

# 5 Other Required Considerations

This chapter focuses on several specific effects of the Proposed Action, presented in a format required by the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). These issues are:

- Growth-inducing effects of the Proposed Action.
- Irreversible and irretrievable resource commitments.
- Relationship between the short-term use of the environment and the enhancement of long-term productivity.

The information presented is based on more detailed discussions found in Chapter 4.0, Environmental Consequences.

## 5.1 GROWTH INDUCEMENT

Growth-inducing effects are those characteristics of a project that tend to foster or influence direct and indirect growth in its environs, or that create significant new demands for supporting services and activities.

The Proposed Action involves developing additional reserves to support ongoing mining operations, and would not require the extension or expansion of any utilities or services that could be used by other development. Based on the general absence of public utilities and services in the project area, it is not anticipated that the project could indirectly induce population growth through the provision of utilities.

The approved rate of mining would not change. However, the planned mine expansion may require an additional 20 to 30 permanent employees who are expected to come from Imperial County's labor pool. The expansion of the mine would not induce new residential, commercial or industrial development, either directly or indirectly.

Following closure of the mine, it is anticipated that many of the 167 present mine employees would continue to work at the site for the approved but unbuilt Mesquite Regional Landfill operation.

## 5.2 IRREVERSIBLE AND IRRETRIEVABLE RESOURCE COMMITMENTS

The proposed Mesquite Mine expansion will continue to result in irreversible commitments of some environmental resources. Extraction of gold reserves will gradually diminish the commercial values of the ore body at the Mesquite site until it is no longer economically usable at today's mineral prices. The land requirements for the Mesquite Mine would represent an irreversible commitment of an additional 142-190 acres of land because although all buildings will be removed upon the project's completion, the mine pits, overburden/interburden storage areas and heap leach facilities will permanently alter the physical character of the project site. Mitigation measures, particularly revegetation, would reduce the severity of these impacts. To enhance the visual compatibility of the mine site with the surrounding terrain, Newmont proposes to regrade certain sharp corners of OISAs and heap leach pads for visual impact mitigation purposes.

The reclamation plan includes enhancing visual resources in critical areas. Blending of the reclaimed landscape will be similar to adjacent areas within the foothills of the rugged and undulating Chocolate Mountains. Following the completion of reclamation, portions of the project area would be able to support land uses similar to those that existed prior to the Mine, although the changes would represent an irreversible commitment to the new landforms.

The Proposed Action would commit the use of non-renewable energy sources. The use of non-renewable energy sources associated with the continued mine operations include diesel fuel and propane for power production and mine operations, diesel fuel, gasoline, and oil for mining equipment and transportation vehicles. The Proposed Action and Reduced Footprint Alternatives would require some additional building materials for relocated structures. This commitment of resources, however, would be short-lived. At the cessation of mining, mine site facilities and equipment would be removed in accordance with the Reclamation Plan. Therefore, no significant irreversible and irretrievable commitment of non-renewable energy or materials is expected.

Mining activity is consistent with BLM and SLC land use policies. However, mining operations essentially precludes future non-mining uses much of on the project site (i.e., OHV recreation, hiking, rockhounding). The preemption of future uses is partially mitigated by the potential for future resource recovery from the mine pit, stockpiles and overburden/interburden storage areas.

## 5.3 RELATIONS BETWEEN THE LOCAL SHORT-TERM USE OF THE ENVIRONMENT AND THE ENHANCEMENT OF THE LONG-TERM PRODUCTIVITY

Principal uses of the project site, as established by previous activities, and as provided by the Imperial County General Plan and BLM California Desert Conservation Area (CDCA) Plan, include mineral exploration and extraction. The Proposed Action would result in additional surface disturbances of 190 acres at the existing Mesquite Mine. This would result in a cumulative impact of 5,151 acres of surface-disturbing activities over the approximate 20-year mine life (through the year 2006 or longer, depending on economics). The Reduced Footprint Alternative would result in additional surface disturbances of 142 acres at the existing Mesquite Mine. This would result in a cumulative impact of 5,104 acres of surface-disturbing activities over the mine life. The project site could continue to be used for mining activities as the approved, but unbuilt Mesquite Mine Regional Landfill, is constructed, and portions would remain available for reduced value as wildlife habitat. Long-term and cumulative impacts would be predominately associated with these surface disturbances, and restricted to the mine and landfill site area.

Benefits resulting from this short-term use of the environment for the proposed continuation of mining activities are primarily socioeconomic. Approximately 167 people are currently employed at the mine. Project-related employment, direct and indirect expenditures associated with ongoing mining activities, and government revenues would contribute to the viability of the local and regional economy for an additional 6 years or longer depending on economics beyond the currently permitted operations. Continued operation benefits the regions' economy; county, state, and federal governments through taxes and fees; and investors of the publicly-owned mining company. Development of mineral resources is also in the national interest to help satisfy industrial and security needs.

The Proposed Action would also contribute to the long-term enhancement of desert habitat. Lands to be acquired for impacted Category II or III desert tortoise habitat must be compensated with Category I or II of the same desert tortoise management unit, at a sufficient ratio under BLM requirements and in accordance with the desert tortoise recovery plan. As a result, the lower quality, Category III desert habitat would be replaced with higher quality habitat which would be preserved for long-term benefits. This would enhance long term productivity.

The project area has historically been used primarily for mining activities. Approval of the Mesquite Mine in 1985 further committed this site to a mining use. The commitment of the additional 142-190 acres, therefore, would do little to narrow the range of other beneficial land uses of this site. Continued operation would not substantially delay planned reclamation, because, concurrent reclamation is ongoing.

The primary cumulative and long-term effect of the project is the change to the landscape, altering the site aesthetics. Although mitigations are planned to reduce this effect, the landscape will be permanently altered. Long-term risks to public and safety are also recognized, but plan to be minimized through design features. However, steep mine pit slopes that will remain following closure and reclamation could be hazardous to future recreationists who violate safety warnings. High berms will be constructed around all Mine pits during reclamation, and vehicular access into the pits will be blocked by removing sections of access road into the pits. It is currently planned that Mine perimeter fencing would be removed at the completion of reclamation, but selected fence sections could be retained, at the discretion of BLM, if considered helpful in maintaining public safety. Proper reclamation and the remote location of the site minimize public safety risks.

Following the operation period, the mining pits would remain so that future mineral extraction could occur, if economically feasible.

The employment, expenditures, and tax revenue would benefit local citizens by providing income that could be invested by individuals. Also, project-related tax revenues to the cities and County could be invested in infrastructure and other vehicles to provide for the economic and environmental productivity of the County, cities, and citizens.

In providing these economic, social, and environmental benefits, the Proposed Action would enhance the long-term productivity and economic well-being of Southern California in general, and Imperial County in particular, while not precluding the long-term use of much of the site for other valuable activities. By transferring ownership of privately held desert tortoise critical habitat to the federal government, the long-term productivity of public lands would be enhanced.

# 6 Consultation and Coordination

## 6.1 SCOPING AND NOTICE OF INTENT/NOTICE OF PREPARATION

The County of Imperial and the U.S. Bureau of Land Management (BLM) provided for a number of opportunities for early consultation and public comments on the environmental issues that should be addressed in this Environmental Impact Statement/Environmental Impact Report (EIR/EIS). These opportunities included circulation of a Notice of Preparation (NOP) in December 1998, publication of a Notice of Intent (NOI) in December 1998, and public and agency “scoping meetings” in January 1999. The results of these activities are briefly summarized as follows:

1. The initial identification of general areas of environmental impacts to be addressed by this EIR/EIS are documented by an Initial Study prepared by the Imperial County Planning Department according to the County’s Rules and Regulations to Implement California Environmental Quality Act (1991). The Environmental Initial Study and accompanying Environmental Discussion for the proposed Mesquite Mine Expansion are included in Appendix A-2 of this EIR/EIS.
2. The County of Imperial mailed an NOP to approximately 65 individuals and agencies on December 14, 1998. The NOP was distributed to known interested individuals and organizations as a notice of early consultation, as well as to known responsible agencies (State California Environmental Quality Act (CEQA) Guidelines Section 15082). Although the State CEQA Guidelines establish a 45-day comment period for the NOP, responses were received and considered through the month of February, 1999. A total of 6 letters were received in response to the NOP. Copies of the NOP, mailing list and responses are contained in Appendix A-2.
3. The BLM published a NOI to prepare a joint Federal-State EIR/EIS in the Federal Register on December 18, 1998 (40 Code of Federal Regulations (CFR) Part 1508.22). The NOI was distributed to known interested individuals and organizations as a notice of early consultation, as well as to known responsible agencies. The BLM's *National Environmental Policy Act Handbook* establishes a 30-day comment period for the NOI, therefore, responses were

received and considered through February 8, 1999. A total of nine letters were received in response to the NOI. Copies of the NOI, mailing list and responses are also contained in Appendix A-2.

4. Three community scoping meetings were conducted on January 26, 27 and 28, 1999. The purpose of these public meetings was to solicit and receive public input on the environmental concerns that should be addressed in the EIR/EIS being prepared by the BLM and the County of Imperial for the proposed new Mesquite Mine Expansion. The meetings were conducted by the BLM. A brief informational presentation was followed by approximately two hours of discussion by members of the community who attended the meetings and enumerated their concerns.

The first community scoping meeting was held at the Best Western Inn Suites in Yuma on January 26, 1999 at 7:00 p.m. Approximately 40 people were in attendance, and about 29 people spoke.

The second scoping meeting was held at the El Centro Community Center on January 27, 1999 at 7:00 p.m. Approximately 26 people were in attendance, and about 15 people spoke.

The third scoping meeting was held at San Diego State University Aztec Center on January 28, 1999 at 7:00 p.m. Approximately 11 people were in attendance.

A summary of the scoping meetings, including the agenda, attendance lists, and comments made by attendees at the scoping meetings, and additional correspondence received during the scoping period are contained in Appendix A-1.

The comments received in response to the NOI and the NOP were used to assist in the determination of the scope of this EIR/EIS. As provided by NEPA and CEQA guidelines, the impact analysis documented in this EIR/EIS focuses on potential significant effects, which have been identified for the following elements of the human environment:

1. Geology/Soils/Mineral Resources
2. Water Resources
3. Biological Resources
4. Cultural Resources
5. Paleontological Resources
6. Transportation
7. Noise
8. Air Quality/Odors
9. Land Use
10. Recreational Resources
11. Visual Resources
12. Environmental Health and Public Safety

13. Socioeconomics
14. Public Services and Utilities

These issues are addressed in this EIR/EIS, including an evaluation of the affected environment, potential significant impacts, and mitigation measures that would be required for each area of significant environmental effect should the Proposed Action be implemented.

## 6.2 CONSULTATIONS

In addition to compliance with CEQA and NEPA, there are numerous environmental laws and regulations designed to protect environmental resources including threatened and endangered species, archaeological and historical sites, air quality, and water quality. These laws and applicable regulations must be satisfied before full implementation of the project.

Protection of air and water quality are reviewed by the respective responsible agencies through the CEQA and NEPA environmental review process and, especially, through each agency's permit application process. These permit review processes are typically completed following the CEQA and NEPA processes.

Protection of threatened and endangered species, and archaeological and historical sites, are also addressed as part of the CEQA and NEPA environmental review process, as well as by consultation with the agencies responsible for the protection of these resources. Compliance with these laws and regulations are being completed concurrently with the environmental review process for this project. The procedures being undertaken to comply with the laws and regulations for the protection of these resources are discussed on the following pages.

### 6.2.1 Threatened and Endangered Species

The federal Endangered Species Act (ESA) extends legal protection to plants and animals listed as endangered or threatened by the U.S. Fish and Wildlife Service (USFWS). The ESA authorizes the USFWS to review proposed actions to assess potential impacts to listed species. Consultation initiated between the BLM and USFWS with regard to endangered or threatened species is completed pursuant to Section 7 of the ESA. The "Section 7" consultation and review is based on a Biological Assessment, prepared by the BLM and submitted to the USFWS, that addresses the potential impact of the Proposed Action on any endangered or threatened species. The process results in a Biological Opinion issued by the USFWS to the BLM that indicates that the Proposed Action either "is" or "is not" likely to jeopardize the continued existence of the species. If the action is determined not likely to jeopardize the continued existence of the species, the Biological Opinion specifies measures, terms, and conditions that must be complied with for implementation of the project. BLM, as the public land administrator, is responsible for ensuring that the project complies with the specified stipulations.

The California Endangered Species Act (CESA) also offers legal protection to endangered or threatened plants and animals. Such plants and animals are listed in the state by the California Fish and Game Commission. Consultation with the California Department of Fish and Game (CDFG) for a permit pursuant to California Fish and Game Code Section 2081 is required prior to initiating any activities that could affect a designated endangered or threatened species. If the species under consideration is listed by both the ESA and the CESA, then California Fish and Game Code regulations enable the CDFG to concur with the USFWS Biological Opinion, to avoid duplicative procedures.

For the Mesquite Mine, the desert tortoise is the only threatened species at the project site. Other sensitive species, including the fairy duster, occur in the vicinity of the existing mine. BLM has entered into Section 7 consultation with the USFWS pursuant to the ESA with regard to these species and has prepared and submitted a Biological Assessment to USFWS. The Biological Opinion is to be issued by USFWS prior to consideration of project approval by the BLM. CDFG is also being consulted in compliance with the CESA. The existing conditions, potential impacts and proposed mitigating measures addressed in the Biological Assessment are summarized in this EIR/EIS.

## 6.2.2 Archaeological and Historical Sites

The National Historic Preservation Act of 1966 (NHPA), as amended, established: (1) a National Register of Historic Places (NRHP) to be maintained by the Secretary of the Interior, (2) the position of State Historic Preservation Officer (SHPO), and (3) the Advisory Council on Historic Preservation (ACHP). Section 106 of the NHPA requires federal agencies to provide the SHPO and ACHP an opportunity to comment on any project on federal lands within their state that would affect properties included in or eligible for inclusion in the NRHP. Section 304 directs federal agencies to withhold from disclosure to the public information relating to the location or character of eligible properties whenever disclosure of such information may create risk of harm to such resources.

NRHP eligibility criteria specify that the quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects of national, state, or local importance that possess integrity of location, design, setting, materials, workmanship, feeling, association, and the following:

- Are associated with events that have made a significant contribution to the broad patterns of history; or
- Are associated with the lives of people significant in our past; or
- Embody the distinctive characteristics of type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

- Have yielded or are likely to yield information important in prehistory or history.

The Advisory Council regulations, "Protection of Historic and Cultural Properties" (36 CFR 800: Federal Register, Vol. 51, No. 169, September 2, 1986), outline procedures to be followed by federal agencies. Agencies are required to consult with the SHPO to determine if a proposed undertaking encompasses any property included in, or eligible for inclusion in, the NRHP. For each eligible property identified, the federal agency must determine if the proposed undertaking would have an effect. If there could be an effect, the Criteria of Adverse Effect are applied, and treatment measures are developed for resources that would be adversely affected. The regulations provide for consultation with the SHPO and ACHP to develop conditions for a Memorandum of Agreement for mitigation of potential adverse effects.

Within statutory constraints (NHPA Section 304 and Archaeological Resources Protection Act of 1979, Section 9), the Advisory Council regulations encourage participation by local governments, Native American tribes, and the public (36 CFR 800.1[c][2]). Within this context, comments on the proposed Mesquite Mine expansion from the Native American Heritage Commission, the local Native Americans, archaeologists, historians, and other groups or individuals concerned with cultural resources will be considered by BLM and Imperial County.

The proposed site has been inventoried for the presence/absence of historic or archaeological resources. This Cultural resource assessment and evaluation recommended that no sites were eligible for the NRHP.

*This page left intentionally blank.*

# 7 LIST OF PREPARERS

This Environmental Impact Report/ Environmental Impact Statement (EIR/EIS) has been prepared jointly by the United States Department of the Interior, Bureau of Land Management (BLM) and the Imperial County Planning and Building Department (ICPBD). The following ICPBD and BLM Staff participated in the document preparation:

**Imperial County - Planning and Building Department:**

Jurg Heuberger, Director  
Darrell Gardner, Assistant Planning Director  
Richard Cabanilla, Planner III

**Bureau of Land Management:**

Greg Thomsen, Area Manager, El Centro  
Glen Miller, Environmental Coordinator, El Centro  
Marc Springer, Geologist, State Office, Sacramento  
Elayn Briggs, Planning and Analysis Staff Chief, El Centro  
Kevin Marty, Geologist, El Centro  
Joan Oxendine, Ph.D., Archaeologist, DesertDistrict Office  
Nancy Nicolai, Wildlife Biologist  
Doug Romoli, District Environmental Coordinator  
River Paul Summers, Geohydrologist, Denver  
Debbie Sebesta, Botanist, El Centro

**Participating Personnel from other agencies and organizations included:**

**California State Lands Commission:**

Maurya Falkner  
Greg Pelka,

**U.S. Army Corps of Engineers:**

Antal Szijj  
Mark Durham

**Newmont Gold Company:**

Craig A. Smith, General Manager  
David White, Chief Environmental Engineer  
Lisa Wade, Senior Environmental Engineer  
Dennis Laybourn, Senior Environmental Engineer

**USFWS:**

Debbie MacAller

**California Department of Fish and Game:**

Jim Dice

**USMC Chocolate Mountains Gunnery Range:**

Ron Pearce, Range Department, Marine Corps Air Station

**U.S. EPA:**

Jeanne Geselbracht

Rebecca Tuden

The ICPBD and BLM were assisted in the preparation of this EIR/EIS by the following consultants:

**BRG Consulting, Inc.:**

Patricia A. Butler, Principal-in-Charge

Erich R. Lathers, Senior Project Manager

D. Séan Cárdenas, Senior Environmental Planner

Ralph Kingery, Associate Environmental Planner

Rhonda A. Darling, Asst. Environmental Analyst

Eddie Arcadia, AutoCAD Graphics

Melissa Martin, Production Manager

Mary E. Brady, Graphics and Production Assistant

Shayne Cannon, Production Assistant

Misty Brunette, Production Assistant

**TRC**

Chris Cannon, J.D., Project Manager, Technical Review, Traffic, Noise

Eric Walther, Ph.D., Air Quality

Joe Stenger, R.G. , Geology/Soils/Mineral Resources, Water Resources/Hydrogeology

Richard Scott, Environmental Health & Public Safety

Tom Patterson, Ph.D., Hydrogeology Senior Review

Bob Mason, AICP, Cultural Resources Review

**Brian F. Mooney Associates**

Richard L. Carrico, Ph.D., Cultural Resources Assessment

William T. Eckhardt, Cultural Resources Assessment

John E. Dietler, Cultural Resources Assessment

Carol J. Serr, Cultural Resources Assessment

**Nevada Environmental Consultants, Inc., (NECI)**

Bill Garrett, Biological Assessment

Eric Hjelstrom, Biological Assessment

*This page left intentionally blank.*

# 8 REFERENCES

References below that are marked with a [K] are considered “key” references for this study. They are available for review at the County of Imperial, Department of Planning and Building, 939 Main Street, El Centro, California, 92243; U.S. Bureau of Land Management, El Centro Resource Area, 1661 South 4<sup>th</sup> Street, El Centro, California, 92243; U.S. Bureau of Land Management, California State Office, 2135 Butano Drive, Sacramento, California, 95825; and BRG Consulting, Inc., 304 Ivy Street, San Diego, California, 92101 (after September 8). Most of the other documents can be reviewed at BLM/El Centro, except for copyrighted material and personal communications.

Andrew, Nancy, 1999

Personal Communication, California Dept. of Fish and Game. 1999.

BLM, 1993

Memorandum to The Butler Roach Group from T. Zale, BLM-El Centro: Visitor Use Data, Fiscal Year 1990, January 5, 1993.

BLM, 1991

Operations Biological Assessment for the Desert Tortoise. BLM, El Centro Resource Area, November 1991

BLM, 1988

BLM NEPA Handbook, U.S. Dept. of the Interior, Bureau of Land Management, 1988.

BLM, 1986

Visual Resource Contrast Rating H-8410-1, January 17, 1986.

BLM, 1984

Visual Resource Management 8400, System Guidelines, April 5, 1984.

BLM, 1980

The California Desert Conservation Area Plan, U.S. Department of the Interior, Bureau of Land Management, 1980.

Baker Consultants, Inc., 1999

[K]

Draft Report, Hydrologic and Geochemical Study Proposed Mesquite Mine Expansion, Imperial County, California. Prepared for Imperial County Planning/Building Department, September 1999

Bamberg, Samuel A., 2000

[K]

Responses to Comments on EIS-Reclamation Plan. March 31, 2000.

Bamberg, Samuel A., and Hanne, Ingrid E., 2000

Vegetation Baseline Survey, Mesquite Mine Project, Imperial Co., California. Mar. 31, 2000

- Bamberg, Samuel A., and Shepherd Miller, Inc., 2000 [K]  
Screening-Level Ecological Risk Assessment of Pit Lakes at the Mesquite Mine, Imperial County, California. June 26, 2000
- Borst, B., 1983  
Soil Survey, Gold Fields Mining Corporation's Mesquite Project Area. Prepared for Gold Fields Operating Co.-Mesquite, October 1983
- Brown-Berry, Dr. Pat. 1999  
Personal Communication, August 16, 1999.
- Butler Roach Group, Inc., 1995  
Final Environmental Impact Statement / Environmental Impact Report for the Proposed Mesquite Regional Landfill Project, Imperial County, California (SCH No. 92051024) June, 1995
- Butler Roach Group, Inc./ St. Clair Research System. Inc, 1984  
Final Environmental Impact Report/ Environmental Assessment for the Mesquite Project, Imperial County, California (SCH No. 84040408) Dec. 12, 1984
- Brawner Engineering, Ltd., 1999 [K]  
Report to Newmont Gold Company, Mesquite Mine, Re: Pit Slope Design and Development. June 14, 1999.
- CAPCOA, 1993  
California Air Pollution Control Officers Association (CAPCOA). Air Toxics "Hot Spots" Program Risk Assessment Guidelines, January 1993.
- California Dept. of Public Works, Division of Water Resources, 1952  
Water Quality Investigations Report No. 3, Ground Water Basins in California. 1952.
- California Dept. of Water Resources, 1964  
Bulletin 130-63, Hydrologic Data, Volume 5, Southern California, Plate 6, 1964.
- Caltrans, 1998  
Traffic and Vehicle Data Systems Unit
- Caltrans, 1992  
Personal Communication. Mark Davey, CALTRANS Region 11, Traffic Counts Section, May 1992.
- Damiata, B. N., S. K. Park, and T.C. Lee, 1986  
Geophysical Overview, Imperial Valley, Southern California. So. Coast Geology Soc. Annual Field Trip. Geology of the Imperial Valley, California. Guidebook No. 14, 1986.
- Dillon, J.T., 1975  
Geology of the Chocolate and Cargo Muchacho Mountains, Southeasternmost California;  
Dissertation (Ph.D. thesis) University of California, Santa Barbara, Sept. 1975.
- EMA, Inc., 1997  
Imperial Project Draft EIR/EIS, November 1997

- Environmental Solutions, Inc., 1993  
Revised draft Hydrology Assessment report, Mesquite Regional Landfill, December 1993
- Environmental Solutions, Inc., 1993a  
Faulting and Seismicity in the Vicinity of the Mesquite Regional Landfill. 1993. (Appendix C of the Draft EIS/EIR for the Proposed Mesquite Regional Landfill)
- Environmental Solutions, Inc. 1992b  
Hydrogeologic Assessment Report, Mesquite Regional Landfill, 1992. (Appendix B)
- Environmental Solutions, Inc., 1987  
Final Environmental Impact Report/Environmental Assessment, EA No. CA-067-87-48, for the proposed VCR Mining Project, Imperial County, California (SCH No. 87052709), October 28, 1987
- Environmental Solutions, Inc., 1987b  
Final Drainage Report, Highway 78 Realignment, December 1987
- Gold Fields Mining Corporation, 1987  
Unpublished data from mineral exploration activities in the VCR and Mesquite projects area, including borehole data, geophysical data, assorted maps, and surveys, 1987.
- Gold Fields Mining Corporation, 1985  
The Mesquite Plan of Operations, January 1985
- Hanson, James C., 1999 [K]  
Hydrologic/Hydraulic Analyses for Highway 78 Crossing “Swale D.” April 1999
- Hanson, James C., 1998 [K]  
Hydrologic/Hydraulic Analyses for North Cholla Pit and East Rainbow Pit Diversion Ditches. April 1998
- Heath E. G., 1992  
Faulting & Seismicity in the Vicinity of Mesquite Regional Landfill. Letter report to Environmental Solutions, Inc., 1992.
- Hickman, James C. Ed., 1993  
The Jepson Manual: Higher Plants of California. Univ. of California Press, Berkeley. 1993.
- Higgins, C.T., 1990  
Mesquite Mine: A Modern Example of the Quest for Gold. California Division of Mines and Geology. Calif. Geol. Vol. 43, No 3., March 1990. P.51-56, 1990
- Imperial County, 1998  
Title 9, Imperial County Land Use Ordinance, 1998
- Imperial County, 1997  
Final Environmental Impact Report/Environmental Assessment (EIR/EA) for the proposed VCR Mining Project, Prepared by Environmental Solutions, Inc., October 1987

- Imperial County, 1993  
Draft Imperial County General Plan Update, prepared for County of Imperial by Brian F. Mooney Associates, January 1993
- Imperial County, 1984  
Conditional Use Permit (CUP) No. 684-84
- Jennings, C. W., 1992  
Fault Activity Map of California. California Division of Mines and Geology. Open File Report 92-03, 1992
- Jones & Stokes Associates, Inc., 2000 [K]  
Determination of Impacts on Jurisdictional Lands for Newmont Gold Mesquite Mine. February 25, 2000.
- Jones & Stokes Associates, Inc., 1999a [K]  
Delineation of Waters of the United States for Proposed Expansion Areas, Mesquite Mine. August 3, 1999.
- Jones & Stokes Associates, Inc., 1999b [K]  
Delineation of Waters of the United States for the Mesquite Mine. September 7, 1999.
- McArthur, C.K., 1995  
Personal Communication, Chemgold, 1995
- Maulchin, L. and Jones, A. L. 1992  
Peak Acceleration from Maximum Credible Earthquakes in California (Rock and Stiff Soil Sites). California Division of Mines and Geology. Open File Report 92-1, 1992
- Mooney & Associates (1999, 2000) [K]  
Cultural Resource Assessment & Evaluation of the Proposed Mesquite Mine Expansion, Imperial County, California. Prepared for U.S. Bureau of Land Management, Sept. 1999, February, 2000.
- Morton, P. K., 1993  
Mineral Potential and Mineral Appraisal of 1877.7 Acres of Lands Selected for Exchange by Arid Operation, Inc., in Portions of Sections 8, 15, 17, 18, 19, 20, 21, and 22, T.13S., R.19E., S.B.M., Southeastern Imperial County, California (CACA 30689). Prepared for U.S. Bureau Of Land Management, June 1993, revised December 1993.
- Morton, P. K. 1977  
Geology and Mineral Resource of Imperial County, California. California Division of Mines and Geology. County Report No. 7, 1977.
- Murray K. S. et al., 1980  
Geologic Structure of the Chocolate Mountains Region, Southeastern California. So. Coast Geol. Soc., Dibblee Volume, Geology and Mineral Wealth of the California Desert. P. 221-223, 1980
- Nevada Environmental Consultants Inc. (NECI), 2000 [K]  
Biological report proposed expansion of the Mesquite Gold Mine, August 4, 2000

- Newmont Gold Company, 1999 [K]  
Plan of Operations for the Proposed Mesquite Mine Expansion, November 12, 1999
- Reilly, Robert, 1999  
Personal Communication, USMC, October 1999.
- Rosenberg, K. V., R. D. Ohmart, W. C. Hunter and B.W. Anderson., 1991  
Birds of the Lower Colorado River Valley. Univ. of Arizona Press, Tucson, Arizona. 1991
- Santa Fe, 1995  
Mesquite Mine Consolidated Plan of Operations. 1995.
- Sergent Hauskins & Beckwith, 1984  
Geotechnical Investigation Report, Mesquite Project, Imperial Co., California. Jan. 1984.
- Shlemon, R.J., 1993  
Soils-Geomorphic Age Assessment of Piedmont alluvial fans Mesquite Regional Landfill, Imperial County, California. Prepared for Environmental Solutions, Inc., 1993
- Shlemon, R.J., 1980  
Quaternary Soils-Geomorphic Relationships, Southern Eastern Mojave Desert, California and Arizona. South Coast Geological Society, Dibblee Volume. Geology and Mineral Wealth of the California Desert, p. 388-403, 1980
- Slemmons D. B., 1982  
Determination of Design Earthquake Magnitude for Microzonation: Proceedings, Third International Earthquake Microzonation Conference, V. 1, p. 119-130.
- Small, A. 1974,  
The Birds of California. Macmillan Publishing Co., New York, New York. 310 pp. 1974
- Soriano, Jesse, 1997  
Personal Communication, ICPBD, May 5, 1997
- Topozada, Tousson R., C.R. Real, and D.L. Parke, 1981  
Preparation of Iseismal Maps and Summaries of Reported Effects for Pre-1900 California Earthquakes. California Division of Mines and Geology, Open File Report 81-11, 1981.
- TRC, 2000 [K]  
Air Quality Appendix A, Proposed Mesquite Mine Expansion. June, 2000
- U.S. Bureau of the Census, 1997  
1997 Census of Population and Housing, 1997
- U.S. Bureau of the Census, 1990  
Years in Residence-Imperial County 1990 US Census Data. March 1, 2000.
- United States Geological Survey, 1992  
Hern, John D. Study and Interpretation of the Chemical Characteristics of Natural Water. U.S.G.S. Water Supply Paper No. 2254. 1992.

United States Geological Survey, 1992

National Earthquake Information Center. Earthquake Data Base System. 1992.

United States Geological Survey, 1975

Loeltz, O.J., et al. Geohydrologic Reconnaissance of the Imperial Valley, California. U.S.G.S. Prof. Paper 486-k. 1975.

United States Geological Survey, 1972

Dutcher, L.C., et al. Preliminary Appraisal of Ground Water in Storage, with Reference to Geothermal Resources in the Imperial Valley Area, California. U.S.G.S. Circular 649. 1972.

# 9 Glossary of Terms and Acronyms

ACEC	Area of Critical Environmental Concern
ACHP	Advisory Council on Historic Properties (or Preservation)
acre-feet	The quantity of water that would cover one acre to a depth of one foot (43,560 cubic feet).
acf	Actual cubic feet
adit	A surface opening to an underground mine.
Algodones Dunes	The sand dune area about 8 miles southwest of the project site.
Aquifer	A body of rock or unconsolidated sediments that contains sufficient saturated permeable material to yield economic quantities of water to wells and springs.
Alluvial	Deposited by a stream or running water.
Alluvial fan	Funnel-shaped formations of sediment formed when intermittent torrential rains carry weathered material down from mountains and deposit it at the base of their slopes.
Alluvium	Material such as clay, silt, sand, or gravel deposited by streams.
Amos-Ogilby Basin	An elongated area (ground water basin) designated by the State of California Department of Water Resources.
AMSL	Above Mean Sea Level
Ancillary facilities	Support structures and equipment.

ANP	Acid neutralization potential
APCD	Air Pollution Control District
APE	Area of potential effect
AQAP	Air Quality Attainment Plans
AQMD	Air Quality Management District
ATC	Authority to Construct
Backfill	The process of refilling a mined-out pit with waste rock
Barren solution	Non-precious metals-bearing dilute cyanide solution
Bear Canyon Conglomerate	An Upper Miocene Sequence of variably cemented, interbedded nonmarine conglomerate beds and basaltic flows.
Berm	An elongate earthen structure which acts as a barrier: e.g., to make it difficult for a vehicle to cross, or to redirect the flow of water.
BLM	U.S. Bureau of Land Management
CAA	Clean Air Act
CAAA	Clean Air Act Amendments of 1990
CAAQS	Ambient Air Quality Standards
Cairns	Piles of rocks that, depending on their context, are interpreted to represent trail markers, trail shrines, boundary markers, or hunting blinds, mining claims, or burial markers.
Cal OSHA	California Occupational Health and Safety Act (or Administration)
Caltrans	California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board

CCR	California Code of Regulations
CDCA	California Desert Conservation Area
CDFG	California Department of Fish and Game
CDMG	California Department of Conservation, Division of Mines and Geology
CESA	California Endangered Species Act
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
cfs	Cubic feet per second
CMAGR	Chocolate Mountains Aerial Gunnery Range
cm/sec	Centimeters per second
CN <sup>-</sup>	Free cyanide
CNPS	California Native Plant Society
CO	Carbon Monoxide - a by-product of incomplete combustion which bonds tightly to hemoglobin molecules in the bloodstream and thus reduces the oxygen carrying capacity.
COC	Chemical of Concern
Conglomerate	A rock composed of rounded fragments, varying from small pebbles to large boulders, in a cement of hardened clay, or the like.
CoSWMP	County Solid Waste Management Plan
CUP	Conditional Use Permit

Cyanide	A chemical compound comprised of calcium, potassium or sodium, carbon, and nitrogen. Cyanide is water soluble and is used in ore processing solutions to extract gold from crushed rock.
Desert pavement	An area consisting of stones that have been closely packed together to form a uniform, stony surface, generally without vegetation.
Desert varnish	This shiny black material containing approximately 70 percent clay, also contains oxides of iron and manganese which give it its black color. It is found primarily on the exposed side of desert pavement.
DTC	Desert Training Center
DWR	California Department of Water Resources
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
Endangered Species	A plant or animal species that has the possibility of becoming extinct by threats to its present and future reproductive capabilities.
EPA	U.S. Environmental Protection Agency
ESA	The federal Endangered Species Act of 1973
Evapotranspiration	Discharge of water from the earth's surface to the atmosphere by evaporation from lakes, streams, and soil surfaces, and by transpiration from plants.
FCR	Field contact representative
FLPMA	Federal Land Policy and Management Act
Foliation	A general term for a planar arrangement of textural or structural features in any type of rock; most commonly applied to metamorphic rock.
FY	Fiscal year

Geoglyphs	Designs on the ground that were formed by the artificial modification of desert pavements. They include areas where dark desert pavement has been scraped away to reveal the lighter subsoils, rock alignments, and configurations of cobbles and flaked stone. Also called earth figures, ground figures, or intaglios.
gpm	gallons per minute
H <sub>2</sub> S	Hydrogen sulfide
HCN	Hydrogen cyanide
HDPE	High Density Polyethylene
Heap leach pad	A facility lined by impermeable material to collect the leach solutions which are slowly applied to a pile of ore placed in several layers on top
Holocene	An Epoch of the Quaternary period, from the end of the Pleistocene (approximately 10,000 to 11,000 years ago) to the present; synonym of Recent.
Hydraulic Conductivity	The capacity of a medium to transmit water; synonym of permeability. Expressed as the volume of water at the prevailing temperature that will move in unit time under a unit hydraulic gradient through a unit area. Units include gallons per day per square foot, centimeters per second.
ICAPCD	Imperial County Air Pollution Control District
IID	Imperial Irrigation District
Inversion	An increase in air temperature, instead of the usual decrease in air temperature, with an increase in height.
IOISA	In-pit Overburden/Interburden Storage Area
ISDRA	Imperial Sand Dunes Recreation Area
Isolates	Less than five artifacts in a 2.5 square meter area.

Leachate	A solution obtained by water percolating through soil containing soluble substances; in this case through the MSW residue being disposed of.
Leached ore	The ore that has been leached of its precious metals by the leaching solution on the heap leach pad
Lithic scatters	Surface scatters of flaked stone tools and manufacturing debris.
MCE	Maximum Credible Earthquake. The largest possible earthquake considering the known tectonic framework of an individual fault.
Mesozoic	A geologic era after the Paleozoic and before the Cenozoic, covering a period between 230 and 650 million years ago.
MSHA	Mine Safety and Health Administration
MPE	Maximum Probable Earthquake. The largest earthquake likely to occur with a 100-year return period at a given probability.
MSW	Municipal solid waste
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NDDB	California Department of Fish and Game Natural Diversity Database
Newmont	Newmont Gold Company
NHPA	National Historic Preservation Act of 1966
NO <sub>2</sub>	Nitrogen dioxide
NOI	Notice of Intent
NOP	Notice of Preparation
NO <sub>x</sub>	Nitrogen oxides - mainly nitric oxide (NO) and Nitrogen dioxide (NO <sub>2</sub> ) which participate with ROG in the ozone formation process, act as independent lung irritants, form eye irritants that

cause watering, and may ultimately end up as airborne nitric acid droplets contributing to acid fog and acid rain.

NPDES	National Pollutant Discharge Elimination System Permit
NRHP	National Register of Historic Places
O <sub>3</sub>	Ozone - a triatomic form of oxygen; toxic to micro organisms, but also a strong lung irritant which may lead to increased respiratory infection among senior citizens, young children, and any body in heavy work or exercise requiring frequent deep breathing into deep lung tissue. Ozone in the stratosphere is necessary because it absorbs strong radiation and protects people from skin cancer. Ozone in the near-surface atmospheric layer is harmful because of its irritating and oxidizing effects.
OHV	Off -highway vehicle
OHWM	Ordinary high water mark
Open pit	The area from which ore and waste rock are removed
OSHA	Occupational Health and Safety Administration
Patented land	A mining claim for which the United States government has conveyed the fee simple interest in the surface and minerals into private ownership
Pb	Lead
Perennial	A plant that has a life-cycle of more than two years.
Plan of Operation	A document prepared by the proponent of any mining development of locatable minerals and filed with the Bureau of Land Management, which presents a detailed discussion of the proposed project
Pleistocene	The first epoch of the Quaternary Period in the Cenozoic Era, characterized by the spreading and recession of continental ice sheets, and the appearance of modern man.
Pliocene	The last epoch of the Tertiary Period in the Cenozoic Era, during which many modern plants and animals developed.

PM <sub>10</sub>	Respirable particulate matter (particles less than 10 microns in diameter).
PMP	Probable maximum precipitation
POO	Plan of Operation
Pregnant solution	A precious metals-bearing cyanide solution which contains sufficient quantities of gold and silver that can be sent to the precious metal recovery plant to remove the precious metals from the solution
Project area	The general vicinity around the project site
PSD	Prevention of Significant Deterioration
PVC	polyvinyl chloride
Quaternary	The second period of the Cenozoic era, covering the last two to three million years.
ROW	Right-of-way
RWQCB	Regional Water Quality Control Board
Salton Trough	A landward extension of the East Pacific Rise, a zone of rifting and crustal spreading which has caused the opening of the Gulf of California.
SCAQMD	South Coast Air Quality Management District
Scat	Excrement left by an animal, especially a wild animal.
Sensitive Species	Generic term for any plant or animal species which is recognized by the government or by any conservation group as being depleted, rare threatened, or endangered.
SHPO	State Historic Preservation Officer
Significant Environmental Impact	The Council on Environmental Quality regulations state that environmental impact statements ". . . shall provide full and fair discussions of significant environmental impacts," and that

impacts shall be discussed in proportion to their significance. In addition, the following definition of significance is provided in 40 CFR 1508.27:

"Significantly" as used in NEPA required considerations of both context and intensity:

*Context.* This means that the significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality. Significant varies with the setting of the proposed action. For instance, in the case of a site-specific action, significance would usually depend upon the effects in the locale rather than in the world as a whole. Both short- and long-term effects are relevant.

*Intensity.* This refers to the severity of impact. Responsible officials must bear in mind that more than one agency may make decisions about partial aspects of a major action. The following should be considered in evaluating intensity:

- Impacts that may be both beneficial and adverse. A significant effect may exist even if the Federal agency believes that on balance the effect will be beneficial.
- The degree to which the proposed action affects public health or safety.
- Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.
- The degree to which the effects on the quality of the human environment are likely to be highly controversial.
- The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.
- The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.

- Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.
- The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.
- The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.
- Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.

A significant effect on the environment is defined by the State CEQA Guidelines (CEQA Guidelines, § 15382), as follows:

A substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall

not be considered a significant effect on the environment.

A social or economic change related to a physical change may be considered in determining whether the physical change is significant.

Both the NEPA and CEQA definitions were considered in preparing this EIR/EIS.

SMARA	Surface Mining and Reclamation Act An act passed by the California legislature which prescribes the reclamation of mined lands within the state of California and directs the Counties within the state to review and approve a Reclamation Plan of each mining operation as part of the County's Conditional Use Permit process
SOCAB	South Coast Air Basin
SO <sub>2</sub>	Sulphur dioxide
Solution pond	A bowl-shaped structure that is lined with an impermeable material and engineered to contain cyanide solution from the heap leach pad for processing in the precious metals recovery plant and subsequent recirculation to the heap leach pad
SO <sub>x</sub>	Oxides of sulphur
SR	State Route
SRP	Newmont Safety Procedures
SWRCB	California State Water Resources Control Board.
Tertiary Age	The first period of the Cenozoic Era, covering the span of time between 65 and 2-3 million years ago.
Threatened Species	A species which, although not presently threatened with extinction, is likely to become endangered in the foreseeable future in the absence of special protection and management efforts.
TPD	Tons per day
U.S. DOI	U.S. Department of Interior
U.S. EPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey

Vadose zone	The saturated and/or unsaturated overburden soils above the permanent groundwater table.
Visual resource management	A classification of landscapes according to the kinds of structures and changes that are acceptable to meet established visual goals (Bureau of Land Management designation)
VRM	Visual Resource Management
Waste rock	Rock that contains either no gold or gold in quantities that cannot be economically extracted. Because such rock either lies on top of ore or is mixed in with the ore, waste rock must be mined in advance of or at the same time as the ore is mined.
Waste rock stockpile	Location within the mine and process area where excavated waste rock from the pits is stockpiled
Water table	The level in the saturated zone at which the pressure is equal to the atmospheric pressure.
WDR	Waste Discharge Requirements
WSA	Wilderness Study Area

# 10 Index

<u>A</u>	Pages...
Area of Critical Environmental Concern (ACEC)	4.1.3-19
Advisory Council on Historic Preservation (ACHP)	1-18,20; 4.1.4-1; 6-4
Air Emissions	1-17; 3.8-10,19,22,42; 4.1.8-2,26,44; 4.4-13,14
Air Pollution Control Districts (APCDs)	1-19
Air Quality Attainment Plan (AQAP)	3.8-9,13,16; 4.1.8-20,43; 4.1.9-6
Air Quality Management Districts (AQMDs)	1-19
Algodones Sand Dunes	3.1-25; 3.2-2,5,11
Amos-Ogilby Ground Water Basin	4.1.2-9
Authority to Construct	1-16; 2-2; 3.8-16
Average Daily Traffic	4.1.6-1
<u>B</u>	
Bats	3.3-11,19,20; 4.1.3-14,15,18; 4.2-18
Bear Canyon Conglomerate	3.1-6,13,27,28; 3.2-13,17,19; 3.5-1
Bighorn Sheep	3.3-11,19,20; 4.1.3-2,7,8,13,14; 4.2-13,14,17,18
Boardmanville	4.1.9-1; 4.2-26,33
<u>C</u>	
Calliandra	3.3-13,14; 4.1.3-12; 4.2.6-16; 4.2-16
California Air Resources Board (CARB)	1-17,19; 3.8-12
California Code of Regulations (CCR)	1-19; 2-20; 3.1-2,20
California Department of Fish and Game (CDFG)	1-20; 3.3-4; 4.1.3-2; 6-4
California Department of Transportation (Caltrans)	1-20; 3.1-28; 4.4-6
California Desert Conservation Area (CDCA)	3.9-1,6; 5-3
California Endangered Species Act (CESA)	1.0-20; 3.3-1,3, 12; 6-4
California Environmental Quality Act (CEQA)	1.0-1,2; 4.1.4-2; 4.1.8-31; 6-1
California Fish and Game Code	1.0-20; 6-4
California Fish and Game Commission	6-4
California Native Plant Society (CNPS)	3.3-3, 5,12
California Occupational Safety and Health Administration (Cal OSHA)	3.12-1; 4.1.7-3
California State Water Resources Control Board (SWRCB)	1.0-17
Carbon Monoxide (CO)	3.8-2; 4.1.8-2
Chocolate Mountain Aerial Gunnery Range (CMAGR)	3.7-2; 4.1.7-2; 4.4-7

Chuckwalla	3.1-21,22; 3.3-9, 10,18; 4.4-3,12
Chuckwalla Bench	4.4-3
Clean Air Act (CAA)	1.0-17
Clean Water Act	1.0-13; 2.0-37,38; 3.2-2; 3.3-2
Closure	2.0-11,14,18,25; 3.2-1; 3.8-11; 3.11-3; 4.1.12-2, 6,7; 4.1.13-2; 4.3-4,5 ; 4.4-1,4
Coachella Valley	3.8-14,22
Code of Federal Regulations (CFR)	1.0-1; 6-1
Colorado Desert	3.1-2; 3.3-6,11; 3.4-1; 3.9-1,2
Conditional Use Permit (CUP)	1.0-15; 3.2-1
Council on Environmental Quality (CEQ)	1.0-1
Cryptantha	3.3-13,14; 4.4-12
Cyanide	1.0-1, 16; 2.0-4,8,9,11,15,37; 3.2-19; 4.1.8-34,35 4.1.12-2,3,4,5; 4.4-9

**D**

Desert Tortoise	1.0-11; 2.0-3,32,35; 3.3-1,12,14,17,18; 4.1.9-5,6; 4.1.14-3; 4.2.14-43,44; 4.3-2,5; 4.4-1,2,10,12,15; 5-3,5
Diversion	1.0-1,5,25; 2.0-3,4,10,13,14,21,22,23,32; 3.2-1; 3.3-10,17; 4.1.9-7; 4.1.10-1; 4.3-1; 4.4-3,15
Drainage	1.0-5, 25,27; 2.0-3,4,5,8,13,14,15,32,34,35,36; 3.1-21; 3.2-1,2,9; 3.3-2,3,6,10,12,17; 3.11-1,2; 4.1.7-2; 4.1.8-2,7,13,25; 4.1.11-5,6; 4.1.12-2; 4.1.14-2 ;4.2.14-43; 4.3-3; 4.4-3
Dust Control	2.0-7,18,33; 3.0-2,11,13,23; 3.14-3; 4.1.8-13,44, 45; 4.3-1 /

**E**

Earnings	3.13-1,2 ; 4.1.13-1
East Highline Canal Lineament	3.1-23,24,26
East Mesa	3.1-23,25,26,27,28
East Mesa Basin	3.2-5,11; 4.4-8
East Mesa Fault	3.1-23,25,27,28
Employment	1-3; 3.13-1,2; 4.1.13-1; 4.2.13-1,2; 4.3-5; 5-3,4
Endangered Species	1-14,17,20; 2-2; 3.2-4; 3.3-1,3,12; 4.1.3-2,12,17; 4.1.14-3
Endangered Species Act (ESA)	1-14,17,20; 2-2; 3.2-4; 3.3-1,3,12; 4.1.3-2,12,17; 4.1.14-3; 4.2.3-6; 4.2.14-2; 4.4-11; 6-3,4

Exchange 1-12; 3.3-4,5; 3.9-1; 4.1.3-16,17; 4.1.9-2,7;  
4.1.10-1; 4.1.13-2; 4.2.3-9; 4.4-3; 4.2-26

**F**

Fairy Duster 2-23,32; 3.3-13,14; 4.1.3-12,25; 4.2.3-7,11; 4.3-  
2,5; 4.4-12; 6-4

Fault 3.1-2,6,23,24,25,26,27,28; 3.2-1; 4.1.1-3; 4.1.2-  
10; 4.1.9-4; 4.2.2-6

Federal Land Policy and Management Act (FLPMA) 1-3,16; 3.9-1

Financial Assurance 1-19,21; 3.2-1; 4.1.13-2; 4.2.13-1

**G**

General Plan 3.7-1; 3.9-1,2,3,4,5; 4.1.7-1,3; 4.1.9-2,3,5,7; 4.2-  
27; 5-3

Geoglyphs 4.1.9-2; 4.2-26

Glamis 1.4,11; 3.1-23; 3.7-1,2; 3.9-3; 3.10-1; 3.13-2;  
4.1.8-21,26,38,40; 4.1.9-1; 4.1.10-1; 4.1.11-6,8;  
4.2-26,28,33; 4.4-3,13

Gold Fields 1-11,15; 3.1-1; 3.9-3; 3.13-1; 4.1.3-17; 4.1.10-2;  
4.2.10-1

Gravel 1-15; 2-5,15,22; 3.1-13,21; 3.2-17; 3.3-9,10,11;  
3.6-3; 3.7-1,2,3; 3.8-35; 3.11-2; 4.1.7-2; 4.1.9-2

Ground Water 1-19; 2-7,9; 3.1-14,15,19,28;  
3.2.1,2,5,6,9,11,13,14,17,19,20,23; 4.1.2-  
1,3,6,7,8,9,11; 4.1.9-1; 4.1.10-1; 4.1.12-1,6;  
4.2.2-2,4,5,6,7; 4.2-28; 4.2.12-1,4; 4.4-3,6,8

**H**

Hazardous Material Waste 3.1-19,20; 4.1.2-3; 4.1.9-4; 4.1.14-1; 4.2.2-2; 4.2-  
42; S-2

**I**

Imperial County	1-4,11,12,13,14,15,16,19; C-1,2; S-1,2; 2-1,8,22,25,35; 3.1-1,21,25,28; 3.2-1,5,13; 3.3-1,11; 3.4-1; 3.6-1,2; 3.8-1,9,13,14,15,16,23,26,35,37,42; 3.9-1,4,5; 3.11-2,3; 3.13-1,2,5; 3.14-1,2; 4.1.1-3; 4.1.2-4; 4.1.3-5,17; 4.1.7-1,3; 4.1.8-26,31,38,43,44; 4.1.9-2,6,7; 4.1.10-1; 4.1.11-4,8; 4.1.13-1; 4.1.14-1,2; 4.2-27; 4.2-28,36,42; 4.3-5; 4.4-2,6,7,13; 5-1,4; 6-1,2,5; 7-1
Imperial County Air Pollution Control District (ICAPCD)	1-14,16; 3.8-2,14,16; C-2; S-2
Imperial County General Plan	3.7-1; 3.9-1,2,3,5; 4.1.7-1,3; 4.1.9-2,3,5,7; 4.2-27; 5-3
Imperial Irrigation District (IID)	3.14-2; 4.4-7
Imperial Sand Dunes Recreation Area (ISDRA)	3.3-6; 3.7-1,2; 3.10-1; 4.4-13
 <b><u>L</u></b>	
Landfill	1-11,12,15; 3.1-6,23; 3.2-1,5,17; 3.9-5; 3.14-2; 4.1.2-3; 4.1.8-25,31; 4.1.9-4,7; C-2; S-2; 4.2.2-2,7; 4.4-2,3,8,9,10,11,13,14; 5-1,3
Leach Pads	1-4,5,25; 2-9,17,22,23,24,27,29; 3.3-17; 3.8-1,42; 3.11-2,3; 3.12-2; 4.1.1-1,2,5; 4.1.2-1,3,4,6,10; 4.1.3-1,4,6,12,23; 4.1.7-2; 4.1.8-7,13,34,35; 4.1.9-1,6; C-1, C-2; S-1, S-2; 4.1.11-5; 4.1.12-1,2,3,5,6; 4.2.1-2; 4.2.2-1,2,4,6,7; 4.2.3-3; 4.2-30,33; 4.2.12-2,4; 4.4-3,14; 5-2
Lighting	4.1.9-2; 4.1.11-6,7,8; 4.1.14-1,2
 <b><u>M</u></b>	
Maximum Credible Earthquake (MCE)	3.1-23,25,27,28
Maximum Probable Earthquake (MPE)	3.1-23,27,28
mcls	3.2-23
Mining Operations	1-5; 1-15,21; 2-7,18,37; 3.9-8; 3.10-1; 3.11-2,4; 3.12-1; 4.1.2-3; 4.1.3-21; 4.1.8-2; 4.1.9-8; 4.1.11-5; 4.1.12-1,2; 4.1.13-1; 4.1.14-1; 4.2-4,35,42; 4.3-4,5; 4.4-9; 5-1,3
Mining Safety and Health Administration (MSHA)	3.7-1,2; 3.12-1; 4.1.9-5; 4.1.12-2,3; 4.1.12-4,5; 4.1.14-2; 4.2-35,36,37,43; 4.3-4
Moisture	3.1-21; 2-21,24; 3.3-6; 4.1.3-4,25; 4.2-11
Mojave Desert Physiographic Province	3.1-2

Mule Deer 3.3-4,10,11,19; 4.1.3-7,8,13,25

**N**

National Ambient Air Quality Standards (NAAQS) 1-17; 3.8-2,9,10,11,12,14,26,35,37; 4.1.8-20,43  
 National Environmental Policy Act (NEPA) 1-1,2,16,25; 2-26; 3.2-1; 3.3-4; 4.1.2-1; 4.1.3-2,3;  
 4.1.9-1,2; 4.2-3,10,22; 4.3-1; 4.4-1,2; 5-1; 6-2,3  
 National Historic Preservation Act of 1966 (NHPA) 4.1.4-1  
 National Pollution Discharge Elimination System (NPDES) 4.1.1-2, 1-19; 4.1.2-10;  
 National Register of Historic Places (NRHP) 4.1.9-1,2. 1-18  
 Natural Diversity Database (NDDB) 3.3-3,4,12,20; 4.1.3-2,12  
 No Action Alternative 2-26,29,32  
 Notice of Intent (NOI) 1.7-24,28; 4.1.1-2; 6.1-1; 9-6  
 Notice of Preparation (NOP) 1.7-24,28; 6.1-1; 9-6

**O**

Occupational Health and Safety Act 9-2  
 Occupational Health and Safety Administration (OSHA) 3.12-1; 9-7  
 Off-Highway Vehicle (OHV) 3.3-9; 3.10-1; 9-7  
 Overburden 1-1,4,6,14,24; 2-4,5,10,11,19,26,30,31,35,36; 3-15,18; 3.3-10,14; 3.7-2; 3.8-1,37,42; 3.11-1,2,3;  
 4.1-2; 4.1.2-7; 4.1.3-5,8,12,13,17; 4.2.10-28;  
 4.2.12-37; 4.2.3-12,14,16,19; 4.2.6&7-24;  
 4.2.8&9-26; 4.3-3,4,5; 5-2; 9-5,12  
 Oxides of Nitrogen (NO<sub>x</sub>) 3.8-1; 9-6

**P**

Permit to Operate 2-2  
 PM<sub>10</sub> 2

**R**

Reclamation Plan 1,2-3

**S**

Section 7 Consultation 2-2  
 Section 106 Consultation 2-2  
 Subbasin 3.2-5,9,11,14,16,17,19; 4.1-9; 4.2-8; 10-5

Swales	1-23; 1.6-23; 10-5
<b><u>T</u></b>	
Threatened Species	1-20; 1.6-20; 6-3,4; 9-10,11,; 10-5
<b><u>U</u></b>	
U.S. Bureau of Land Management (BLM)	1.1-2,3; 3.9-2; 4.1.8-26; 6-1
U.S. Department of Interior (U.S. DOI)	3.3-17
U.S. Environmental Protection Agency (U.S. EPA)	1.6.1.1-19; 2.1.2.2-9; 3.8-2,11
U.S. Fish and Wildlife Service (USFWS)	1.6.1.2-14,15,20; 3.3-1; 6-3
United States Geological Survey (USGS)	3.1-23
Utilities	1.10-28; 2.1.5-18,35; 3.14-1,2; 4.1.14-1; 4.2.14-44,45
<b><u>V</u></b>	
Vadose Zone	2.1.2.4-10,17; 3.5-5
Visual Resource Management (VRM)	3.11-1,2; 4.19-2; 4.1.11-1
Volatile Organic Compounds (VOCs)	3.8-11,20; 4.1.8-31,34
<b><u>W</u></b>	
Washes	1.6.2.4-22; 2-13,15,16,23,24,25,26; 3.2-2,4; 3.3-6,9,10,14,20; 4.1.2-2,3; 4.1.3-4,13,16,23; 4.1.11-7; 4.2.1-1; 4.2.3-11,16,17,18,19; 4.4-9
Waste Discharge Requirements (WDR)	2-17; 3.1-1; 3.2-1; 4.1.1-2,5
Water	1.6-1,3,6,16,17,18,20,21,22,23,28; 2-6,9,10,11,12,13,15,16,17,18,22,23,24,25,26,34,37,39,40; 3.1-1,13,14,15,18,22,27; 3.2-1,2,4,5,9,11,13,14,15,17,19,21,24,26; 3.3-2,11,12,20; 3.9-3,4,5,6; 3.14-3; 4.1.2-1,2,3,4,6,7,8,9,10; 4.1.3-1,4,5,6,8,9,10,19,24,25; 4.1.8-13,31,35; 4.19-1,2,3,7; 4.10-1; 4.1.11-7,9; 4.1.12-2,3,5,6; 4.2.2-3,4,5,6,7,8,9; 4.2.12-37,38,40; 4.2.14-45,46; 4.2.3-10,11,12,14,17,19,21; 4.3-1,2,6; 4.4-1,2,3,6,7,8,9,15; 6-3
Water Quality	1-17,20,21,28; 2-9,10,17,26,37,38,40; 3.1-1; 3.2-1,2,17,18,19,22,24,25,26; 4.1.2-1,3,6,7,8,9,10; 4.19-1,3; 4.1.12-2; 6-3

Well Field	2-13,18; 3.2-1,5,9,14,17; 3.8-23,26; 3.14-3; 4.4-3,8,15
Wilderness Areas (WAs)	3.8-11; 3.10-1,4; 4.1.9-1
Worker Safety	1.6.1.4-21; 4.1.7-2

**Z**

Zoning	3.9-1,5; 4.1.7-1; 4.1.9-2,7
--------	-----------------------------

*This page left intentionally blank.*