water Quality Control Board to the County and local agencies.

If you have any questions regarding the above comments, please contact Chuk Agu at Extension 2188.

LM:my
EP-4\P\sec\sldad

August 26, 1998

TO: Dave Yamahara
Planning Division

FROM: Kenneth H. Erhard KE
Flood Maintenance Division

COMMENTS ON THE EIR FOR PROJECT NUMBER 91-165
SOLEDAD CANYON SURFACE MINING PROJECT

We have reviewed the revised preliminary draft EIR for the subject project and present our comments:

1. Please arrange a Public/Private Partnership agreement with the contractor for the North Fines Storage Area as a Sediment Placement Site (S.P.S.) as discussed in Section 1.5.1.3 of the EIR. This area may be an available S.P.S. for sediments excavated from the Department's Debris Basins, Debris Retaining Inlets, Channels, and other Flood Control Facilities.

2. It is our understanding that the final design of the basins will be forwarded to the Department for review. We would like to comment on the plans.

3. All other items are acceptable.

If you have any questions, please call Jemellee Quintana-Cruz or Wayne Snively of my staff at Extension 4381.

WLS
wls:jqc
a:_eir91-165.wpd

cc: Flood Maintenance (4)
(Melillo, Tang, FEU-West, West Files)

August 25, 1998

TO: Dave Yamahara
Planning Division

FROM: Thomas V. Schriber
Hydraulic/Water Conservation Division

REVIEW OF ENVIRONMENTAL IMPACT REPORT (EIR)
SOLEDAD CANYON SAND AND GRAVEL MINING (PROJECT NO. 91-165)

This Division has reviewed the document and has no comments. However, although the document addressed that the requirements for the proposed drainage facilities for the project were in accordance with the guidelines of the Department Hydrology/Sedimentation Manual, we would like to review the final project design plans. The maps provided with the document are small in size (scale) that we could not properly check the design debris requirements of the debris control facilities and determine the limits of the proposed mining grading. The outer grading area in the canyons showing without debris control structures may be extensive that such structures may be needed.

If you should have any questions, please contact Loreto P. Soriano at 458-6145.

LPS:ga
EIRRVW 1

cc: H/WC (2) (Soriano, Files)

GEOTECHNICAL REVIEW OF
ENVIRONMENTAL DOCUMENTS

COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS
MATERIALS ENGINEERING DIVISION

PROJECT IDENTIFICATION 91-165 (Transit Mixed Concrete) **LOCATION** Soledad Canyon Road

DATE RECEIVED 8/6/98 **DEADLINE** 8/28/98 **DATE REVIEW COMPLETED** 8/18/98

DATA REVIEWED Screencheck Draft Environmental Impact Report dated July 1998

Reports By Hilltop Geotechnical (on file for reclamation plan):
Geologic Report Dated 12/11/92
Geology and Geotechnical Engineering Reports Dated 10/14/97, 9/30/97, April 1996, 1/31/96, 7/12/95, 4/23/95, 5/19/93, 5/4/93, 12/11/92, 11/8/91 (STE Assoc.)

[X] The proposed project has no significant effects from a geology and soils standpoint, provided the appropriate ordinances and codes are followed.

[ ] Review of the initial study indicates that the proposed project may have significant effects on the checked environmental factor(s) from a geology and/or soils standpoint. See discussion.

[ ] The environmental document is inadequate from a geology and soils standpoint. See discussion.

DISCUSSION OF POTENTIALLY SIGNIFICANT EFFECTS AND/OR REPORT INADEQUACIES

The above referenced reports, previously reviewed for the reclamation plan, identify geotechnical issues with regard to the proposed project, and provide recomendations for mitigation that appear feasible.

Geotechnical Engineer

Engineering Geologist

Original to: Planning Division or
LDMA/Processing Center Section

cc: Development Review Section File

Rev. 02/16/96
F-RS:FORM.9

August 26, 1998

TO: Dave Yamahara
Planning Division

FROM: K. E. Weary
Traffic and Lighting Division

SCREENCHECK DRAFT ENVIRONMENTAL IMPACT REPORT (JULY 1998)
TECHNICAL APPENDICES
TRAFFIC AND CIRCULATION STUDY (MAY 7, 1998)
SOLEDAD CANYON SAND AND GRAVEL MINING
PROJECT NO. 91166
SOLEDAD AREA

We have reviewed the subject documents. The proposed Project consists of a sand and gravel extraction and processing facility and a ready-mixed concrete batch plant. The site is located 2.9 miles east of the Antelope Valley (SR 14) Freeway on Soledad Canyon Road entirely within the unincorporated area of Los Angeles County.

The operation of the proposed Project is planned in two phases. Phase I from 1999 to 2009 and Phase II from 2009 to 2019. Phase I production is expected to peak at 2.15 million tons of processed aggregate per year and Phase II at 4.2 million tons of processed aggregate per year. The Project is estimated to generate approximately 1,448 passenger car equivalent (PCE) trips per day with Phase I and approximately 2,448 PCE trips per day with Phase II.

We recommend the following mitigation measures be the sole responsibility of the Project:

<u>Project Access Road/Soledad Canyon Road</u>

- Provide one shared left-turn/through lane and one exclusive right-turn lane on the north approach and align with existing access road for the CA Rasmussen mining facility.
- Provide sufficient pavement on Soledad Canyon Road to provide a left-turn lane and one shared through/right-turn lane on both the east and west approaches.
- Provide adequate sight distance and a westbound merging lane to the satisfaction of this Department.
- Detailed striping plans for these improvements should be prepared and submitted to this Department for review and approval.

The cumulative traffic of the proposed Project along with other related projects will have significant impacts to the following County intersections. The Project should contribute its proportionate share of the cost of the following mitigation measures:

SR 14 Northbound Ramps/Soledad Canyon Road

- Widen and modify the east approach of Soledad Canyon Road to provide two through lanes and one exclusive right-turn lane (add one westbound through lane).

- The Project's percent share for this improvement, estimated to be 9.1 percent.

The cumulative traffic of the proposed Project along with other related projects will require the widening of the two-lane Soledad Canyon Road from SR 14 northbound ramps to the Bee Canyon Mobile Home Park (Project No. 93147) most easterly access road to four-lane. The Project's percent share is 22.3 percent.

Enter into a secured agreement with this Department to pay for pro-rata shares of the traffic signal installation costs at the following intersections. Traffic signals should only be installed when actual traffic conditions warrant the signals:

- Project Access Road/Soledad Canyon Road

  The Project should pay the entire cost.

- SR 14 Southbound Ramps/Soledad Canyon Road

  The Project should pay its share, estimated to be 6.5 percent.

- SR 14 Northbound Ramps/Soledad Canyon Road

  The Project should pay its share, estimated to be 9.1 percent.

In order to complete our review, an evaluation of the pavement integrity of affected roadways and their ability to handle increased truck traffic resulting from this Project on the proposed truck routes should be provided. The evaluation should include a ten-year with Project traffic index calculation work sheets, backup, and related traffic/truck counts.

We also recommend the State of California Department of Transportation and City of Santa Clarita review this Project for significant impacts/mitigations within their jurisdictions.

If you have any questions, please contact Suen Fei Lau of our Traffic Studies Section at Extension 5909.

SFL:lg
T-2/SOLEDAD2

cc: Brian T. Sasaki

September 1, 1998

TO: Scott Schales
Environmental and Special Studies

FROM: Barry S. Witler Barry S. Witler
Transportation Planning/Assessments

REVISED (SCREENCHECK) DRAFT ENVIRONMENTAL IMPACT REPORT
SOLEDAD CANYON SAND AND GRAVEL MINING
PROJECT NO. 91165

As requested, we have reviewed the subject document and offer the following comments:

Our December 13, 1995 comments (copy attached) indicated that the applicant must dedicate 50-feet of right of way and slope easements from the latest IEC approved centerline of Soledad Canyon Road. The applicant responded that they have no authority to dedicate right of way or otherwise convey property rights because TMC's surface rights are limited to purposes "incidental to mining."

The reservation of right of way and slope easements (including line of sight easements) is an important mitigation measure. We recommend the applicant make the necessary arrangements to acquire the right of way and slope easements for dedication to the County.

We agree with the use of turnouts to mitigate possible safety conflicts between slow moving trucks and other vehicles. While the applicant recommends using turnouts at several locations, these measures were not included in their mitigation plan in Table S-1.

If you have any questions regarding these comments, please contact Andy Narag at Extension 4356.

AHN
P-3:/home/andyn/wp60/pr91165b

Attach.

cc: File

December 13, 1995

TO: Terri M. Grant
Environmental and Special Studies

FROM: Barry S. Witler BSW 12/14/95
Transportation Planning/Assessments

DRAFT ENVIRONMENTAL IMPACT REPORT
SOLEDAD CANYON SAND AND GRAVEL MINING
PROJECT NO. 91165

As requested, we have reviewed the subject document and offer the following comments.

The applicant is correct in acknowledging that Soledad Canyon Road is a designated major highway on the County Highway Plan. Consequently, the applicant must dedicate 50-feet of right of way from centerline and any applicable slope easements based on the latest Interdepartmental Engineering Committee (IEC) approved alignment for Soledad Canyon Road.

We agree with the applicant that the significant increase in truck traffic could potentially pose significant impacts due to conflicts between slow moving trucks and other vehicles along Soledad Canyon Road. While the applicant discussed using turnouts as mitigation measures for minimizing any possible safety hazard, opportunities to use turnouts between the project and SR-14 are limited by existing topographic features of the road. Therefore, we recommend that the applicant analyze the feasibility of upgrading the road alignment of Soledad Canyon Road to further enhance sight distance.

Additionally, our review indicates that the project may add more than 50 peak hour vehicles to a Congestion Management Program (CMP) Highway System intersection. Therefore, in accordance with the Los Angeles County CMP Land Use Analysis Guidelines, the following question should be addressed by the applicant under the Transportation/Circulation Section of the document:

> Will the CMP Transportation Impact analysis threshholds of 50 peak hour vehicles added by project traffic to a CMP Highway System (see Exhibit A of the attached Procedures for CMP Transportation Impact Analysis) intersection or 150 peak hour trips added by project traffic to a mainline freeway link be exceeded?

If a threshhold is exceeded, the analysis described in the attached Procedures is required.

If you have any CMP related questions, please contact Anna M. Gabriel at Extension 4315. Any other questions may be referred to Andy Narag at Extension 4356.

AHN/AMTG:nr
P-3:pro91165

Attach.

cc: Planning (Witler)

COUNTY OF LOS ANGELES

TO: TOM RYAN

FIRE DEPARTMENT

1320 NORTH EASTERN AVENUE
LOS ANGELES, CALIFORNIA 90063-3294

(323) 890-4330

P. MICHAEL FREEMAN
FIRE CHIEF
FORESTER & FIRE WARDEN

OCT 26 1998

September 30, 1998

Daryl Koutnik, Senior Biologist
Impact Analysis Section
Department of Regional Planning
320 West Temple Street
Los Angeles, CA 90012

Dear Mr. Koutnik:

SUBJECT: ENVIRONMENTAL IMPACT REPORT – (SANTA CLARITA VALLEY CANYON) REVISED PRELIMINARY DRAFT (SCREENCHECK) EIR AND REQUEST FOR COMMENTS PROJECT #91-165, SOLEDAD CANYON SURFACE MINING, SCH #91111055 (EIR #545/1998)

The Screencheck Draft Environmental Impact Report for the Soledad Canyon Surface Mining Project #91-165, has been reviewed by the Subdivision, Planning and Forestry Divisions of the County of Los Angeles Fire Department. The following are their comments:

A development of this nature will place a greater demand on existing fire protection and paramedic resources. The introduction of human activity into a previously vacant area, construction of new facilities and structures, and heavy truck traffic will all contribute to an increase in demand for fire and emergency medical services. In combination with other proposed development in the area, the cumulative impact will result in the need for additional facilities, equipment, and staffing.

Due to the fact that the mining will be done in a very high fire hazard severity area/Fire Zone 4, we recommend the following:

1. The 600,000-gallon water storage tank (reference 3-193) should be accessible to fire equipment by an all weather road capable of supporting 50,000 pounds. The road width should be a minimum of 26' within 25' of either side of the tank connection.

2. The water storage tank should have a 4" and 2½" outlet with National Standard threads. These outlets should not be more than 5' from the road.

3. The minimum road width shall be 20' throughout the mining operation and must reach to within 150' of all buildings and equipment. This will allow the fire department access in case of an emergency.

4. Grades on gravel roads should not exceed 10%. If they are paved, then a 15% grade is acceptable.

5. Turnarounds should be provided on any road that exceeds 300' or one every ¼ mile to ½ mile. The minimum radius is 32'.

6. Provide a minimum of 200' fuel break around any mining operation.

The statutory responsibilities of the County of Los Angeles Fire Department include erosion control, watershed management, rare and endangered species, vegetation, fuel modification for high fire severity areas, archeological and cultural resources and the County Oak Tree Ordinance.

The areas germane to the above statutory responsibilities of the County of Los Angeles Fire Department have been addressed.

If you have any additional questions, please contact this office at (323) 890-4330.

Very truly yours,

Michael A. Wilkinson

MICHAEL A. WILKINSON, CHIEF, FORESTRY DIVISION
PREVENTION BUREAU

MAW:lc

# of pages ➤	3	Date:	2/2/99

To: Mr. Dan Dawson	From: Suen Fei LAU
Co.: ATE	Co.: LACDPW-Traff&Ltg/Studies
Phone #: (805) 687-4418	Phone #: (626) 458-5909 X3725
Fax #: (805) 682-8509	Fax #: (626) 458-5936

February 2, 1999

TO: Dave Yamahara
Planning Division

FROM: K. E. Weary
Traffic and Lighting Division

TRAFFIC INDEX INFORMATION MEMO (OCTOBER 14, 1998)
SOLEDAD CANYON SAND AND GRAVEL MINING
PROJECT NO. 91165
SOLEDAD AREA

We have reviewed this Project which consists of a sand and gravel extraction processing facility and a ready-mixed concrete batch plant. The site is located 2.9 miles east of the Antelope Valley (SR-14) Freeway on Soledad Canyon Road entirely within the unincorporated area of Los Angeles County. This memo supersedes our August 26, 1998, memo (copy attached).

The operation of the proposed Project is planned in two phases. Phase I from 1999 to 2009 and Phase II from 2009 to 2019. Phase I production is expected to peak at 2.15 million tons of processed aggregate per year and Phase II at 4.2 million tons of processed aggregate per year. The Project is estimated to generate approximately 1,448 passenger car equivalent (PCE) trips per day with Phase I and approximately 2,448 PCE trips per day with Phase II.

We recommend the following mitigation measures be the sole responsibility of the Project:

Project Access Road/Soledad Canyon Road

- Provide one shared left-turn/through lane and one exclusive right-turn lane on the north approach and align with existing access road for the C A Rasmussen Mining facility.

- Provide sufficient pavement on Soledad Canyon Road to provide a left-turn lane and one shared through/right-turn lane on both the east and west approaches.

- Provide adequate sight distance and a westbound merging lane to the satisfaction of this Department.

- Detailed striping plans for these improvements should be prepared and submitted to this Department for review and approval.

The cumulative traffic of the proposed Project along with other related projects will have significant impacts to the following County intersections. The Project should contribute its proportionate share of the cost of the following mitigation measures:

SR-14 Northbound Ramps/Soledad Canyon Road

- Widen and modify the east approach of Soledad Canyon Road to provide two through lanes and one exclusive right-turn lane (add one westbound through lane).

- The Project's percent share for this improvement is 9.1 percent.

Soledad Canyon Road from SR-14 northbound ramps to the Bee Canyon Mobile Home Park's (Project No. 93147) most easterly access road operates at Level of Service (LOS) D. The Project adds 164 PCE trips during the a.m. peak-hour. This combined with other related projects exceeds the significant impact threshold according to page 6 of the Los Angeles County Traffic Impact Analysis Report Guidelines. This and related projects will increase the total traffic volume to about 15,000 average daily trips (ADT) on Soledad Canyon Road from SR-14 northbound ramps to the Bee Canyon Mobile Home Park in 2008. We would recommend that Soledad Canyon Road be widened from a two-lane roadway to a four-lane roadway. However, our review of the roadway indicates this improvement is not feasible due to physical constraints.

Enter into a secured agreement with this Department to pay for pro-rata shares of the traffic signal installation costs at the following intersections. Traffic signals should only be installed when actual traffic conditions warrant the signals:

- Project Access Road/Soledad Canyon Road

  The Project should pay the entire cost.

- SR-14 Southbound Ramps/Soledad Canyon Road

  The Project should pay its share which is estimated to be 6.5 percent.

- SR-14 Northbound Ramps/Soledad Canyon Road

  The Project should pay its share which is estimated to be 9.1 percent.

The following Traffic Indices (TI) are required on Soledad Canyon Road with the additional truck traffic generated by the Project. The pavement on Soledad Canyon Road from SR-14 northbound ramps to the Bee Canyon Mobile Home Park's most easterly access road should be improved to handle the additional truck traffic according to TI's shown below. Since the additional pavement overlay is not required until Phase II of the Project, we recommend the issuance of any development permit for Phase II be withheld until this improvement is in place. Prior to Phase II, the developer of the Project should conduct a revised TI analysis to include any related projects. The developer may wish to cooperate with other projects in the area that generate trucks to share in the cost of this improvement. The Materials Engineering Lab Section of Materials Engineering Division should be contacted for the actual pavement overlay required for these TI's.

TRAFFIC INDEX (TI)						
	Phase I (2000)			Phase II (2008)		
Segment	Without Project (Existing)	W/Project recommended by Consultant	W/Project recommended by County	Without Project	W/Project recommended by Consultant	W/Project recommended by County
SR-14 Northbound Ramps/ Bee Canyon Project	11.0	10.5	11.0	11.0	10.5	*11.5
Bee Canyon Project/ Project Site Access Road	11.0	10.0	9.5	11.0	11.0	11.0

* Requires pavement overlay to handle additional truck traffic generated by the Project.

If you have any questions, please contact Suen Fei Lau of our Traffic Studies Section at Extension 5909.

SFL:
T-2/SOLEDAD3

Attach.

cc: Brian T. Sasaki
Building and Safety/Land Development (Ondrozeck)
Materials Engineering (Lancaster)