BALTIC MINE PROJECT
KERN COUNTY, CALIFORNIA

DRAFT
ENVIRONMENTAL IMPACT STATEMENT/
ENVIRONMENTAL IMPACT REPORT
State Clearinghouse Number 91052039

MAY 1992

Prepared for:

Bureau of Land Management
Ridgecrest Resource Area
Ridgecrest, California

County of Kern
Department of Planning and
Development Services
Bakersfield, California

Applicant:

Rand Mining Company
Randsburg, California

Prepared by:

Environmental Management
Associates, Inc.
Brea, California

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Abstract:

The Baltic Mine Project is a proposed open pit precious metals mine located in eastern Kern County, California. The project area is comprised of 532 acres of public and private lands, with the public lands administered by the Bureau of Land Management. Ore and waste would be mined at a rate of approximately 25,000 tons per day for six (6) years and the precious metals would be recovered from the ore using conventional heap leach methods. At the completion of the mine operations, approximately 200 acres would have been disturbed. Issues identified during the public scoping process and evaluation of this document include geology, topography, wildlife, water resources, visual resources, socioeconomics and noise. Potential adverse impacts would be mitigated to acceptable levels through regulatory requirements and measures incorporated into the project planning and design.

Action Required:

Bureau of Land Management: Approve Plan of Operations and Reclamation Plan
Kern County: Approve Conditional Use Permit and Mining Reclamation Plan

Comments on this Draft Environmental Impact Statement/Environmental Impact Report must be submitted to the Bureau of Land Management at the address below no later than 5:00 p.m., July 28, 1992 to be considered in the Final Environmental Impact Statement/Environmental Impact Report. For further information, contact the Bureau of Land Management or Kern County at:

U.S. Bureau of Land Management
Ridgecrest Resource Area
300 South Richmond Road
Ridgecrest, California 93555
ATTN: Peter Milne

County of Kern
Department of Planning and Development Services
2700 M Street, Suite 100
Bakersfield, California 93301

Applicant:
Rand Mining Company
P.O. Box B
Randsburg, California 93554

Prepared by:
Environmental Management Associates, Inc.
405 S. State College Blvd., Suite 211
Brea, California 92621

This document was prepared by Environmental Management Associates, Inc., an independent consulting firm, under the direction of the Bureau of Land Management and the Kern County Department of Planning and Development Services. A disclosure statement indicating Environmental Management Associates, Inc. has no financial or other interest in the outcome of the Baltic Mine Project has been filed with the Bureau of Land Management in accordance with Federal regulation 40 CFR 1506.5(c).

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
RIDGECREST RESOURCE AREA
300 S. RICHMOND ROAD
RIDGECREST, CALIFORNIA 93555
Telephone (619) 375-7125

TAKE PRIDE IN AMERICA

IN REPLY REFER TO:

1790/3809
CAMC-48444
(CA-065.21)

May 18, 1992

Dear Reader:

Enclosed for your review is the Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR) prepared for the Baltic Mine Project. The purpose of Draft EIS/EIR is to disclose, in advance of any decision, the probable environmental and socio-economic impacts that may be caused by a proposed open pit, cyanide heap-leach, precious metals mine on public and private lands. The project site is near the town of Randsburg, Kern County, California.

This Draft EIS/EIR has been prepared in cooperation with the County of Kern to meet both Federal requirements under the National Environmental Policy Act (NEPA), and State of California requirements under the California Environmental Quality Act (CEQA). The Bureau of Land Management is the lead Federal agency, the County of Kern is the lead State agency.

A public meeting will be held in Johannesburg, California, located about one mile from the project site. This meeting will allow interested parties the opportunity to provide oral comments on the adequacy, accuracy, and completeness of the Draft EIS/EIR. The meeting will be held at the following location:

Johannesburg Community Center
U.S. Highway 395
Johannesburg, California

Date: Monday, June 29, 1992 Time: 7:00 P.M.

Written comments should be addressed to Lee Delaney, Area Manager, at this office. Comments must be received or postmarked no later than July 28, 1992, to ensure consideration. Informal questions may be directed to Peter Milne or Joe Liebhauser at this office, by mail or telephone. We appreciate your interest in the public lands, and welcome your participation in the environmental review process.

Sincerely,

Richard S. Smith

Lee Delaney
Area Manager acting

Enclosure

United States Department of the Interior

TAKE PRIDE IN AMERICA

BUREAU OF LAND MANAGEMENT
CALIFORNIA STATE OFFICE
2800 COTTAGE WAY, ROOM E-2845
SACRAMENTO, CALIFORNIA 95825-1889

IN REPLY REFER TO:
1791
(CA-930.14)

12 MAY 1992

Dr. Dwight L. Carey, Principle
Environmental Management Associates
405 South State College Blvd., Suite 211
Brea, California 92621

Dear Dr. Carey:

This letter approves for printing and public review, the Baltic Mine Project Draft Environmental Impact Statement/Environmental Impact Report (Draft EIS/EIR). The document meets Bureau of Land Management standards pursuant to the regulations at 40 CFR Part 1500.

A copy of this letter shall be enclosed in the Draft EIS/EIR.

Sincerely,

Ed Hastey
State Director

RESOURCE MANAGEMENT AGENCY

RANDALL L. ABBOTT
DIRECTOR

DAVID PRICE III
ASSISTANT DIRECTOR

Planning & Development Services Department
TED JAMES, AICP, DIRECTOR

Air Pollution Control District
WILLIAM J. RODDY, APCO

Environmental Health Services Department
STEVE McCALLEY, REHS, DIRECTOR

PLANNING AND DEVELOPMENT SERVICES DEPARTMENT

May 18, 1992

File: 39-91

RE: Draft Environmental Impact Statement/Environmental Impact Report for the Baltic Mine Project, Conditional Use Permit #7, Map #136, Rand Mining Corporation (SCH# 91052039)

Dear Reviewer:

Transmitted herewith is a copy of the Draft Environmental Impact Statement/Environmental Impact Report (DEIS/DEIR) for the referenced case.

We request your input on the sufficiency of this document in the areas of your expertise. Your comments will provide decision makers with information needed to render an objective decision.

The document is a joint document prepared for the Bureau of Land Management, which has decision making authority over the public land involved in the project and the County of Kern, which has decision making authority regarding the proposed conditional use permit and road vacation/realignments. The California Environmental Quality Act (CEQA) Guidelines Section 15226 encourages cooperation to the fullest extent possible between state, local, and federal agencies to reduce duplication between CEQA and the National Environmental Policy Act. Pursuant to CEQA guidelines, the document includes discussion of mitigation measures and growth inducing impacts.

Collection and response to comments will be coordinated between this office and the Bureau of Land Management. Comments must be received no later than **July 28, 1992.**

If you have questions, please contact Bill Larsen of this department at (805) 861-2615.

Very Truly Yours,

TED JAMES, Director
Planning and Development Services

William L. Larsen

By: William L. Larsen, Senior Planner
Environmental Analysis Section

2700 "M" STREET, SUITE 100 BAKERSFIELD, CALIFORNIA 93301 (805) 861-2615
FAX: (805) 861-2061

Notice of Completion

Appendix F

See NOTE below

SCH # 91052039

Mail to: State Clearinghouse, 1400 Tenth Street, Sacramento, CA 95814 916/445-0613

Project Title: CUP #7, Map #136

Lead Agency: Kern County Planning & Development Services
Contact Person: Peter F. Whitehead
Street Address: 2700 "M" Street, Suite 100
Phone: (805) 861-2615
City: Bakersfield, CA
Zip: 93301
County: Kern

Project Location

County: Kern
City/Nearest Community: Randsburg
Cross Streets:
Total Acres: 180
Assessor's Parcel No.
Section: 1, 2, 11, 12 Twp. 30
Range: 40
Base: MDB&M
Within 2 Miles: State Hwy #:
Waterways:
Airports:
Railways:
Schools: Johannesburg Elementary

Document Type

CEQA: [ ] NOP [ ] Early Cons [ ] Neg Dec [ ] Draft EIR [ ] Supplement/Subsequent [ ] EIR (Prior SCH No.) [ ] Other

NEPA: [ ] NOI [ ] EA [ ] Draft EIS [ ] FONSI

Other: [X] Joint Document [ ] Final Document [ ] Other

Local Action Type

[ ] General Plan Update
[ ] General Plan Amendment
[ ] General Plan Element
[ ] Community Plan
[ ] Specific Plan
[ ] Master Plan
[ ] Planned Unit Development
[ ] Site Plan
[ ] Rezone
[ ] Prezone
[X] Use Permit
[ ] Land Division (Subdivision, Parcel Map, Tract Map, etc.)
[ ] Annexation
[ ] Redevelopment
[ ] Coastal Permit
[X] Other ROAD VACATI

Development Type

[ ] Residential: *Units* *Acres*
[ ] Office: *Sq.ft.* *Acres* *Employees*
[ ] Commercial: *Sq.ft.* *Acres* *Employees*
[ ] Industrial: *Sq.ft.* *Acres* *Employees*
[ ] Educational
[ ] Recreational
[ ] Water Facilities: *Type* *MGD*
[ ] Transportation: *Type*
[X] Mining: *Mineral* Gold and Silver
[ ] Power: *Type* *Watts*
[ ] Waste Treatment: *Type*
[ ] Hazardous Waste: *Type*
[ ] Other:

Project Issues Discussed in Document

[X] Aesthetic/Visual
[ ] Agricultural Land
[X] Air Quality
[ ] Archeological/Historical
[ ] Coastal Zone
[ ] Drainage/Absorption
[X] Economic/Jobs
[ ] Fiscal
[ ] Flood Plain/Flooding
[ ] Forest Land/Fire Hazard
[X] Geologic/Seismic
[X] Minerals
[X] Noise
[ ] Population/Housing Balance
[ ] Public Services/Facilities
[ ] Recreation/Parks
[ ] Schools/Universities
[ ] Septic Systems
[ ] Sewer Capacity
[X] Soil Erosion/Compaction/Grading
[ ] Solid Waste
[X] Toxic/Hazardous
[ ] Traffic/Circulation
[X] Vegetation
[ ] Water Quality
[X] Water Supply/Groundwater
[ ] Wetland/Riparian
[X] Wildlife
[ ] Growth Inducing
[ ] Landuse
[ ] Cumulative Effects
[ ] Other

Present Land Use/Zoning/General Pl Present Land Use: Inactive mining operation Present Zoning: A-1 (Limite Agriculture) Present General Plan Use: 8.4 (Mineral and Petroleum)/1.1 (Non-jurisdictional state and federal land)

Project Description

Adoption of a conditional use permit, mining reclamation plan, and road vacation to allow development of a heap leach cyanide mini operation. Operation would include development of two open pits and creation of a waste rock storage area. Processing operatio would include the construction and operation of a heap leach and precious-metals recover facilities. Mining rate would be 20,000 a 25,000 tons per day for five to six years. Other activities include road construction, road closure, relocation of power lines.

NOTE: Clearinghouse will assign identification numbers for ew projects. If a SCH number already exists for a project (e.g. from a Notice of Prepar or previous draft document) please fill it in.

Reviewing Agencies Checklist

KEY
S = Document sent by lead agency
X = Document sent by SCH
✓ = Suggested distribution

Resources Agency
_____Boating & Waterways
_____Coastal Commission
_____Coastal Conservancy
_____Colorado River Board
_____Conservation
_____Fish & Game
_____Forestry
_____Office of Historic Preservation
_____Parks & Recreation
_____Reclamation
_____S.F. Bay Conservation & Development Commission
_____Water Resources (DWR)

Business, Transportation & Housing
_____Aeronautics
_____California Highway Patrol
_____CALTRANS District # 9
_____Department of Transportation Planning (headquarters)
_____Housing & Community Development

_____**Food & Agriculture**

Health & Welfare
_____Health Services _____

State & Consumer Services
_____General Services
_____OLA (Schools)

Environmental Affairs
_____Air Resources Board
_____APCD/AQMD
_____California Waste Management Board
_____SWRCB: Clean Water Grants
_____SWRCB: Delta Unit
_____SWRCB: Water Quality
_____SWRCB: Water Rights
_____Regional WQCB #_____ (LAHONTAN)

Youth & Adult Corrections
_____Corrections

Independent Commissions & Offices
_____Energy Commission
_____Native American Heritage Commission
_____Public Utilities Commission
_____Santa Monica Mountains Conservancy
_____State Lands Commission
_____Tahoe Regional Planning Agency

_____Other _____

Public Review Period (to be filled in by lead agency)

Starting Date MAY 18, 1992 Ending Date July 28, 1992

Signature William L Lane Date May 14, 1992

Lead Agency (Complete if applicable):
Consulting Firm: _____
Address: _____
City/State/Zip: _____
Contact: _____
Phone: (___) _____

Applicant: _____
Address: _____
City/State/Zip: _____
Phone: (___) _____

For SCH Use Only:
Date Received at SCH _____
Date Review Starts _____
Date to Agencies _____
Date to SCH _____
Clearance Date _____
Notes:

Revised October 1989

EXECUTIVE SUMMARY

RAND MINING COMPANY
BALTIC MINE PROJECT
DRAFT ENVIRONMENTAL IMPACT STATEMENT/ ENVIRONMENTAL IMPACT REPORT

EXECUTIVE SUMMARY

INTRODUCTION

Rand Mining Company has proposed the development of the Baltic Mine Project, an open-pit gold and silver mine and heap leach recovery operation located approximately 1.5 miles south of the town of Randsburg in the eastern portion of Kern County, California. The project area consists of approximately 532 acres of patented land (fee land) and unpatented lode and placer mining claims on public lands administered by the U.S. Bureau of Land Management, Ridgecrest Resource Area Office of the California Desert District (BLM). The BLM is the lead agency with respect to compliance with the National Environmental Policy Act and the Kern County Department of Planning and Development Services is the lead agency for compliance with the California Environmental Quality Act.

The purpose of this document is to analyze the impacts of the three (3) identified alternatives, including the proposed project, so that decision-makers will have adequate information on which to base their decision to approve or deny the Baltic Mine Project or one of the other alternatives. The decision will be made using the findings presented in this Draft Environmental Impact Statement/Environmental Impact Report.

Background

This project was originally proposed in 1987 in a somewhat different form by Echo Bay Minerals. Although the BLM completed an Environmental Assessment and approved the Plan of Operation for the project, the project was put on hold by Echo Bay

Minerals and permitting suspended prior to Kern County's approval of the Conditional Use Permit required for the project.

The Baltic Mine Project, as now proposed by Rand Mining Company to the BLM, is a major modification of the previously approved Echo Bay Minerals Plan of Operations, and is a new application for a Conditional Use Permit as proposed to Kern County. The Baltic Mine Project now proposes to: increase the size of the project area from 392 to 532 acres (which will now include the inactive pit and waste rock storage area of an adjacent mine project, the Lamont Mine Project); increase the surface disturbance from 156 to approximately 200 acres; and alter the locations and layout of the various mine components.

The objective of the Baltic Mine Project is to profitably mine ore, process this ore to recover precious metals, and reclaim the project area. The proposed operations are required to comply with the standards and procedures in the BLM regulations for surface mining of public land under the general mining law (43 CFR 3809). These regulations recognize the statutory right of mineral claim holders to explore for and develop federal mineral resources and encourage such development.

The project is also required to comply with the California Department of Conservation regulations regarding the reclamation of mining operations on lands within the State of California (14 CCR 3500), which are applicable to essentially all mining operations on federal, state and private lands within the State of California. These regulations require reasonable reclamation measures be developed for the project, prior to initiating operations, as part of the County Conditional Use Permit process. The proposed reclamation measures are to be included in a reclamation plan, which is part of the Conditional Use Permit application for any mining project. The Baltic Mine Project

Conditional Use Permit application and accompanying Reclamation Plan have been submitted to, and reviewed by, Kern County, which must either approve or deny the requested Conditional Use Permit.

Project Location

The project area is located approximately 40 miles northeast of the town of Mojave, 25 miles south of the community of Ridgecrest and 1.5 miles south of the town of Randsburg. Access to the project area is via Butte Avenue, a paved county secondary road, from the town of Randsburg. Specific components in the project area would be accessed from this county road via unpaved project roads. The project area encompasses a total of approximately 532 acres of public and private lands and lies within Sections 1, 2, 11 and 12, Township 30 South, Range 40 East, Mount Diablo Baseline & Meridian.

PROPOSED ACTION AND ALTERNATIVES

Proposed Action

Rand Mining Company intends to develop the proposed mining operations, continue with associated exploration activities, implement wildlife impact reduction measures and conduct reclamation activities as detailed in the Reclamation Plan. Mining operations would include development of the two (2) open pits (the Baltic Pit and the Lamont Extension Pit) and creation of a waste rock storage area. Processing operations would include the construction and operation of heap leach and precious-metals recovery facilities. The mining rate would be between 20,000 and 25,000 tons per day (tpd) for five (5) to six (6) years. A total of approximately 15 million tons of ore and nine (9) million tons of waste would be mined. Other activities would include: road construction;

road construction; extension and relocation of a powerline; closure of a portion of Butte Avenue, the Randsburg Loop Road, the Sunshine Mine Road, and the Red Mountain Road and construction of an alternative route around the proposed project facilities; construction of ditches for runoff and sediment control; concurrent reclamation; and miscellaneous fencing, as necessary. The construction of many of the ancillary facilities which would normally be required for a mining operation of the size and type of the Baltic Mine Project would not be necessary because the Baltic Mine Project would utilize many of the existing ancillary facilities located at the adjacent Yellow Aster Mine Project, which is also operated by Rand Mining Company. Manpower requirements would be approximately 60 employees. Annual payroll, taxes and local expenditures would amount to approximately $3,580,000.00.

Echo Bay Design Alternative

The Echo Bay Design Alternative is the design for the project that was approved by the BLM in 1987. It would also be an open pit mining operation, but with a crushed ore, heap leach recovery process. The Echo Bay design would disturb approximately 156 acres within a 392-acre project area. The single open pit would be located in the same area as the Baltic Pit under the Proposed Action. The heap leach pad would be located in the same area as the heap leach pad under the Proposed Action; however, under this alternative, the heap leach pad would be somewhat smaller. The Echo Bay Design Alternative would result in the removal of less ore than the Proposed Action. The waste rock storage areas would be approximately the same size and in different locations than under the Proposed Action. Under the Echo Bay Design Alternative, water for the project would be obtained from two (2) existing wells located near Cuddeback Lake and would be piped in an existing pipeline and storage tank system which would be connected to the mine via a new 2-mile pipeline. Manpower requirements would be approximately 40 employees. Annual payroll, taxes and local expenditures would amount to approximately $2,120,000.00.

No Action Alternative

The No Action Alternative would occur if either or both the BLM and/or Kern County rejected the Proposed Action and other Alternatives and did not approve the Plan of Operations or Conditional Use Permit, which includes the detailed reclamation plan for Rand Mining Company's proposed and past activities within the project area. As a result, Rand Mining Company would be unable to conduct mining activities for the Baltic Mine Project as outlined in the Proposed Action. Development of the currently defined precious metal resource under the Proposed Action would not occur.

The U.S. Department of Interior's surface mining regulations (43 CFR 3809) and current BLM policy contain provisions allowing for mineral exploration and extraction on public lands, as long as they are operated in an environmentally sound manner and do not cause unnecessary or undue degradation of the public resources. The BLM has the responsibility under the Federal Land Policy and Management Act and its regulations to ensure that appropriate state and federal laws, such as the Endangered Species Act and the National Historic Preservation Act, are complied with; that the proposed operation does not cause undue or unnecessary degradation of the federal lands; and that the operator provide for reclamation of disturbed areas. The BLM can disapprove the proposed project expansion and exploration activity only if it would violate statutory standards to prevent undue or unnecessary degradation. The BLM is then required to describe changes in the proposed activity needed to meet those standards.

AFFECTED ENVIRONMENT

Minerals History

Although the area was prospected for gold as early as the 1860s, gold was not discovered in the region until the 1890s. The Baltic Mine operated until the 1920s, although the tailings were subsequently reworked. More recently, drilling on the Baltic property was undertaken in 1984 and the development of an open pit mine and heap leach facilities was proposed by Echo Bay in 1987. Rand Mining Company acquired the Baltic Mine Project in 1990 and proceeded with the permitting of a modified version of the Echo Bay Minerals Plan of Operations.

Physiography and Geology

Topography of the project area consists of roughly east-west trending ridges with intervening valleys. The elevation of the project area varies from 3,700 feet to 3,900 feet above mean sea level. Approximately 122 acres of surface disturbance which pre-dates Rand Mining Company is located within the project area and includes the original Baltic Mine facilities. In addition, approximately 30 acres of surface disturbance from the existing Lamont Pit and waste rock storage area previously created by Rand Mining Company are located within the Baltic Mine Project area.

The project is located in southeast California within the Mojave Desert Geomorphic Province of the Basin and Range Physiographic Province. The northeast portion of the Rand Mountains consists largely of the Atolia Quartz Monzonite of Mesozoic age and the Rand Schist of Precambrian Age. These units have been intruded by Tertiary age volcanic rocks and subsequently mantled by clays, sandstones and conglomerates of the Paleocene or Pleistocene Epoch. Seismicity in the vicinity of the project area is moderate.

Soils

A soil inventory of the project area was conducted in September, 1991 which identified five (5) soil series within the project area. The inventory identified and mapped the various soil series present in the project area and discussed the suitability of the topsoil material for reclamation activities. With a few exceptions, each of the soils series mapped in the project area exhibit similar characteristics.

Surface Water Hydrology

Drainages in the northeastern portion of the Rand Mountains are ephemeral, with creeks and drainages mainly fed by precipitation from winter storms. The calculated 100-year/24-hour storm event in the area is approximately 3.5 inches of precipitation.

Groundwater Hydrology

Previous mineral exploration drilling within the project area by Rand Mining Company to a depth of 500 feet has not encountered any groundwater. Groundwater supply wells for the project are located in Fremont Valley, northwest of the project area. In Fremont Valley, there appear to be several aquifers, which are probably separated by impermeable clay lenses that generally separate lower and higher quality groundwater in the area. Water quality in the wells currently produced by Rand Mining Company is approximately 730 ppm total dissolved solids.

Meteorology and Air Quality

The climate of the area is characterized by hot, dry summers and mild, dry winters with local variations due to elevation and slope aspects. The air quality of the project area is generally good due to the limited population of the area, the absence of concentrated industrial activity and the lack of natural emission sources. PM_{10} is the main pollutant of concern and high winds or increased surface disturbance could contribute to elevated PM_{10} concentrations.

Vegetation and Range Resources

The project area is located at elevations between 3,700 and 3,900 feet above mean sea level within the Creosote Bush Scrub vegetation community. The Joshua tree, which is located within the project area, is a California state-listed sensitive species. No other threatened, endangered, rare or sensitive botanical species are known to occur within the project area.

The project area is located entirely within the Cantil Common Allotment, which has been used for sheep grazing for approximately 130 years. Fifteen (15) permittees graze sheep in common in the allotment. The grazing capacity of land within this allotment varies depending primarily on yearly forage production, which is directly related to the amount of annual precipitation. Grazing in the allotment has not been allowed for the last five (5) years due to below-average precipitation which has resulted in limited forage production.

Wildlife Resources

Wildlife species inhabiting the northeast portions of the Rand Mountains include a variety of animals typical of the mountain and foothills of the Mojave Desert. The habitat structure and the density and diversity of wildlife species in the project area is considered low. The Mohave ground squirrel, which is a state-listed threatened species, is presumed to inhabit the project area. The Le Conte's thrasher is a state-listed sensitive species. No bats have been observed in the project area; however Myotis sp. and Townsend's Big-Ear bats have been sited at the Yellow Aster Mine Project (Parker, 1992). A wildlife survey for bats has not been conducted in the project area. The desert tortoise, which occurs within and around the project area, is a federally listed threatened species and state-listed endangered species. A 1990 survey report concludes that the desert tortoises in the survey area, which includes the Baltic Mine Project area, are relatively low in number and sparsely distributed over the survey area.

Wilderness

The closest two (2) Wilderness Study Areas to the project area are the Red Mountain and Golden Valley Wilderness Study Areas, which are located approximately 4 and 10 miles northeast, respectively, of the project area. The Red Mountain Wilderness Study Area has not been preliminarily recommended for wilderness designation, and only a portion of the Golden Valley Wilderness Study Area is preliminarily recommended for wilderness designation. The closest designated wilderness, approximately 40 miles northwest of the proposed project area, is the Domeland Wilderness Area.

Cultural and Paleontological Resources

Two (2) cultural resource inventories of the project area have been conducted, one in July, 1987 and the other in May, 1991. A total of 60 historic loci were identified and recorded within one (1) archaeological site, the Stringer District site. All identified loci are associated with the mining history of the area. The recorded portion of the archaeological site has been determined to not be eligible to be listed in the National Register of Historic Places. There are no known paleontological resources within or adjacent to the project area.

Visual Resources

A visual resource management rating for the project area has not been assigned; however, given the existing condition of the area and the complex mix of public and private land, the projected visual resource management rating for the project area would probably be one which provides for management activities which require major modification of the existing character of the landscape. The landscape color consists of browns, tans and grays. Vegetation colors are generally browns, greens, yellows and tans. Because of the limited vegetation cover, landscape colors meld with vegetation colors from distant view points. Mine workers and other related persons are the dominant potential viewers, and because of the limited recreational opportunities in the area to attract other viewers besides off-highway vehicle users, the viewer sensitivity to the visual resources is currently considered to be low to slightly moderate.

Noise

The proposed project area is located in a sparsely populated rural area. The principal existing sources of noise in the area are the existing mining operation at the Yellow Aster Mine Project, sonic booms from military aircraft, vehicle traffic on nearby roads, including US Highway 395, and off-highway vehicle activity. Electrical powerlines, wind and, to a lesser extent, birds and rain showers contribute to the existing ambient noise level.

Land Use and Recreation Resources

Land use within the project area consists of livestock grazing, mineral exploration and development and public recreational use. The habitat in the project area is an important part of wildlife land use. The project is located within the California Desert Conservation Area in an area unclassified as a multiple-use class. The Mojave Desert Tortoise Natural Area is located approximately 11 miles southwest of the project area. The Western Rand Area of Critical Environmental Concern is located approximately 6 miles west of the project area.

Public recreational use of the Rand Mountains area consists mostly of off-highway vehicle use, both by individuals and by off-highway vehicle enthusiast organizations. The unorganized off-highway vehicle casual use in the area has increased due to restrictive limitations in the surrounding areas. Other recreational uses of the area include hunting for chukkar, target shooting and other miscellaneous recreational uses.

Socioeconomics

The nearest population center to the project area is the town of Johannesburg, approximately 1.5 miles north of the project area. Most services are obtained in Ridgecrest, approximately 30 miles north of the project site. The economy of the area is based on the Naval Weapons Center at China Lake near Ridgecrest, manufacturing plants, tourism, mining and government.

Other Resources

The Proposed Action is not located in an area of prime and unique farmland, a floodplain, in an area of critical environmental concern, on a wild and scenic river or in an area of Native American religious concern.

ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION AND ALTERNATIVES AND MITIGATION MEASURES

A summary of the potential impacts and mitigation measures identified in this Environmental Impact Statement/Environmental Impact Report are outlined in the Executive Summary. Detailed discussions of the potential impacts and identified mitigation measures are presented in Chapter 4, Environmental Consequences, of this Environmental Impact Statement/Environmental Impact Report.

Summary of Potential Impacts and Mitigation Measures

Resource	Potential Impacts of the Proposed Action	Potential Impacts of the Echo Bay Design Alternative	Potential Impacts of the No Action Alternative	Mitigation Measures	Residual Impacts
Mineral Resources	•Allow for easier access to deeper mineralization •Affect the development of adjacent mineral occurrences •May cover undiscovered mineralization •Mining of 24,000,000 tons of material	•Allow for easier access to deeper mineralization •Affect the development of adjacent mineral occurrences •May cover undiscovered mineralization •Mining of 18,000,000 tons of material	•No impacts to mineral resources, including none of the precious metal that would be produced under the Proposed Action	•None considered possible	•Permanent removal of 15 million tons of ore
Physiography and Geology	•Disturb approximately 200 acres •Permanent alteration of topography •Facilities potentially affected by seismic activity	•Disturb approximately 156 acres •Permanent alteration of topography •Facilities potentially affected by seismic activity	•No impacts to physiography and geology resources, including none of the reclamation of the pre-Rand historic surface disturbance that would be conducted under the Proposed Action	•None considered possible	•Permanent change in topography
Soils	•Disturbance of 200 acres of soil •Erosion during and alter mining and reclamation operations	•Disturbance of 156 acres of soil •Erosion during and after mining and reclamation operations	•No impacts to the soil resources	•Keep surface disturbance to a minimum •Topsoil stockpiles should have a low profile •Stockpiles should be seeded with a nitrogen-fixing species	•Some erosion of stockpile and reclaimed surfaces •Permanent burial of lower portion of soil profile

Resource	Potential Impacts of the Proposed Action	Potential Impacts of the Echo Bay Design Alternative	Potential Impacts of the No Action Alternative	Mitigation Measures	Residual Impacts
Hydrology Surface Water	•Minimal sedimentation of surface waters	•Minimal sedimentation of surface waters	•No impacts to surface water resources	•Roads should be constructed with crowns and water bars, where necessary •Topsoil stockpiles should be seeded with a nitrogen-fixing species	•Some sedimentation
Groundwater	•No net change in rate of groundwater use •Continued presence of the cone of depression in the water table around the wells through continued pumping •Potential for impact to adjacent wells •Potential to degrade unknown groundwater in project area	•Use of 230 gpm of groundwater from the Cuddeback Lake area •Decreased use of 180 gpm of groundwater in the Fremont Valley when the Lamont Mine Project ceases operations •Potential for impact to adjacent wells •Potential to degrade unknown groundwater in project area	•Decreased use of 180 gpm of groundwater in the Fremont Valley when the Lamont Mine Project ceases operations •No other impacts to the groundwater resources	•If continued pumping impacts adjacent wells, a monitoring program should be developed and implemented	•Consumption of groundwater
Meteorology and Air Quality	•Particulate emissions from surface disturbing activities, mining and ore processing operations	•Particulate emissions from surface disturbing activities, mining and ore processing operations, which include crushing of the ore	•No impacts to air resources	•Disturbed surfaces no longer needed for project activities should be timely reclaimed	•TSP/PM_{10} and hydrocarbon emissions during operations
Biology Vegetation Resources	•Disturb 200 acres of creosote bush vegetation community •Permanent loss of 57 acres of vegetation community	•Disturb 156 acres of creosote bush vegetation community •Permanent loss of 48 acres of vegetation community	•No impacts to the vegetation resources	•Salvage and stockpile juvenile joshua trees •Allow nurseries and others to salvage all other joshua trees prior to construction activities	•Short-term and long-term loss of vegetation

Resource	Potential Impacts of the Proposed Action	Potential Impacts of the Echo Bay Design Alternative	Potential Impacts of the No Action Alternative	Mitigation Measures	Residual Impacts
Range Resources	•Disturb 200 acres with a potential grazing capacity of 200 to 5,000 lb/acre of forage •Exclude grazing from project area during project life •Permanent loss of 57 acres from grazing use	•Disturb 156 acres with a potential grazing capacity of 200 to 5,000 lb/acre of forage •Exclude grazing from project area during project life •Permanent loss of 48 acres from grazing use	•No impacts to the range resources	•None necessary	•Short-term and long-term loss of forage
Wildlife Resources	•Direct disturbance to 200 acres of creosote bush scrub habitat •Indirectly affect approximately 500 acres of habitat through avoidance •May impact unknown bats residing in project area •A probable take of 12 desert tortoise, seven (7) through direct mortality and five (5) through incidental harassment	•Direct disturbance to 156 acres of creosote bush scrub habitat •Indirectly affect approximately 500 acres of habitat through avoidance •May impact unknown bats residing in project area •A probable take of greater than 12 desert tortoise because project activities would be in higher quality tortoise habitat	•No impacts to the wildlife resources, including the anticipated mitigation measures to enhance desert tortoise habitat	•Minimize the amount of surface disturbance needed for project •Utilize existing roads where possible •Prohibit off-road vehicle traffic in project area •A survey for bats should be conducted prior to project-related activities •If bats found, then implement appropriate mitigation measures	•Short-term and long-term loss of habitat
Wilderness	•No impacts	•No impacts	•No impacts	•None necessary	•None
Cultural Resources	•Direct impact to a portion of one (1) historic site •Potential to impact unknown cultural resources	•Direct impact to a portion of one (1) historic site •Potential to impact unknown cultural resources	•No impacts to cultural resources	•Notify BLM if unknown cultural resources are identified	•Loss of some loci
Paleontological Resources	•No impact to known paleontological resource •Potential to impact unknown paleontological resources	•No impact to known paleontological resource •Potential to impact unknown paleontological resources	•No impacts to paleontological resources	•Notify BLM if unknown paleontological resources are identified	•None

Resource	Potential Impacts of the Proposed Action	Potential Impacts of the Echo Bay Design Alternative	Potential Impacts of the No Action Alternative	Mitigation Measures	Residual Impacts
Visual Resources	•Visibility of surface disturbance and project facilities and dust plumes from blasting •Slight change in the form, line and color of the landscape and the introduction of conical lines	•Visibility of surface disturbance and project facilities and dust plumes from blasting and crusher •Slight change in the form, line and color of the landscape and the introduction of conical lines	•No impacts to the visual resources, which includes the incremental enhancement to the visual resources resulting from the reclamation of pre-Rand historic surface disturbance	•Lights used for mining and ore processing should have reflectors or shields	•Some change in visual character of area
Noise	•Incremental increase in noise from project related operations	•Incremental increase in noise from project related operations	•No noise impacts as a result of the No Action Alternative	•Blasting should be limited to daylight hours •All heavy equipment, drill rigs and other internal combustion engines should employ mufflers •If blasting affects neighboring residents, then implement noise reduction techniques	•None
Land Use	•Limit public access to project area •Realign county roads and an incremental increase in the use of US Highway 395 in Red Mountain, causing an incremental increase in the potential for accidents on that portion of the highway •Eliminate of 34 acres of pre-existing mining related hazards	•Limit public access to project area •Eliminate of 34 acres of pre-existing mining related hazards	•No land use impacts as a result of the No Action Alternative, including the elimination of 34 acres of pre-existing mining related hazards	•None necessary	•Limits on other use of area
Recreation	•Limit recreational use of the project area •OHV causal use would be impacted due to road and route closure	•Limit recreational use of the project area	•No impacts to recreational resources	•None necessary	•Limits on recreational use of area

Resource	Potential Impacts of the Proposed Action	Potential Impacts of the Echo Bay Design Alternative	Potential Impacts of the No Action Alternative	Mitigation Measures	Residual Impacts
Socioeconomics	•Approximately $3,580,000.00 in payroll, taxes and local expenditures •60 persons employed •Secondary employment of 160 individuals •0.6 percent increase in the use of US Highway 395 between Randsburg and Ridgecrest •Re-route of Butte Avenue traffic through Red Mountain, causing the response time of the Randsburg Fire Department to Dog Patch area to increase by about five (5) minutes	•Approximately $2,120,000.00 in payroll, taxes and local expenditures •40 persons employed •Secondary employment of 107 individuals •0.4 percent increase in the use of US Highway 395 between Randsburg and Ridgecrest	•Socioeconomic impacts of the No Action Alternative would result in not implementing the Proposed Action, thereby precluding the generation of approximately $3,580,000.00 in payroll, taxes, and local expenditures and the 160 secondary employment positions •In addition, the 0.6 percent increase in the use of US Highway 395 between Randsburg and Ridgecrest and the re-routing of Butte Avenue traffic through Red Mountain would not occur	•None necessary	•Economically beneficial •Increase in the distance and time to travel around project

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RAND MINING COMPANY
BALTIC MINE PROJECT
DRAFT ENVIRONMENTAL IMPACT STATEMENT/
ENVIRONMENTAL IMPACT REPORT

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CHAPTER 1
INTRODUCTION

RAND MINING COMPANY
BALTIC MINE PROJECT
DRAFT ENVIRONMENTAL IMPACT STATEMENT/
ENVIRONMENTAL IMPACT REPORT

1. INTRODUCTION

This Draft Environmental Impact Statement/Environmental Impact Report (Draft EIS/EIR) describes the precious metals mining and ore processing operation proposed by Rand Mining Company (Rand). The Proposed Action (the Baltic Mine Project) would include two (2) open pits, a waste rock storage area, a precious metals recovery plant, and ancillary facilities. Other actions that have been incorporated into the Proposed Action include the vacation of certain Kern County secondary and minor roads and the construction of a new county secondary road. The project is located in eastern Kern County.

1.1. Purpose and Need

Rand has proposed the development of the Baltic Mine Project, an open-pit precious metals mine and heap leach recovery operation located approximately 1.5 miles south of the town of Randsburg in the eastern portion of the County of Kern (Figure 1-1). The project area is approximately 532 acres of patented land (fee land) and unpatented lode and placer mining claims on public lands administered by the Bureau of Land Management, Ridgecrest Resource Area Office of the California Desert District (BLM) (see Chapter 10, Glossary, for definitions of selected terms). The objective of the Baltic Mine Project is to profitably mine ore, to process this ore to recover precious metals, and reclaim the project area.

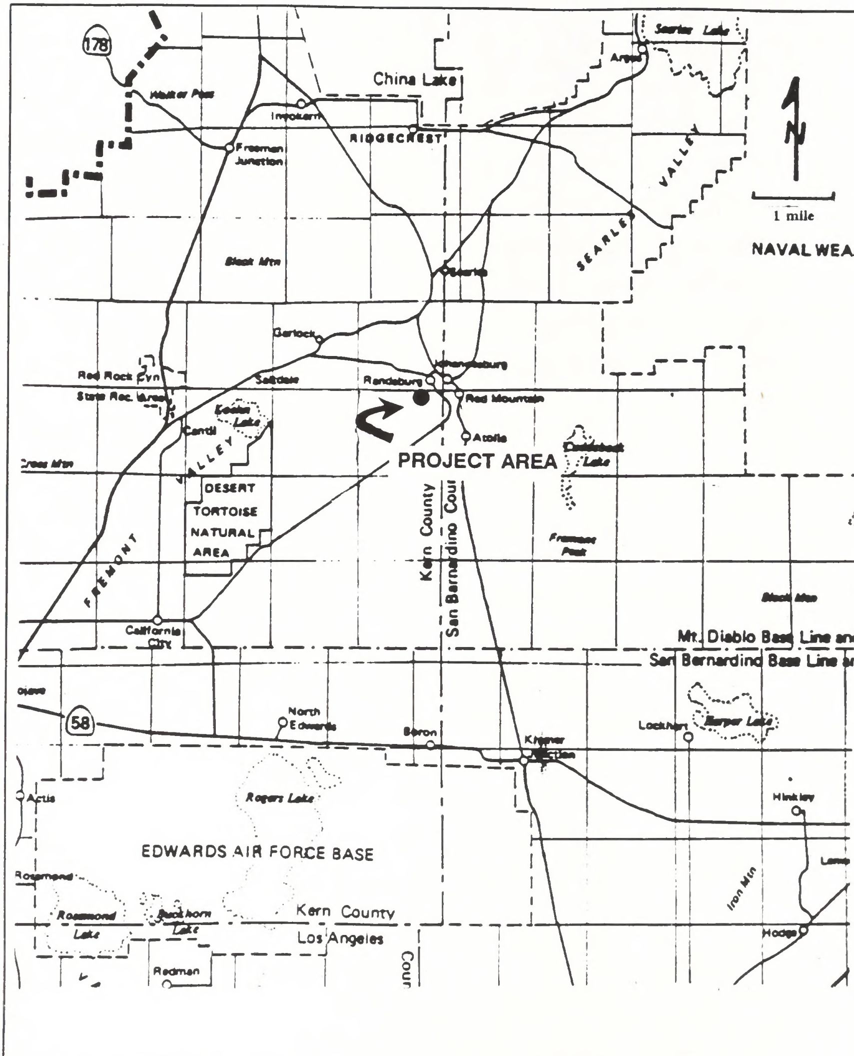


Figure 1-1: General Project Location Map

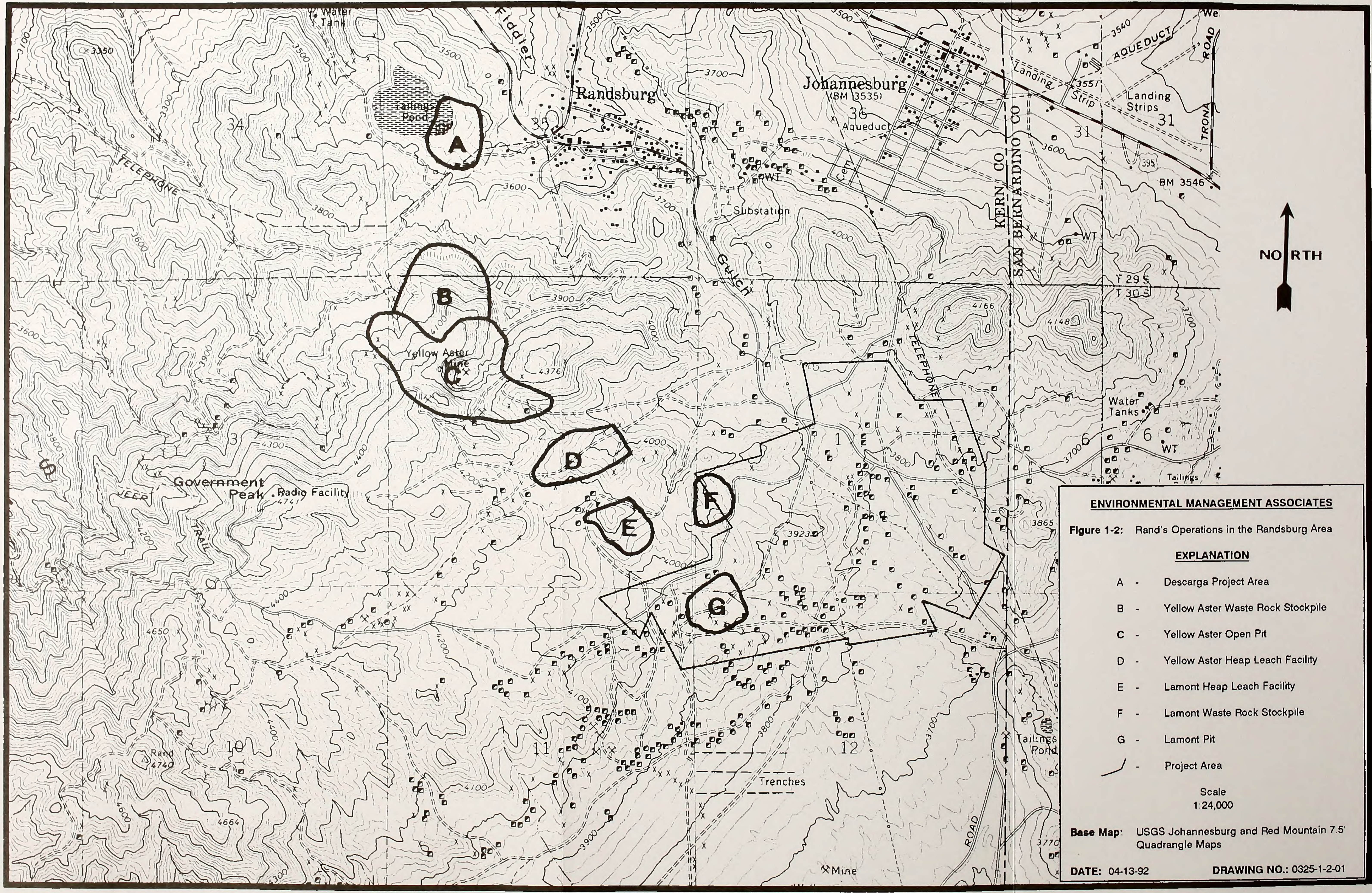
1.2. Background

1.2.1. Adjacent Existing Operations

Rand, the project proponent, is a wholly owned subsidiary of Glamis Gold Corporation and is authorized to do business in the State of California and operate under United States mining laws. In addition to the proposed Baltic Mine Project, Rand currently operates several other mining and exploration operations in the area around Randsburg. These operations include the Yellow Aster Mine, Descarga and Lamont Mine Projects (Figure 1-2). In addition, Rand is conducting exploration in areas adjacent to the mining operations. Approximate total surface disturbance created by Rand for each project is presented in Table 1-1. In addition, appreciable unreported historic (pre-Rand) surface disturbance occurs within each of the project areas.

Table 1-1: Existing Surface Disturbance from Rand's Operations in the Randsburg Area

PROJECT	ACRES
Yellow Aster	105
Lamont	75
Descarga	25
Baltic	0
TOTAL	205



ENVIRONMENTAL MANAGEMENT ASSOCIATES

Figure 1-2: Rand's Operations in the Randsburg Area

EXPLANATION

A - Descarga Project Area
B - Yellow Aster Waste Rock Stockpile
C - Yellow Aster Open Pit
D - Yellow Aster Heap Leach Facility
E - Lamont Heap Leach Facility
F - Lamont Waste Rock Stockpile
G - Lamont Pit
— - Project Area

Scale
1:24,000

Base Map: USGS Johannesburg and Red Mountain 7.5' Quadrangle Maps

DATE: 04-13-92 **DRAWING NO.:** 0325-1-2-01

The Yellow Aster Mine Project is Rand's major operation in the Randsburg area and is an active mining and processing operation located approximately 2.0 miles northwest of the proposed Baltic Mine Project. The current reserve at this project is 13.6 million tons of ore. An additional 14.7 million tons of waste will be mined as part of the operations. Current operations consist of the mining of 28,000 tons of ore and waste per day. The waste rock is disposed at a waste rock storage area adjacent to the north side of the open pit, and the run-of-mine ore is placed on a valley fill leach pad southeast of the open pit (west of the proposed Baltic Mine Project area). Infill drilling and peripheral exploration have identified additional ore to be mined. Current ore reserves are greater than the permitted design capacity of the heap leach pad. Current water requirements for this project average approximately 165 gpm, or 265 acre-feet per year.

The Descarga Project, an active processing operation, is located approximately 1.5 miles northwest of the proposed Baltic Mine Project. This project is permitted for a 1.55 million-ton heap leach pad that will process ore from several locations, including test leach ore from the Randsburg area, ore from the Yellow Aster Mine Project, and reprocessed mine waste from the historic Yellow Aster mining operation. The pad currently contains 325,000 tons of material.

The Lamont Mine Project, an inactive mining and active processing operation, is located to the west and immediately adjacent to the proposed Baltic Mine Project. The project is an open pit mine, with associated waste rock storage areas and a heap leach operation, with the leaching of ore at the heap leach pad continuing through the first half of 1992. Currently the heap is being rinsed. The heap leach facility is currently at its permitted design capacity. A total of approximately 2.1 million tons of ore and 2.4 million tons of waste have been mined from the Lamont Pit. The waste rock was disposed of in waste rock storage areas adjacent to the north side of the open pit and west of the open pit. The Lamont Pit and the north waste rock storage area are now included within the Baltic Mine Project area. Current water requirements for this project average approximately 180 gpm, or 290 acre-feet per year. This water use will continue until approximately June, 1992.

1.2.2. Baltic Mine Project

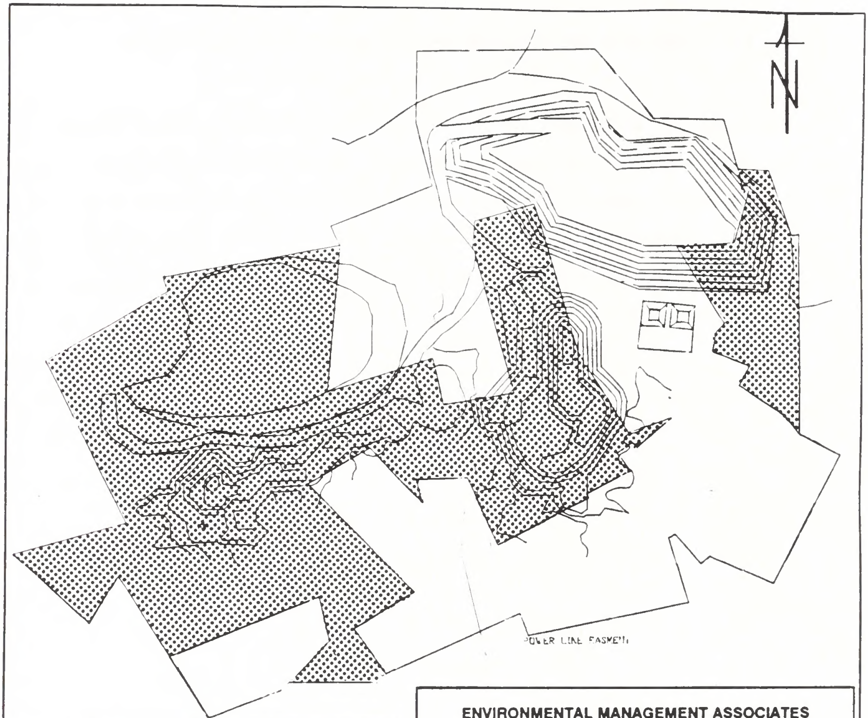
The proposed Baltic Mine Project is a major modification of a 1987 Plan of Operation (POO) submitted by Echo Bay Minerals (Echo Bay). In 1988, the BLM completed an Environmental Assessment (EA) and approved the POO (CA-MC-48444) submitted by Echo Bay for the project under the BLM regulations for surface mining of public land established under the general mining law (43 CFR 3809). Kern County prepared a Negative Declaration under CEQA for Echo Bay's Baltic Mine (Randsburg) Project. However, the application for a CUP was withdrawn by Echo Bay before the Negative Declaration was adopted and the CUP was approved.

Under the Echo Bay POO approved by the BLM, the Baltic Mine Project was to consist of one (1) pit, two (2) waste rock storage areas, and one (1) heap leach pad, which would create 156 acres of surface disturbance within the 392-acre project area. In 1990, Rand acquired the project from Echo Bay, including all POO responsibilities and liabilities, conducted additional exploration and, as a result, revised the design for the project.

1.3. Location and General Description of the Proposed Action

The project area is located approximately 40 miles northeast of the town of Mojave and 25 miles south of the community of Ridgecrest (Figure 1-1). Access to the project area is via Butte Avenue, a paved county secondary road, from the town of Randsburg. Specific components in the project area would be accessed from this county road via unpaved project roads. The project area encompasses a total of approximately 532 acres of public and private lands and lies between 3,700 feet and 3,900 feet above mean sea level (AMSL) on the northeastern slope of the Rand Mountains, within Sections 1, 2, 11 and 12, Township 30 South, Range 40 East, Mount Diablo Baseline & Meridian (MDB&M). An outline of the project area boundary under the Proposed Action, along with the public and private surface ownership, is presented in Figure 1-3.

Rand's design for the proposed Baltic Mine Project consists of two (2) open pits, a heap leach pad, solution ditches and pond, a precious-metals recovery plant, and other ancillary facilities. Approximately 15 million tons of ore from the two (2) open pits would be processed through heap leach recovery methods over an estimated five (5)- to six (6)-year period. The ore would be leached on a 70-acre heap leach pad, while approximately nine (9) million tons of waste rock would be stored on a 54-acre site. Included within the Baltic Mine Project area is an approximately 100-acre portion of Rand's Lamont Mine Project area, which is located on the west edge of the Baltic Mine Project area. Although most of the original Lamont Mine Project area and existing surface disturbance (heap leach pad and one (1) of the two (2) waste rock storage areas) remain within the Lamont Mine Project area, approximately 30 acres of previous surface disturbance, including the pit and one (1) of two (2) waste rock storage areas, would be transferred to the Baltic Mine Project.



	ACREAGE		
PROJECT AREA	Public	Private	Total
	244	288	532
SURFACE DISTURBANCE	Public	Private	Total
	107	93	200

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Figure 1-3: Project Area Boundary and Surface Ownership Map

- Federal Land

- Project Boundary

Scale
1:24,000

Base Map: Rand Mining Company

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Figure 1-3: Project Area Boundary and Surface Ownership Map

Activities at the Lamont Project are discussed further in Section 6.2.2, Lamont Mine Project. The total area of new surface disturbance under the proposed operations would be approximately 200 acres.

In addition, a portion of the Red Mountain Road, Randsburg Loop Road, Butte Avenue and a low-voltage powerline would be rerouted around the proposed project facilities, and the portion of Butte Avenue and the Sunshine Mine Road in the project area would be closed. The proposed Baltic Mine Project includes a reclamation plan (see Section 2.2.3), which details the measures that would be implemented to reclaim all surface disturbance created by Rand within the project area, which includes the approximate 200 acres associated with the Proposed Action and the approximate 30 acres of previous disturbance from mining at the Lamont Mine Project that are now within the Baltic Mine Project area. Also considered part of the Proposed Action are Rand's proposed impact reduction measures incorporated into the project for protection of the California desert tortoise and the Mohave ground squirrel.

1.4. Environmental/Regulatory Compliance

1.4.1. Regulatory Requirements

As part of the permitting process, Rand has submitted, or will submit, applications for the permits necessary to construct and operate the project. Table 1-2 lists the various permits/approvals which are required to construct and operate the project, the agency which issues the permit/approval, and the status of the permit/approval process.

Table 1-2: Permits Required for Project Operation and Their Status

AGENCY		PERMIT NAME	PERMIT STATUS
Bureau of Land Management	Ridgecrest Resource Area	Plan of Operations	Decision Pending Completion of EIS/EIR
		Road Rights-of-Way	Decision Pending Completion of EIS/EIR
	Ridgecrest Resources Area through Southern California Edison	Powerline Right-of-Way	Decision Pending Completion of EIS/EIR
Kern County	Department of Planning and Development Services	Conditional Use Permit/ Reclamation Plan	Decision Pending Completion of EIS/EIR
		County Road Vacations/Rights-of-Way	Decision Pending Completion of EIS/EIR
	Department of Health Services	N/A	N/A
	Air Pollution Control District	Authority to Construct	Decision Pending Completion of the EIS/EIR
		Permit to Operate	Application to be Submitted After Commencement of Operation
	Agricultural Commissioner	California Desert Native Plant Permit	In Progress
Bureau of Alcohol, Tobacco and Firearms		User of High Explosives	Existing
California Region Water Quality Control Board	Lahontan Region	Waste Discharge Order	Decision Pending Completion of the EIS/EIR
		Stormwater Permit	Decision Pending Completion of the EIS/EIR
California Department of Fish and Game		Section 2081 Permit	In Consultation
United States Fish and Wildlife Service		Section 7 Consultation	In Progress

It has been determined that the project may affect the desert tortoise. Therefore, formal consultation with the U.S. Fish and Wildlife Service (USFWS) is required, pursuant to Section 7 of the Endangered Species Act. To facilitate compliance with the Endangered Species Act, Rand has proposed to implement, as a part of the Proposed Action, impact reduction measures similar to those agreed to by Rand, the BLM, the USFWS and the California Department of Fish and Game (CDFG) for Rand's Yellow Aster Mine Project (which is adjacent to the project area) to protect the California desert tortoise and Mohave ground squirrel. The proposed impact reduction measures are detailed in Section 2.2.4, Impact Reduction Measures Incorporated into the Proposed Action.

1.4.2. Scope of Environmental Review

A Memorandum of Understanding (MOU), dated July 15, 1991, and Preparation Plan, entered into by the BLM, Kern County and Rand, detailed the format of the Environmental Assessment (EA)/EIR, the National Environmental Policy Act of 1969 (NEPA) and California Environmental Quality Act (CEQA) processes to be followed, and the issues of concern to be addressed in the EA/EIR originally prepared to assess the impacts of the Proposed Action. A copy of the EA/EIR Preparation Plan is included in Appendix A to this EIS/EIR. A public scoping process for the environmental document, as outlined in Section 7.1, Public Scoping, was undertaken and, as a result of the scoping process and internal review of the EA/EIR, the BLM determined, in December, 1991, that an EIS would be required for the project. The preparation of a joint EIS/EIR was then begun.

A new MOU, dated April 15, 1992, signed by the BLM, Kern County and Rand outlines the requirements for the preparation of this EIS/EIR. A copy of the MOU for the EIS/EIR is also attached in Appendix A to this EIS/EIR. This EIS/EIR assesses the potential environmental effects of the Baltic Mine Project as proposed by Rand, and was prepared in conformance with the new MOU and previous Preparation Plan. This EIS/EIR is both a CEQA document and a NEPA document, and was prepared in accordance with CEQA guidelines for the preparation of an EIR, Kern County guidelines for the preparation of an EIR, BLM mining regulations (43 Code of Federal Regulations (CFR) 3809), the Council of Environmental Quality's regulations for implementing NEPA (40 CFR 1500-1508), and BLM guidelines for implementing NEPA (USDI, 1988). This EIS/EIR was prepared by a third-party contractor, Environmental Management Associates, Inc. (EMA), using information gathered from the BLM's files and conversations with BLM resource personnel; conversations with Kern County; information gathered from other federal agencies, state agencies, local agencies, and public literature; and information provided by Rand and its consultants.

This EIS/EIR analyzes the environmental impacts of the Proposed Action, which comprises 200 acres of surface disturbance within the 532 acre project area, as well as the Reclamation Plan for all 230 acres of Rand-created surface disturbance within the project area; measures to reduce impacts to the California desert tortoise and Mohave ground squirrel; and the identified alternatives to the Proposed Action, which include the Echo Bay Design Alternative and the No Action Alternative. This EIS/EIR also analyzes the cumulative impacts of mining and other activities on the environmental resources of the northeastern Rand Mountains.

1.4.3. Bureau of Land Management Policy and Plans

The proposed operations as outlined in the modification of the POO submitted to the BLM by Rand are required to comply with the standards and procedures in the BLM regulations for surface mining of public land under the general mining law (43 CFR 3809). These regulations recognize the statutory right of mineral claim holders to explore for and develop federal mineral resources and encourage such development. The federal regulations require the BLM to review proposed operations to ensure that: 1) adequate provisions are included to prevent unnecessary and undue degradation of public lands; 2) measures are included to provide for reasonable reclamation; and 3) the proposed operations comply with other applicable federal, state and local laws and regulations.

The project is located within the California Desert Conservation Area (CDCA), which has been identified by Congress as an unique area in need of special management by the BLM. As such, the BLM developed the CDCA Plan in 1980 to implement appropriate management strategies for the use of the public lands and resources within the CDCA. As part of the CDCA Plan, multiple use classes have been assigned to the public lands within the CDCA. The project area is located within a Class M, moderate use area. Surface mining operations are consistent with the Class M designation for the area.

The project area is located to the east and outside the boundary of the Rand Mountains-Fremont Valley Management Area (RMFVMA). The management plan for this area is directed to ensuring that a viable population or populations of the desert tortoise continue in the RMFVMA. The portion of the Rand Mountains to the east of the RMFVMA, which includes to Baltic Mine Project area, was not included in the management area because of the limited amount of public land and low quality of the tortoise habitat (USDI, 1989).

1.4.4. Kern County Policy

The project is also required to comply with the California Department of Conservation (DOC) regulations regarding the reclamation of mining operations on lands within the State of California (14 California Code of Regulations (CCR) 3500), which are applicable to essentially all mining operations on federal, state and private lands within the State of California. These regulations require reasonable reclamation measures be developed for the project, prior to initiating operations, as part of the County Conditional Use Permit (CUP) process. The proposed reclamation measures are to be included in a reclamation plan, which is part of the CUP application for any mining project. The Baltic Mine Project CUP application and accompanying Reclamation Plan have been submitted to, and reviewed by, Kern County, which must either approve or deny the requested CUP. The proposed project is consistent with Kern County land use designation for the area.

1.5. Intended Uses of the EIS/EIR

This EIS/EIR has been prepared for use by the BLM and Kern County in their consideration of the modification of the POO and the application for CUP, respectively, submitted by Rand in February, 1991, and by all other agencies which may be required to issue permits or otherwise consider the project.

Mining activities on public lands administered by the BLM are authorized under the Mining Law of 1872 and the BLM is required to approve the operations, as long as the activities would not cause unnecessary or undue degradation to the public lands. The BLM will use this EIS/EIR, along with other information, in the review of the modification of the POO for the Baltic Mine Project. The BLM is the Lead Agency for NEPA compliance.

Kern County does not regulate the use of public lands. However, it is responsible for implementation of California Surface Mining and Reclamation Act (SMARA) and approval of the project under the county CUP process. This EIS/EIR will be used by the Kern County Board of Zoning Adjustment and the Kern County Board of Supervisors, along with other information, in their review of the CUP application and Reclamation Plan for the Baltic Mine Project. Kern County is the Lead Agency for CEQA compliance.

As discussed above, there are numerous permits and other approvals required for the Baltic Mine Project. A list of the agencies is provided in Table 1-2. These agencies will use this EIS/EIR in their review of those permit applications.

1.6. Report Organization

The format of this EIS/EIR is organized to incorporate the requirements for EISs and EIRs as outlined in NEPA and CEQA, respectively. Chapter 2 describes the Proposed Action in detail and the alternatives to the Proposed Action, including a discussion of alternatives which were eliminated from further consideration.
Chapter 3 discusses the affected environment. Chapter 4 discusses the environmental consequences of the Proposed Action and Alternatives, and proposed mitigation

measures for the Proposed Action and Alternatives, for each of the environmental resources, and the residual impacts. Chapter 5 discusses the unavoidable adverse impacts and irreversible or irretrievable commitments of resources which could potentially result from implementation of the Proposed Action. Chapter 6 describes the cumulative impacts which may result from the completion of the Baltic Mine Project, when added to the impacts of other adjacent projects. Chapter 7 provides information on the coordination and contacts that were made during the course of preparation of this EIS/EIR. Chapter 8 lists those individuals who participated in actual preparation of the document. Chapter 9 lists the references used in preparation of this EIS/EIR, while Chapter 10 is a glossary of terms used in this EIS/EIR.

CHAPTER 2
DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2. DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

The following chapter has been prepared in response to and in compliance with the regulations found in 40 CFR 1502.10(e) and 40 CFR 1502.14, and the CEQA Guidelines (14 CCR 15124 and 15126(d)). The following sections identify the environmentally preferred alternative, describe the Proposed Action, describe in detail the alternatives which have been considered and present a summary of those alternatives which have been considered and eliminated from further study.

2.1. BLM Preferred Alternative/CEQA Environmentally Superior Alternative

The BLM preferred alternative is the alternative which best fulfills the agency statutory mission and responsibilities while giving consideration to economic, environmental and technical concerns, and other factors. The CEQA environmentally superior alternative is the alternative that is determined to have the least environmental effects other than the No Action Alternative.

The Proposed Action as presented below consists of several related components which are combined to describe the action. The preferred and environmentally superior alternative consists of the Proposed Action. The Proposed Action and subsequent mitigation measures would adequately minimize adverse impacts, would allow the mining operation authorized by the 1872 Mining Law (30 United States Code (USC) § 22 et seq) and 43 CFR 3809, and would not create unnecessary or undue degradation.

2.2. Proposed Action

It is the intent of Rand to develop the proposed mining operations, continue with associated exploration activities, implement wildlife impact reduction measures and conduct reclamation activities as detailed in the Reclamation Plan. Mining operations would include development of the two (2) open pits (the Baltic Pit and the Lamont Extension Pit) and creation of a waste rock storage area. Processing operations would include the construction and operation of a heap leach and precious-metals recovery facilities. Other activities would include: road construction; extension and relocation of a powerline; closure of a portion of Butte Avenue, the Randsburg Loop Road, the Sunshine Mine Road, and the Red Mountain Road and construction of an alternative route around the proposed project facilities; construction of ditches for runoff and sediment control; concurrent reclamation; and miscellaneous fencing, as necessary. The layout of the proposed facilities associated with the mining operation are presented in Figure 2-1.

A total of approximately 200 acres of new surface disturbance would occur if the Proposed Action is approved. An itemized list of the proposed surface disturbance associated with the Baltic Mine Project is presented in Table 2-1.

2.2.1. Mine Plan

Based on the results of exploration and development drilling, two (2) ore zones have been identified to-date: the Baltic Pit and the Lamont Extension Pit. The current mine model projects economically recoverable ore to the 3,400-foot level in the Baltic Pit and 3,620-foot level in the Lamont Extension Pit. The Baltic Pit is designed to be 1,300 feet wide, 2,100 feet long and 400 feet deep. The Lamont

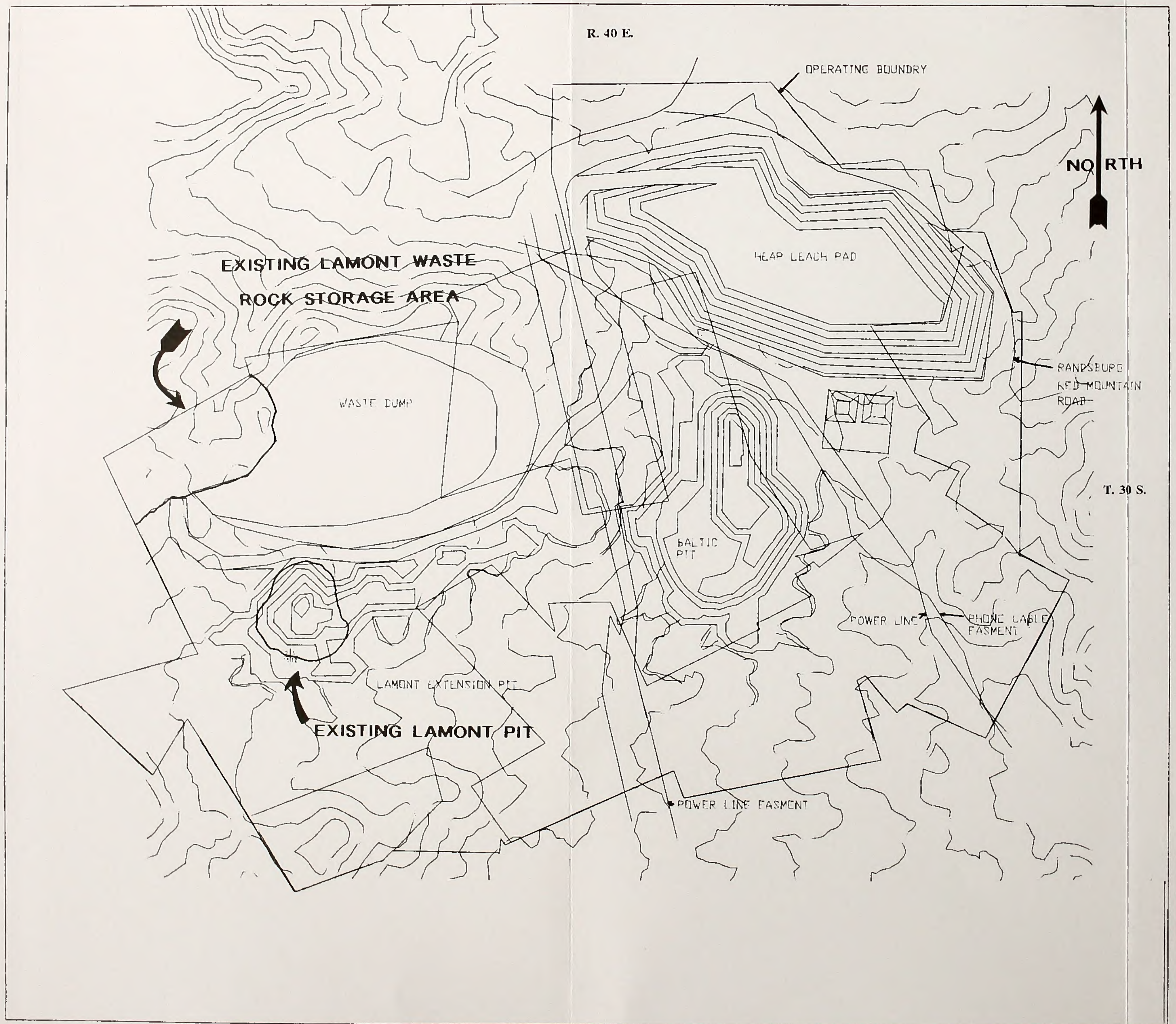

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Figure 2-1: Location Map of the Proposed Project Facilities

Scale
1:7,200

Base Map: Rand Mining Company

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Table 2-1: Proposed Surface Disturbance Acreage for the Baltic Mine Project

Mine Area	Acres
Baltic Pit	38.7
Lamont Extension Pit	17.8
Leach Pad	70.7
Waste Rock Storage	54.7
Plant Site	4.2
Haul and Exploration Roads	13.6
TOTAL	199.7

Extension Pit, which is an extension of the previously mined Lamont Pit, is designed to be 2,200 feet long, 800 feet wide, and 240 feet deep. As part of Rand's operations water sprays and/or chemical treatments would be use to minimize the generation of dust from disturbed surfaces.

2.2.1.1. Mining Operation

A variety of mobile equipment would likely be utilized to conduct the mining and processing of the ore; a list of this equipment is presented in Table 2-2.

The mining rate would be between 20,000 and 25,000 tons per day (tpd). Drilling and blasting would employ the conventional techniques used by Rand at their adjacent Yellow Aster Mine Project. The blasting of the ore and waste rock would consist of drilling nominal 6½-inch diameter blastholes

Table 2-2: List of Probable Mobile Equipment

Mining Equipment		Support Equipment	
2	Blasthole drill rigs	5	pickups
5	85 to 100-ton trucks	1	2-ton flatbed
1	Hydraulic loading unit	1	12,000-gallon water truck
1	1.5 cu. yd. loader		
1	D9L class dozer		
1	D8L class dozer		
1	14G class grader		

spaced on approximately 16-foot centers. The rock would be blasted with ammonium nitrate-fuel oil (AN/FO) blasting agent at an average powder factor of 0.36 pounds of explosives per ton of rock. Blasting would be performed between three (3) and five (5) times per week, usually at the end of the day-shift and before the start of the swing-shift, at or about 3:10 pm. On the morning of the day a blast would be scheduled to occur, a notice of the scheduled blast would be placed on the public bulletin board next to the post office in Randsburg. Immediately prior to blasting, guards would be posted at various lookout points around the project area. Then all guards would determine the blast area to be secure and the blaster would then announce the blast on the radio and the blast would be initiated. The blaster would then inspect the blast area to determine the blast to be complete and then announce an "all clear" on the radio.

The blasted rock would be loaded into 85- to 100-ton capacity trucks. Mined ore would be hauled to the heap leach pad. Waste rock would be hauled to the waste rock storage area (Figure 2-1). Haulage ramps in the pit have been designed with a minimum width of 80 feet and a maximum gradient of 10 percent. Minor sections of temporary ramping may be steeper and narrower. Haul roads may be up to 100 feet wide, including berms, shoulders and drainage ditches.

2.2.1.2. Waste Rock Storage

The waste rock storage area would contain approximately nine (9) million tons of rock when the Proposed Action is completed. The waste rock storage area would be located north of the Lamont Extension Pit and west of the Baltic Pit (Figure 2-1). The design of the waste rock storage area was partially based on the characteristics of the material that would be deposited in the storage area. Of specific concern would be the potential for the material to generate acidic solutions. Waste rock material which would be mined under this plan has the potential for generating acid solutions (acid potential) and acid neutralizing solutions (neutralization potential). To assess this potential the material was analyzed and the total sulfur content was used to determine potential acidity. The neutralization potential was determined by direct titration. The difference between the potential acidity and the neutralization potential is the net neutralization potential, which is expressed in units of tons of calcium carbonate per thousand tons of material. In theory a sample could be expected to generate acidic solutions at some point in time if the net neutralization potential is less than zero. However, actual experience has shown that net neutralization potential values between -20 and 20 may be considered to be able to generate acidic solutions (SRK, 1989). The results of the analysis of the waste rock material show that the net neutralization potential is significantly in excess of 20, as shown in Table 2-3.

Table 2-3: Acid Forming Potential of Waste Rock

Sample Type	Total Sulfur	Potential Acidity	Neutralization Potential	Net Neutralization Potential
Lamont Waste	0.14	4.38	89.2	84.82

2.2.1.3. Heap Leach Facility

Development of the heap leach facility would include the construction of a combined pregnant solution (solution containing precious metals) and barren solution (solution without precious metals) pond and the staged construction of an approximate 70-acre heap leach pad. The leach pad would hold approximately 15 million tons of ore. The run-of-mine ore would be stacked in 25-foot lifts to a final height of 200 feet.

The degree of containment designed into the heap leach pad is based on the characteristics of the material that would be placed on the pad. Of concern is the potential for the material to generate acidic solutions. To assess this the acid-base potential of both the oxide ore and the mixed oxide and non-oxide ore was determined. Both types of ore show a net neutralization potential in excess of 20, which means that the material has a negligible potential to generate acidic solutions. Analytical results are shown in Table 2-4.

Table 2-4: Acid Forming Potential of Ore and Mixed Ore

Sample Type	Total Sulfur	Potential Acidity	Neutralization Potential	Net Neutralization Potential
Ore	0.05	1.56	44	42.44
Mixed Ore	0.03	0.94	54	53.06

The existing site would be graded to form a uniform, gently sloping pad with an average slope of six (6) percent. A combination service road and containment dike would be constructed around the perimeter of the pad to channel process solution and rainfall runoff from the heap to the barren/pregnant pond. An interceptor ditch would be constructed to divert surface runoff around the facility. The heap leach pad would be constructed in three (3) stages.

Barren/Pregnant Pond

The barren/pregnant pond would be constructed immediately down-slope from the leach pad. Leach solution and rainfall runoff from the heap would drain by gravity directly to the pond. A low berm divides the pond so that at normal operating levels the barren and pregnant solutions are stored separately. The entire pond capacity would be only utilized in the event of a major precipitation event.

Leach Pad Liner System

The heap leach pad liner has been designed as an engineered alternative to the California Water Resources Control Board prescriptive standard for a Group B Mining Waste, Waste Pile. The leach pad liner would consist of a 60-mil high-density polyethylene (HDPE) liner placed directly on a compacted, fine-grained soil foundation. Portions of the pad would require the use of textured 60 mil HDPE liner for stability considerations. A 12-inch layer of fine-grained material would be placed directly on the HDPE liner as a protective cushion layer. An 18-inch layer of drain rock would be placed on top of the fines layer to facilitate the collection and removal of leach solution and to minimize the hydraulic head on the synthetic liner.

The perimeter of the ore heap would be set back 10 feet from the toe of the containment dike. The resultant channel would carry the leach solution to the barren/pregnant pond. In order to protect the exposed liner, this portion of the pad would be modified by the addition of a 60-mil HDPE inner liner and a leachate collection and recovery system (LCRS) consisting of HDPE drain net. The double lining of this portion of the pad would serve to both protect the integrity of the exposed liner and provide double containment for the leach solution where it is flowing directly on the liner.

Barren/Pregnant Pond Liner System

The barren/pregnant pond liner has been designed as an engineered alternative to the prescriptive standard for a Group B Surface Impoundment. The liner system would consist of an inner 80-mil HDPE liner and an outer

60-mil HDPE liner separated by an HDPE geonet LCRS. The LCRS consists of a single layer of drain net on the pond sides and a double layer of drain net on the pond bottom.

Vadose Zone Monitoring

For purposes of leak detection and corrective action, the leach pad would be divided into 18 discrete cells. Division would be accomplished by the construction of diverting berms in the solution recovery layer. Once leach solution reaches the lowest point in a given cell it would be piped directly to the solution channel at the toe of the heap. This would allow visual inspection of the solution return from each cell. A separate leak detection drain system would be constructed below the liner bedding material, coincident with each cell. These drains would consist of 2-inch diameter perforated polyvinyl chloride (PVC) header pipes in a drain rock envelope fed by drain net laterals. Each lateral strip would be 5-feet wide by 100-feet long and would consist of HDPE drain net sandwiched between an upper layer of geotextile and a lower layer of 20-mil HDPE.

Heap Leach Facility Operation

The stacking procedure for the construction of the heap would consist of having the loaded trucks dump the ore on the pad. A small front-end loader would spread a measured amount of pebble lime (burnt lime/CaO) over the pile of dumped ore. A bulldozer-type tractor would then be push the ore to the active portion of the pad, maintaining an approximate 25-foot high lift. The tractor would then position itself on top of the fresh ore and cross rip the surface to a depth of 4 feet. Solution distribution lines would then be placed on the ore. This process would be repeated until the entire pad was covered with the first lift of ore. The progressive lifts would be constructed in a similar manner, with an overall slope of approximately 2 horizontal (H):1 vertical (V) to allow for decommissioning and final reclamation.

Application of the cyanide solution would be accomplished using a drip irrigation system, possibly supplemented with sprinklers on the side slopes and occasionally on top of the heap, at a rate of between 0.003 and 0.005 gallons per minute (gpm) per square-foot of surface area. Approximately 340,000 square feet would be under leach at any time, which would equate to a total flow rate of between 1,000 and 1,500 gpm. Leaching would be concurrent with loading, since only a portion of the pad would be under leach at any given time.

Geotechnical engineering and design of the facility has been completed. The pond has been designed to hold the working volume of solution while maintaining a 2-foot freeboard after a 100-year/24-hour storm event. The factors used for the storm event calculations were: contained process solution; on-site precipitation, including direct precipitation into the pond; and a 24-hour power outage. The specifics of the calculations are as follows:

Stormwater
Design Storm (100-year/24-hour event)= 3.5 inches
Gross pad area = 75 acres
Total stormwater = 3.5-inches/12 × 75 acres = 21.9 acre-feet

Heap Drain Down

Maximum steady-state application rate = 1,500 gpm
Duration = 24 hours
Total draindown = 1500 gpm × 1440 min./day / 325830 gal./af = 6.6 acre-feet

Operating Solution

Maintain 8 feet max. level for barren and preg solution containment areas = 3.5 acre-feet each
Total operating solution = 7 acre-feet

Total required pond volume = 35.5 acre-feet

The pond would be sized to hold 36 acre-feet with 2 feet of residual freeboard. The pond design is such that there is a single pond with an internal berm. The internal berm creates the separation for the pregnant and barren solution containment areas. The capacity of the pregnant solution containment area would be approximately 1.134 million gallons. The capacity of the barren solution containment area would also be approximately 1.134 million gallons. The portion of the pond above the internal berm would have a capacity of 9.393 million gallons with a 2-foot freeboard and is designed to contain designed storm water flows and drain down from the heap during a power outage. The pond would also be covered with 1-inch mesh bird exclusion netting, attached to cables and to tie-downs off the edge of the liner. The solution ditches would not be covered.

The pregnant solution would percolate through the ore to a leachate collection system, which flows, by gravity, to a collection ditch lined with two (2) synthetic liners. This would direct the flow to the pregnant solution pond. The pregnant solution would then be pumped to the process plant and through a series of carbon columns where the precious metals would be adsorbed onto the carbon. The process plant would be located on a 100-foot by 100-foot site. All components of the process plant, including the concrete slab and the area for chemical storage, would be constructed on a synthetic liner within a containment berm. This liner would be an extension of the pond liners, so that any spilled materials would drain into the solution pond.

Upon exiting the carbon columns, the leach solution, now barren of precious metals, would flow to the barren pond, where fresh water would be added at an approximate rate of 180 gpm to maintain the water balance. Barren leach solution would then be pumped back onto the top of the heap to continue the process cycle. Either solid or liquid sodium cyanide would be added to the barren leach solution to reestablish the desired reagent levels.

The carbon, when loaded with precious metals, would be transferred to the stripping section. A hot alkaline solution would be used to strip the precious metals from the loaded carbon. The alkaline solution would have a pH of 13 or greater. The solution, now containing the precious metals, would then be run through an electrowinning circuit where the metals would be electroplated. The resultant gold bearing material would then be transported to the existing permitted facility at the adjacent Yellow Aster Mine Project for further processing. The stripped carbon would be cleaned with a dilute hydrochloric or nitric acid solution before being brought back on-line.

2.2.1.4. Manpower

Mining and leaching operations would be conducted by a staff of approximately 60 people. Mining operations would be conducted by two (2) shifts per day, working five (5) days per week. Each shift would be comprised of approximately 12 people. The gold recovery process operation would operate 365 days a year and utilize 12 people. The administrative, maintenance and engineering staff, which total approximately 24 people, would work one (1) shift per day, five (5) days per week. It is anticipated that 20- to 30 percent of the employees would live locally, in the towns of Randsburg, Johannesburg and Red Mountain. The other 70 to 80 percent of the employees would reside in Ridgecrest and commute to the mine site each day. Because carpooling is prevalent in this area, approximately 24 trips per week-day, and four (4) trips per weekend-day, between Ridgecrest and the project site are expected. With two (2) mining and three (3) leaching shifts operating per day, this traffic would be spread over a 24-hour period. During the construction phase of the project, which would last approximately five (5) months, it is anticipated that an average of approximately 20 contract construction workers would live in Ridgecrest and commute seven days a week to the project site, resulting in approximately 15 trips per day.

2.2.1.5. Ancillary Facilities

The construction of many of the ancillary facilities which would normally be required for a mining operation of the size and type of the Baltic Mine Project would not be necessary because the Baltic Mine Project would utilize many of the existing ancillary facilities located at the adjacent Yellow Aster Mine Project, which is also operated by Rand. The existing permitted facilities at the Yellow Aster Mine Project that would be utilized by the Baltic Mine Project would include: offices; maintenance shop; explosives magazines; diesel storage; laboratory; and furnace. The following discusses only those ancillary facilities which would be constructed and operated as part of the Proposed Action.

Electrical Facilities

There are currently two (2) electrical transmission corridors which run through the project area (Figure 2-1). One contains two (2) high-tension transmission lines which are owned and operated by the Southern California Edison Company (SCE). The other contains a low-voltage distribution powerline also owned and operated by SCE. Discussions between Rand and SCE have concluded that Rand's proposed operations within the high-tension transmission line right-of-way, under the transmission lines, would not interfere with SCE's operations, and no realignment of these powerlines would be necessary. However, the low-voltage line would need to be relocated as part of the Proposed Action as shown on Figure 2-1. Rand has discussed the realignment of this powerline with SCE and SCE is currently conducting the necessary permit process to realign the low-voltage powerline. In addition, a small substation would be constructed and connected to the low-voltage powerline to supply the electrical power for the project through above-ground and/or below-ground powerlines.

Emergency power requirements for the project would be provided by a 350-KW diesel electric generator located at the heap leach facility. During periods of service interruption from SCE, essential load and services would be powered by this generator.

Directional outdoor lighting for the operations would be utilized, as necessary, in the mines, waste rock storage and leach pad areas when operations occur during non-daylight hours. Other facilities would have only indoor lighting, with the possible exception of "street lights" located at parking areas and entrances to buildings for safety reasons.

Water Supply

All process water required for the project would be obtained from Rand's existing water supply wells in Fremont Valley, which also services the Yellow Aster Mine, Descarga and Lamont Mine Projects. The existing water pipeline from Fremont Valley to the Yellow Aster Facility would be extended one-half mile from the Yellow Aster Mine Project to the Baltic Mine Project process plant (Figure 2-1). No new right-of-way approvals would be required to construct the extension of the water line because it is incorporated within the boundaries of the project area and is addressed through the Baltic Mine Project modification of the POO. All waters used in the processing of the ores would be recycled. Approximately an average of 180 gpm would be required over the life of the project to compensate for evaporative loss, capillary retention of water in the heap, and water used for dust suppression. Potable water would be supplied by extending the potable water line from the Yellow Aster Mine Project to the Baltic Mine Project. Water in this pipeline is supplied by the Rand Communities Water District.

Chemical Storage

A list of all chemicals which would be used on the project are included in Table 2-5. Cyanide would be stored in three (3) tanks which would be located on a concrete slab next to the barren pond. All other chemicals, except the pebble lime, would also be stored on the slab, or next to the slab, and would be in the open-air, and the slab and the surrounding area would be constructed on an extension of the pond liner with a slight slant towards the pond. Within this chemical storage area incompatible chemicals would be physically separated. The pebble lime would be stored on the heap. If liquid cyanide is used, it would be pumped from a specially designed tank truck with a 10,000 to 15,000 gallon tank to one of the two (2) storage tanks. The solution in the tank would be between 27 percent and 33 percent NaCN, at a pH of 13 or greater, and contain excess NaOH. If solid cyanide is used, it would be stored in 3,000-pound sodium cyanide flowbins. The contents of one (1) flowbin (3,000 pounds of NaCN), along with 1[illegible]0 gallons of water and 100 pounds of NaOH, would be added to a closed 2,000-gallon tank and mixed. This solution would be approximately 30 percent cyanide and have a pH of greater than 13. The high strength liquid cyanide solution would be metered from one of the three (3) tanks into the barren solution containment area to maintain the proper operating reagent concentrations. The sodium hydroxide, hydrochloric (or nitric) acid, polyaleic anhydride antiscalant and carbon would be stored at the processing facility.

Table 2-5: Chemicals to be Used on the Project and the Estimated Annual Consumption

Chemical Name	Estimated Annual Use
Sodium Cyanide (NaCN)	485,000 lbs. (equivalent)
Hydrochloric (HCl) or Nitric (HNO_3) Acid (30 percent strength)	9,700 gals.
Sodium Hydroxide (NaOH)	30,200 lbs.
Polyaleic Anhydride Antiscalant	15,700 gals.
Burnt Lime (CaO)	10,600,000 lbs.
Carbon (activated)	70,000 lbs.
(NH_4NO_3 and Fuel Oil) AN/FO	2,800,000 lbs
Diesel Fuel	750,000 gals.

The blasting agents and associated explosives, which are necessary for mining operations, would be stored at existing, permitted magazines located at the Yellow Aster Mine Project. These various products would be stored separately to comply with state and federal regulations, as well as for safety reasons.

Sewage Treatment and Trash Disposal

Initially, Rand would contract with the local disposal service company for portable sanitary facilities at the Baltic Mine Project. Rand may eventually obtain a permit through Kern County for, and then install, a septic treatment system with a leach drain field.

Rand would contract with the local disposal service to remove solid (non-mining) waste from the project site to an approved landfill. All other wastes would be disposed in a manner approved by the responsible regulatory agencies.

Ditches and Roads

The existing surface flow patterns in and through the project area are shown on Figure 2-2. Under the Proposed Action some drainages would be diverted around the project facilities. The resultant flow patterns are shown on Figure 2-3. Storm water surface flows would be routed away from the heap leach facility by a diversion ditch. This would result in the diversion of approximately 133 cubic feet per second (cfs) around the pad to the east and 115 cfs around the pad to the west (Figure 2-3) (Rand, 1992). Figure 2-4 shows the location and design of the ditch. All other storm water surface flows would be allowed to flow through the project area. Flows up gradient of the open pit would be intercepted by the open pit where they would collect and then evaporate.

Access to the project area is via Butte Avenue, a paved county secondary road, from Randsburg. Specific components of the project would be accessed from this county road via unpaved roads (Figure 2-1). As part of the Proposed Action, certain portions of Butte Avenue, Red Mountain Road, Sunshine Mine Road and Randsburg Loop Roads in and around the project area would be vacated and a new county road would be constructed around the project facilities (Figure 2-5).

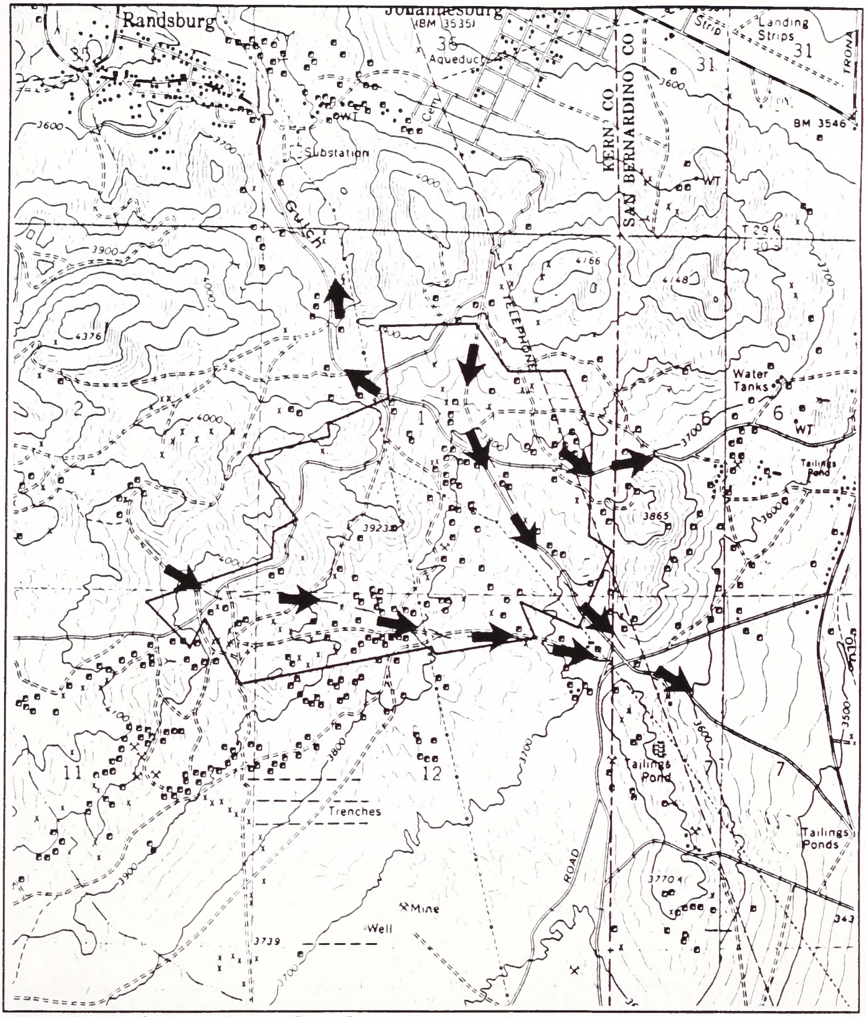

Figure 2-2: Surface Water Flow Patterns in and Through the Project Area

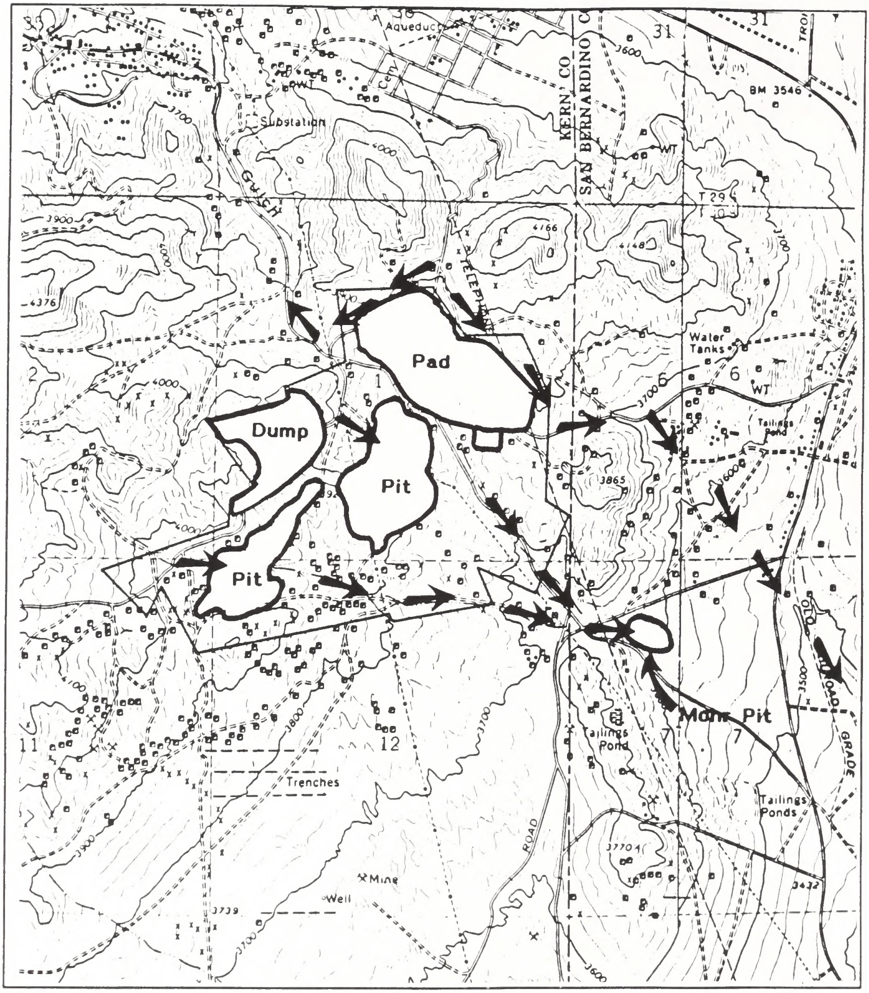

Figure 2-3: Diverted Surface Water Flow Patterns Around and Through the Project Area

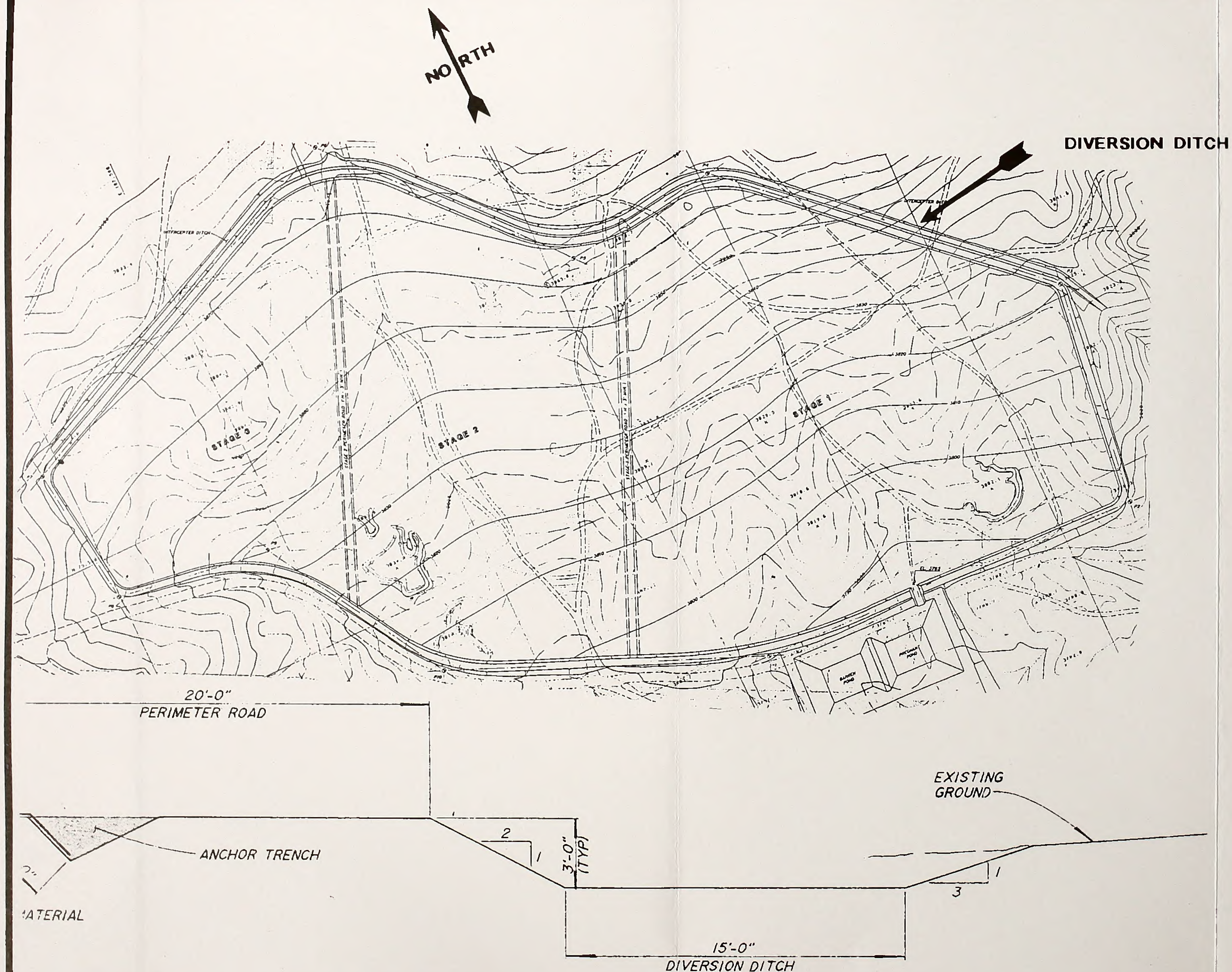

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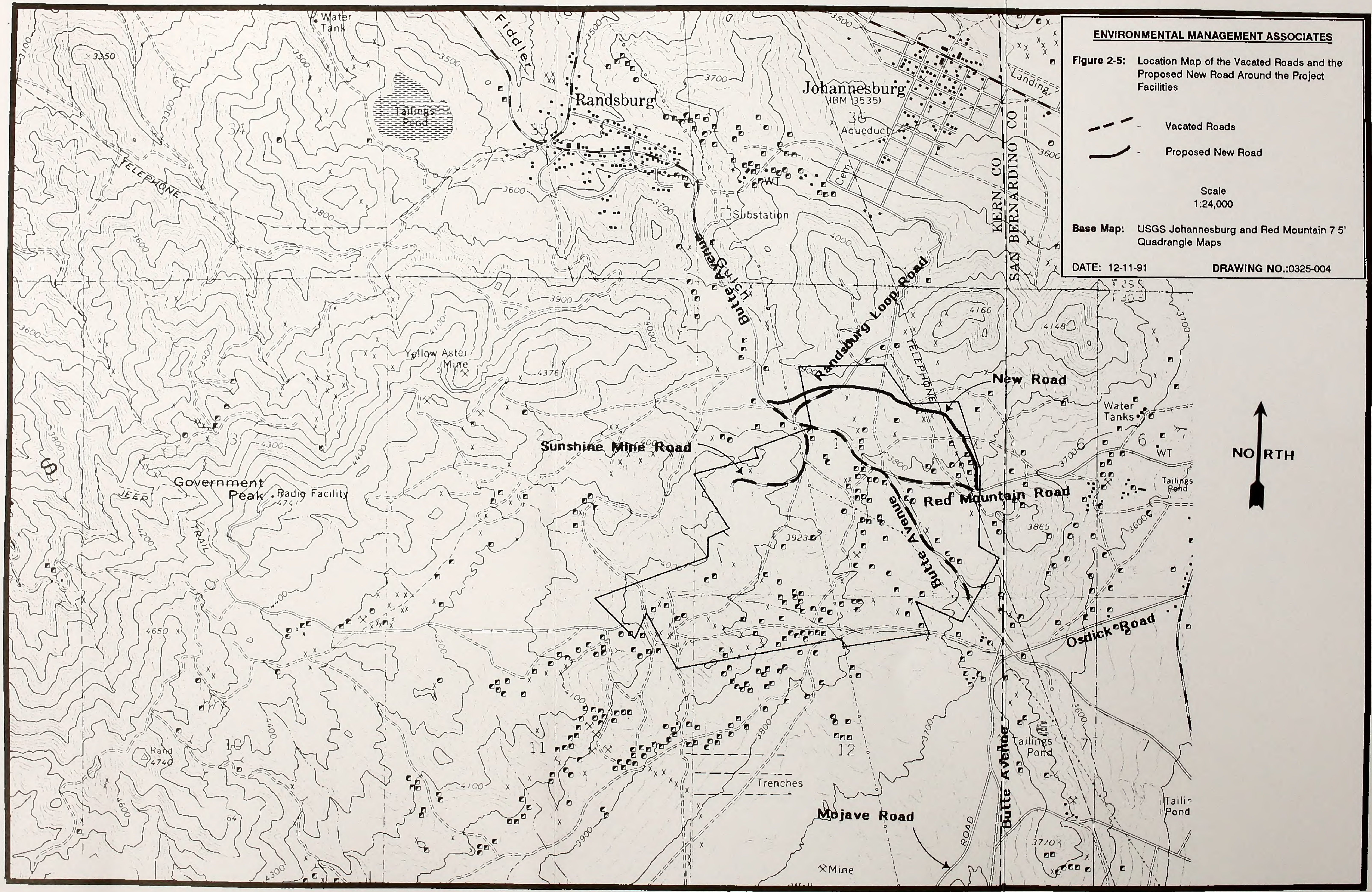
Figure 2-4: Location and Design of the Diversion Ditch Around the Heap Leach Facility

Scale
1:3,600

Base Map: Rand Mining Company

DATE: 02-05-92 **DRAWING NO.:**0325-020



ENVIRONMENTAL MANAGEMENT ASSOCIATES

Figure 2-5: Location Map of the Vacated Roads and the Proposed New Road Around the Project Facilities

- Vacated Roads

- Proposed New Road

Scale
1:24,000

Base Map: USGS Johannesburg and Red Mountain 7.5' Quadrangle Maps

DATE: 12-11-91

DRAWING NO.: 0325-004

The section of County Road 145, also known locally as Butte Avenue, to be vacated is shown on Figure 2-5. It is a strip of land 60 feet in width and located in Sections 1 and 12, Township 30 South, Range 40 East, MDB&M, more specifically described as beginning at a point on the centerline of Butte Avenue, which is approximately 1,900 feet South 31° East from the northwest corner of Section 1, thence southeasterly along the centerline of Butte Avenue approximately 5,950 feet to the point where the project boundary crosses the road.

The section of the road known locally as the Red Mountain Road to be vacated is shown on Figure 2-5. It is a strip of land 60 feet in width and located in Section 1, Township 30 South, Range 40 East, MDB&M, more specifically described as beginning at a point at the intersections of the centerline of the Red Mountain Road and Butte Avenue, which is approximately 4,550 feet South 44° East from the northwest corner of Section 1, thence easterly along the centerline of the Red Mountain Road approximately 1,750 feet.

The section of County Road 391, also known locally as the Sunshine Mine Road, to be vacated is shown on Figure 2-5. It is a strip of land 60 feet in width and located in Section 1, Township 30 South, Range 40 East, MDB&M, beginning at a point at the intersections of the centerline of the Sunshine Mine Road and Butte Avenue, which is approximately 2,950 feet South 35° East from the northwest corner of Section 1, thence southerly along the centerline of the Sunshine Mine Road approximately 2,000 feet to the point where the road was previously vacated by Kern County.

The section of the road known locally as the Randsburg Loop Road, as shown on Figure 2-5, is a strip of land 60 feet in width and located in Section 1, Township 30 South, Range 40 East, MDB&M. The portion of the road to be vacated is described as beginning at a point at the intersections of the centerline of the Randsburg Loop Road and Butte Avenue, which is approximately 3,050 feet South 63° East from the northwest corner of Section 1, thence northeasterly along the centerline of the Randsburg Loop Road approximately 1,500 feet.

The fiber optic telephone cable which follows the Butte Avenue road alignment through the project area would not be moved or otherwise disturbed as part of the Proposed Action.

2.2.2. Exploration

Exploration efforts would continue up to, and possibly during, the onset of closure activities. These exploration activities may include geophysical surveying, geochemical sampling, mapping, drilling and bulk sampling. Presently, drilling is planned in the areas around the proposed Baltic and Lamont Extension Pits, particularly to the south and east. In addition, exploration work is planned in the western portion of the project area.

2.2.3. Reclamation

The reclamation portion of the Proposed Action addresses all surface disturbance created by Rand within the Baltic Mine Project area, as outlined in Table 2-6. The detailed Reclamation Plan for the project has been attached to

Table 2-6: Surface Disturbance to be Reclaimed Under the Reclamation Portion of the Proposed Action

Item	Project Facility	Acres
Mining Operations Portion of the Proposed Action	Baltic Pit	38.7
	Lamont Extension Pit	17.8
	Leach Pad	70.7
	Waste Rock Storage	54.7
	Plant Site	4.2
	Haul and Exploration Roads	13.6
Total Proposed Surface Disturbance for the Baltic Mine Project		199.7
Existing Surface Disturbance Created by Rand in the Baltic Mine Project Area	Existing Lamont Waste Storage Area	16.8
	Existing Lamont Pit	13.6
Total Existing Surface Disturbance Created by Rand in the Baltic Mine Project Area		30.4
Total Surface Disturbance to be Reclaimed by Rand in the Baltic Mine Project Area		230.1

this EIS/EIS as Appendix B. These reclamation activities would be consistent with the land use goals for the area, which are future mining, wildlife habitat, sheep grazing and recreation. Reclamation would be in accordance with 43 CFR 3809.1-3(d) and 14 CCR 3500. The post mining goals and objectives for reclamation of the Baltic Mine Project area are to return the land to a similar land use, to ensure public safety and to prevent unnecessary or undue degradation of the federal and private lands during operations and until reclamation is successful. Reclamation activities would be initiated at the time that specific portions of the facility have reached capacity or are no longer needed. Under the mining operations portion of the Proposed Action, a total of up to approximately 200 acres of surface disturbance may have been created by the close of mining operations. In addition, there are approximately 30 acres of existing surface disturbance in the Baltic Mine Project area that was created by Rand, as a result of previous mining of the Lamont Mine Project. The Reclamation Plan details the activities to be taken for reclaiming all surface disturbance which results from the Proposed Action and Rand's previous mining operations and exploration activities in the Baltic Mine Project area. A brief summary of the Reclamation Plan follows.

In general, the Reclamation Plan includes measures for the protection of wildlife, livestock and the public; reduction of erosion and mass failure potential; demolition of structures and detoxification of process components; regrading of selected cut and fill slopes; and where feasible, measures to allow for the resumption of pre-mining land uses.

The reclamation approach and procedures outlined in this section were developed for the site-specific conditions of the project area. The procedures are designed such that the mining-related disturbance areas are reclaimed to a productive use similar to the pre-mining land uses and the reclaimed areas are visually and functionally compatible with the surrounding topography.

The reclamation procedures proposed for the Baltic Mine Project incorporate five basic components:

- Establishment of stable surface, topographic and drainage conditions that are compatible with the surrounding landscape and serve to control erosion.
- Establishment of soil conditions most conducive to establishment of a stable plant community through stripping, stockpiling and reapplication of suitable growth material.
- Revegetation of disturbed areas, using native plant species, where practical, adapted to site conditions in order to establish a long-term productive biotic community compatible with proposed post-mining land uses.
- Consideration of public safety through stabilization, removal, and/or fencing of structures or land forms that could constitute a public hazard.
- The outward regrading or reshaping of slopes be minimized to reduce further impacts to undisturbed wildlife habitat.

The general reclamation goal at the Baltic Mine Project is to reclaim the site to a stable, functioning, landscape unit/ecosystem to allow for similar land uses as currently exist. Based on the existing site conditions, the Reclamation Plan proposes to eventually establish a Creosote Bush Scrub vegetation community typical of the western Mojave desert. Revegetation of disturbed areas can take considerable time under certain conditions or, in some areas, revegetation may not be possible.

Not all disturbed areas can be revegetated within a reasonable time period. Surface mines in arid climates are an example of such conditions. Steep walls and slopes are a residual of mining which cannot be revegetated but can be physically manipulated for stability and to provide habitat for raptor and passerine wildlife species.

The reclamation effort would encompass several levels of activity, which would be applied as needed for each specific type of surface disturbance. The following is an explanation of the reclamation activity levels to be applied in the reclamation plan:

Level One: No reclamation activity other than to protect the public, livestock and range wildlife. These activities would include perimeter fencing, sign posting, and the installation of road berms.

Level Two: Minimum reclamation activities, including some regrading and revegetation activities.

Level Three: Surface structure demolition with regrading and seeding using predominantly native species. Heaps and pond structures would be detoxified prior to regrading and revegetation activities.

Figure 2-6 shows which areas of the project would be subject to the specific reclamation levels outlined above.

2.2.3.1. Contouring/Shaping

The approximate post-reclamation contours of the Baltic Mine Project area are shown on Figure 4 in Appendix B. Slopes would be shaped for reclamation during the material placement or removal, except in the leach pad area. Depending on the type of material, erodibility, and the practical considerations of the mining process, overall slope grades would range from 1H:1V to near flat. After closure, the pit highwalls would be allowed to erode

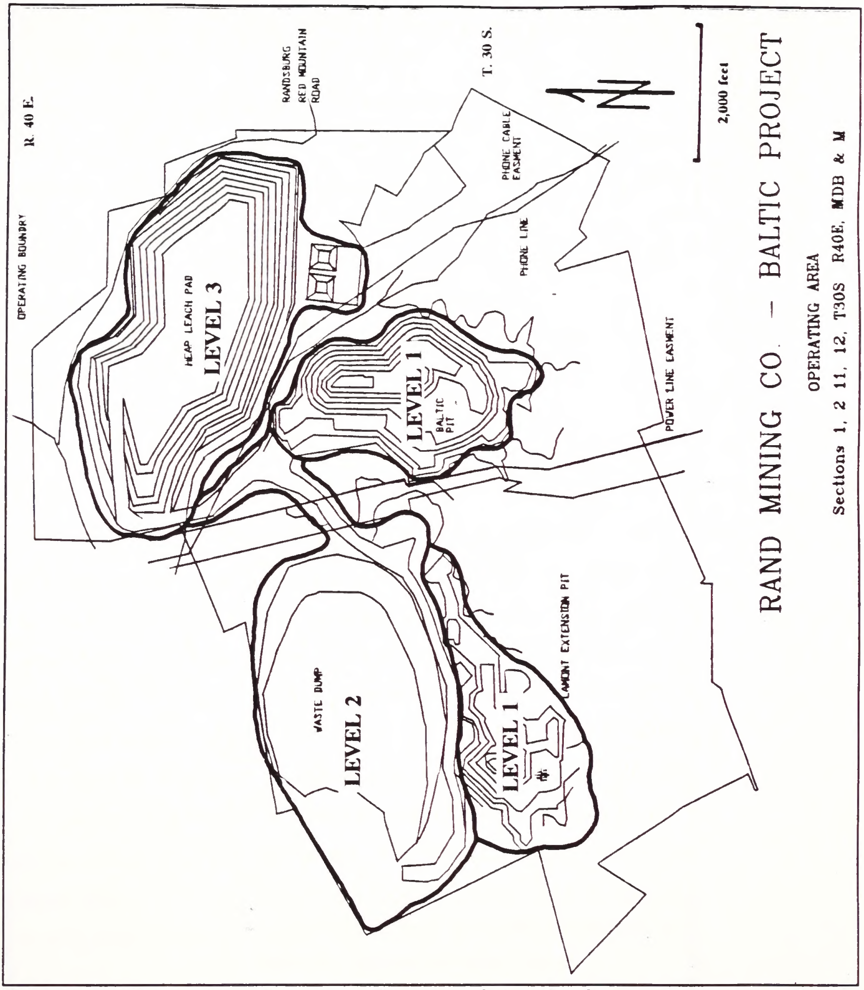


Figure 2-6: Map of the Areas That Would be Subject to Specific Reclamation Levels

to the natural angle of repose.

Final grading of cuts and fills in unconsolidated material would create undulating land forms with overall slopes no greater than 2H:1V that are stable, do not allow for pooling or ponding, and blend with the surrounding undisturbed topography. Final grading would minimize erosion potential and additional surface disturbance and would facilitate the establishment of post-mining vegetation. Sharp edges would be rounded and straight lines would be altered to provide contours which are visually and functionally compatible with the surrounding terrain.

2.2.3.2. Soil Salvage and Stockpiling

Within the project area there are five (5) soil series (Figure 2-7; also see Table 3-2). All five (5) series have a depth of at least 6 inches. The top approximately 6 inches of soil material from all soil series in the project area, except for the area of the Baltic Pit, would be salvaged. In addition, the Manet and Cajon Series, which are associated with active drainages, have soil depths in excess of 60 inches. In construction areas where these soils are present, Rand would attempt to salvage as much of these soils as possible. Prior to construction, soil material would be removed and stockpiled for later use during reclamation activities. Under the Proposed Action, assuming 6 inches of soil material is salvaged, approximately 130,000 cubic yards of topsoil would be stockpiled at the toe of the waste rock storage area (Figure 2-7).

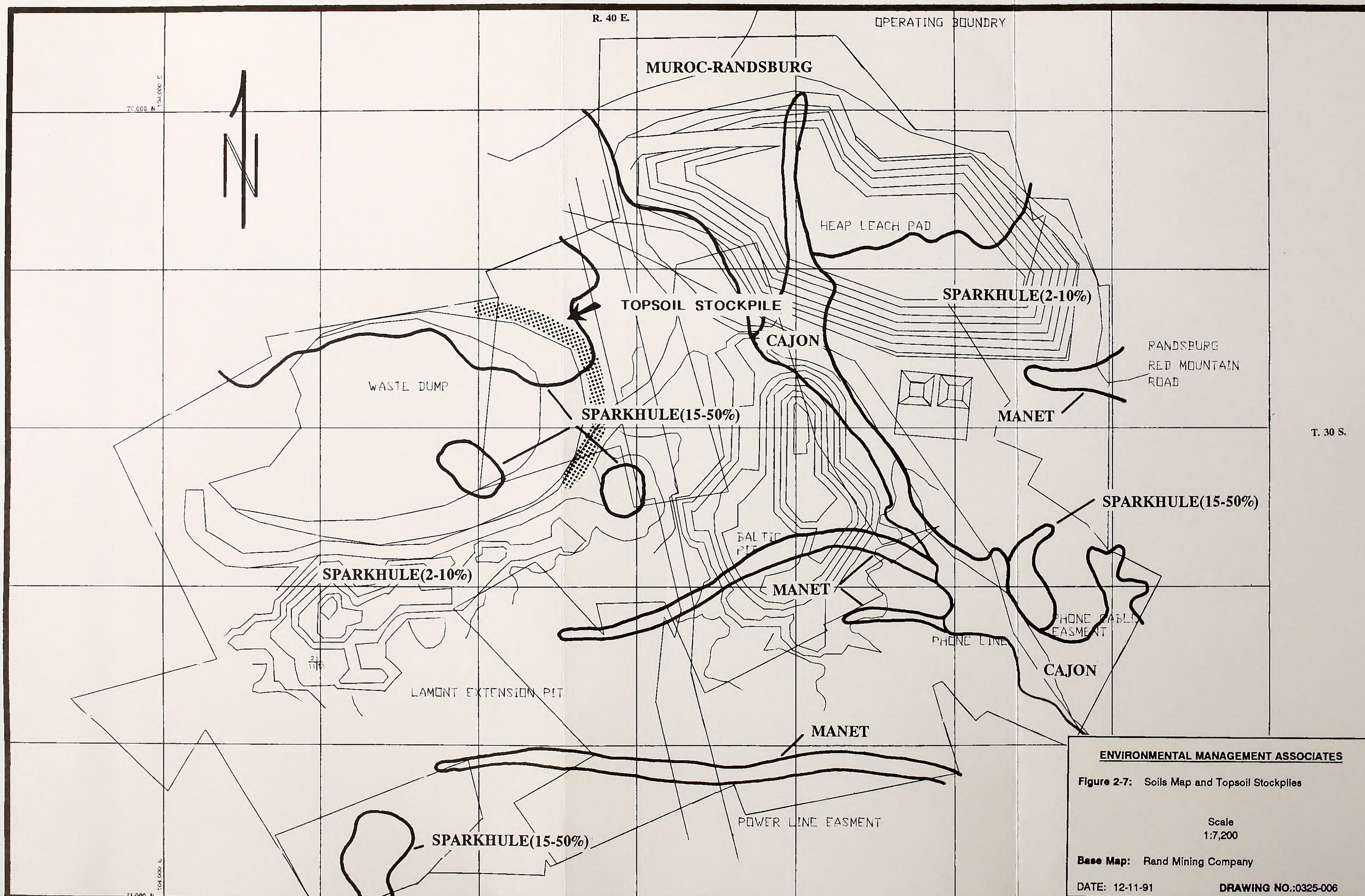


Figure 2-7: Soils Map and Topsoil Stockpiles

2.2.3.3. Growth Media Amendments

The native soils and waste rock materials within the Baltic Mine Project area generally lack fertility. This is largely due to a lack of the primary nutrients, nitrogen and phosphorous. A one-time slow-release fertilizer application of 75-100 pounds per acre of available nitrogen as N, 60-75 pounds per acre of available phosphorous as P_2O_5, and 80-100 pounds per acre of available potassium as K_2O, may be used as a part of reclamation activities to supplement soil fertility. Concurrent with the soil salvage operations, Rand would transplant to the topsoil stockpile areas all non-articulated Joshua trees less than 4 feet in height which are located in areas to be disturbed. Rand would try to avoid the removal of Joshua trees that are articulated and/or greater than 4 feet in height during construction, operation and reclamation activities.

2.2.3.4. Seedbed Preparation

Seedbed preparation, seeding, and transplant efforts for areas to be revegetated (Level Two and Level Three areas) would take place after grading, stabilization and growth media placement, and would be performed as detailed in the Reclamation Plan (Appendix B).

2.2.3.5. Seeding/Planting

The rocky terrain and soil materials in the project area may dictate broadcast seeding, although a range drill would be used in suitable flat terrain. An alternative to seeding for the revegetation activities would be to plant containerized juvenile creosote bushes at a rate of 75 percent of the density of creosote bushes in an adjacent undisturbed area. This technique may be used in areas where seeding may not be an acceptable alternative, or where seeding may not be practicable. In addition, the Joshua trees which were salvaged during the construction phase will be transplanted to the reclaimed areas.

2.2.3.6. Seeding Mixtures and Rates

The seed mixtures to be used on the site have been determined by seed availability, pre-mining vegetation and habitat types that exist in the area and known climatic and soil conditions of the project area. The seed mixtures presented as part of this application are preliminary in nature and would be finalized based on site-specific reclamation studies conducted on areas undergoing concurrent reclamation and consultation with the BLM and Kern County. The seed mixtures would be either broadcast seeded or drilled. Final choice of plant species would be dependent on commercial availability of seed. Any substitutions to the seed mix would be approved by the BLM and Kern County. The proposed seed mixtures and application rates are presented in the Reclamation Plan (Appendix B).

2.2.3.7. Schedule

When ore reserves are exhausted, mining would stop. Leaching would stop after uneconomic recovery rates are reached. Closure would commence after reclamation earthwork is completed. It is foreseeable that the heap leaching activities would remain active after mining activities have stopped, due to the length of time required to complete leach cycles. If this is the case, then open pit and some ancillary facility reclamation and closure activities would occur in advance of heap leach reclamation and closure.

Closure and post-closure reclamation activities would commence when the ore body is exhausted and mining has ceased. It is estimated that this terminal phase of reclamation would take one (1) to three (3) years to complete following cessation of mining. Post-closure monitoring of vegetation success, erosion control procedures and water quality in the pond is expected to account for an additional one (1) to five (5) years.

2.2.3.8. Facilities Closure/Dismantling

Growth Media Stockpiles

After growth media has been removed from the stockpiles for replacement on other sites, the stockpile surface would be loosened, if necessary to alleviate compaction and seeded with the appropriate seed mixture for the area as described in Section 2.2.3.6.

Pit Closure

During active mining, reclamation in and around the mines would be limited to controlling erosion of the haul roads. Upon final closure, the mines would be reclaimed under the level one guideline (see Section 2.2.3), leaving pit sidewalls in a stable condition, in accordance with Mine Safety and Health Administration regulations. A berm would be constructed across the haul roads to prevent vehicle access to the pits. Access to all portions of the open pits would be limited by a three-strand barbed wire and tortoise exclusion fence which would be sufficient to protect the public, as well as livestock and wildlife. Signs would be posted on the fence around the pits, and any other locations which could pose a threat to public safety, as required by regulation. The pits would encompass 70.1 acres in final configuration, and, except for temporary accumulation of precipitation, should remain dry.

Waste Rock Storage Area

The waste rock storage area would encompass 71.5 acres and would fill a small valley between the Lamont and Baltic Pits. The waste rock storage area would be reclaimed under the level two guideline as a Class "C" waste (see Section 2.2.3). The waste rock storage area would be built with overall 2H:1V finished slopes. Waste material would be placed in successive lifts from the toe of the existing Lamont waste rock storage area down slope, forming a terraced finished slope. Final contours of the waste rock storage area are shown on Figure 4 in the Reclamation Plan (Appendix B). A cross-section of the waste rock storage area is presented in Figure 6 of the Reclamation Plan. Upon final mine closure, the waste rock storage area top would be crowned to prevent pooling, ponding, and erosion. Stockpiled growth media material would be distributed on the top and benches prior to seeding with the proposed seed mixtures.

Leach Pad Complex

Laboratory tests show that the spent ore material may be detoxified by washing in place with fresh water at the end of the leach pad life. Spent ore which has been left on pads or which will be moved from a pad must first be rinsed until the following general requirements have been met:

- Weak Acid Dissociable (WAD) cyanide in effluent rinse water are less than 0.2 mg/l; and,
- Contaminants in any effluent from the processed ore which would result from percolating meteoric waters will not degrade surface or ground water.

If the above requirements cannot be achieved, the operator can be granted a variance, if the operator can demonstrate that:

- The remaining solid material, when representatively sampled, does not contain levels of contaminants that are likely to become mobile and degrade the waters of the State under conditions that exist at the site; or
- The spent ore is stabilized in such a fashion as to inhibit meteoric waters from migrating through the material and transporting contaminants that have the potential to degrade water.

The ore on the heap leach pad would be detoxified, graded, and seeded in accordance with the level three guideline as a Class "C" waste (see Section 2.2.3). Detoxification of the heap leach pile would be accomplished by rinsing to reduce cyanide levels to meet the anticipated requirements in the Waste Discharge Order, which must be issued by the CRWQCB before use of the leach facility can commence. Sampling and laboratory testing would be conducted to evaluate the detoxification process at the conclusion of heap rinsing.

After rinsing and detoxification is complete, the top of the heaps would be graded with a slight crown to reduce the amount of precipitation which would be retained on the heaps and percolate through them. The sides of the heap would be worked to a 2H:1V finished slope. Certain benches would remain. A cross-section of the heap leach pile is shown in Figure 7 of the Reclamation Plan (Appendix B). Once detoxification of the heaps has been completed, which would likely require 12 months, all process waters and rinse solutions would be drained to the pond for detoxification and evaporation. A neutralizing agent may be added to the process waters and rinse solutions to reduce the cyanide level to meet CRWQCB standards. The waters would then be allowed to evaporate in place. Process water pond would then be reclaimed under the level three guideline (see Section 2.2.3) All fencing would be removed and the synthetic liners would be disposed of in a manner acceptable to the CRWQCB. The pond area would then be graded to blend with the surrounding topography. The final detoxification and reclamation of the pond would not occur until the detoxification of the heaps is complete, which could take several years beyond the completion of leaching.

Access Roads

The main haul road, all other links in the road network around the mine and all remaining exploration roads, would be graded, scarified and revegetated in conformance with the level two guideline (see Section 2.2.3).

Buildings and Ancillary Facilities

Buildings and ancillary facilities would be reclaimed under the level three guideline. All portable and salvageable structures would be removed and taken off site. Any permanent structures would be dismantled and removed off-site. All building foundations would be demolished and removed, or buried under at least one foot of clean fill material. All surplus materials, storage containers and trash consistent with Class III landfill regulations would be transported to a permitted landfill site. The remaining surplus waste products and all fuel oil and similar materials would be removed from the site and disposed of according to current state and federal regulations. Any soil material contaminated by regulated waste materials would be disposed of in accordance with state and federal requirements. Refuse would be disposed of in an approved sanitary landfill.

2.2.3.9. Monitoring and Reclamation Success Evaluation

Following facility decommissioning, grading to desired slopes, distribution of topsoil/growth medium and seeding, the principal components of reclamation would be completed and the bonds related to those activities should be released. However, the stability of the graded components and the resumption of pre-mining land uses would largely depend on the establishment of vegetation. Performance of the quantitative determinations of revegetation success outlined in the Reclamation Plan will trigger final bond release (Appendix B). Specific monitoring procedures are also outlined in the Reclamation Plan.

2.2.4. Impact Reduction Measures Incorporated into the Proposed Action

Desert tortoises are known to occur within the project area, and the project area is within Mohave ground squirrel habitat. As a result of this, Rand submitted, and the BLM accepted, the habitat impact compensation required under the BLM approval of the Echo Bay POO (see Appendix C). This compensation was for surface disturbance within the 392-acre project area which is discussed in the biological survey for the Echo Bay POO (Appendix D). Rand has incorporated the following impact reduction measures, as recommended by the biological consultant, into the Proposed Action to minimize impacts to these two (2) species. These measures include the following:

1) During mining the following "general" measures would be followed to minimize disturbances to native habitat:

   - Project area boundaries would be clearly staked and "flagged" to minimize the potential for inadvertent straying of vehicles and equipment,
   - Disturbances to adjacent areas would be minimized by "flagging" or otherwise marking the boundaries of the mining areas, notifying employees of specific project areas and the need to avoid disturbing adjacent areas and erecting fencing and/or placing temporary gates at access points to limit access to authorized personnel and vehicles only;
   - During exploration activities, including temporary excavation of trenches or holes, escape ramps consisting of loose earth deposited in the test hole or trenches would be constructed to facilitate the escape of any wildlife species that may inadvertently become entrapped. Such trenches or holes would also be inspected for entrapped wildlife prior to onset of construction and immediately prior to the end of the work day. A final inspection would also be made immediately before filling these holes or trenches. Any animal discovered would either be allowed to escape before activities resume or be carefully removed from the hole or trench and allowed to escape unimpeded by personnel authorized to undertake this activity by the USFWS and the CDFG;

2) Existing routes of travel would be used during mining activities to the maximum extent practical in order to minimize any disturbance to tortoise habitats not slated for development. Speed limits on unposted access roads leading to and from the mining site and leach pad area would not exceed 25 miles per hour. Project related work would be confined to designated routes:

3) Toxic materials contained on the project site would be stored and used in a manner that prevents harm to desert tortoises and other wildlife species;

4) Stockpiling of ore and tailings would maximize use of previously disturbed areas;

5) Trash and food items would be promptly contained and regularly removed from the project area to reduce attractiveness to tortoise predators such as ravens and coyotes;

6) In order to minimize any exposure risk to desert tortoises, a specially designed fence would be constructed around specific portions of the project site. Fence design must be acceptable to the USFWS, the CDFG and the BLM. The following design criteria are anticipated to be used:

   - The fence would be a minimum of three (3) feet in height above the ground level;

   - The fence design would have either three (3)-strand barbed wire or hogwire;

   - The bottommost 1.5 feet of the fence would have 0.5 inch mesh hardware cloth. This material has a square mesh pattern, unlike "chicken wire" which has a hexagonal pattern. The hardware cloth is stronger and has other properties which make it superior to "chicken wire";

   - The uppermost portion of the hardware cloth would extend not more than 2 inches above the lowermost wire strand if barbed wire is used;

   - This mesh would be buried to a depth of 1-foot below ground level, or the bottom 1-foot would be bent at a right angle towards the outside of the fence, and covered with gravel and rocks to prevent animals from burrowing under the fence;

   - T-posts or other suitable anchoring posts would be placed at appropriate intervals (usually 10-16 feet spacing);

   - Treated "peeler" posts or other suitable anchoring posts would be placed at appropriate intervals to ensure fence stability;

- The protective fence would be regularly inspected and repaired;

- A gate would be installed across the compound entrance that provides sufficient minimal ground clearance to deter ingress by desert tortoise; and,

- After the tortoise-proof fence has been constructed a survey of the area would be conducted by the authorized biologist. All tortoises would be removed from the exclosure and placed outside the nearest fence. The authorized biologist would be allowed some judgement and discretion in the placement of the tortoise to ensure that survival of the tortoise is likely.

7) Use of firearms would be strictly prohibited;

8) Employees would be strictly prohibited from bringing pet dogs to the project area;

9) Employees would be required to check under equipment and vehicles for tortoises prior to moving such equipment;

10) Incidences of observations of tortoises or tortoise sign during construction would be conveyed to the field supervisor. Employees would be notified that they are not authorized to handle or otherwise move desert tortoise encountered on the project site. This would only be undertaken within guidelines established from the USFWS and the CDFG;

11) A pre-activity survey of the construction area would be conducted by a qualified biologist prior to onset of mining activities. Timing of this survey, relative to onset of construction, would be within 30 days. Locations of all tortoise pallets, burrows and observed animals would be prominently "flagged" at the time. If desert tortoise and/or borrows and pallets are encountered during the survey that would be unavoidably destroyed by planned actions, the following procedures would be used:

    - Excavation of the burrow or pallets under the supervision of a qualified biologist;

    - Capture of any tortoises in the burrow or pallet by the biologist, using disposable gloves for each animal to prevent inadvertent transmittal of a respiratory disease between animals. Rehydration of any captured tortoise may also be required, using procedures acceptable to the USFWS and the CDFG;

    - Segregation of the individual tortoises captured to prevent disease transmittal;

- Release of the captured animal(s) into empty burrows or pallets or under the shade of a bush (during the spring and early summer) outside the project area. Animals showing disease symptoms (e.g., lethargy, runny nose, watery eyes, caked dirt on nostrils or on front legs) would be transported to the BLM office in Riverside within 48 hours of capture. This would be undertaken by individuals authorized by the CDFG and the USFWS;

12) Rand would designate a specific individual that would serve as a "Contact" representative between the company and regulatory and reviewing agencies associated with desert tortoise mitigation and compliance procedures. Written notification of this individual would be provided to the BLM, the USFWS and the CDFG;

13) Within a timeframe acceptable to the USFWS and the CDFG, Rand would present a "briefing" to project employees that addresses the status and biology of the desert tortoise, presence of this species within the construction area, measures underway for the protection of this species and its habitat and means by which individuals employees would be able to facilitate the process. Handouts, videos or other materials that would facilitate compliance and cooperation be project employees would be used during the briefing. The BLM would review the desert tortoise "briefing" given to Rand employees at least 15 days prior to the presentation. Included in this "briefing" would be that the field supervisor would be notified of any tortoise or tortoise sign encountered.

    The notification would also include:

    - A clear understanding that the species is protected and should not be moved or harmed if encountered and that handling or moving of animals is authorized only by designated individuals through permits issued by the USFWS and the CDFG;

    - Sightings of desert tortoise or their burrows should be reported to the "contact"; and,

    - Failure to abide by conditions imposed by Federal and State agencies for the desert tortoise could result in suspension of any necessary permits allowing mining activities to continue;

14) The authorized biologist would prepare a report not later than 90 days after completion of the fence and submit it to the BLM. The report would document effectiveness and practicality of the mitigation measures, the number of tortoises excavated from burrows, the number of tortoises moved from the area, the number of tortoises killed or injured, and the specific information for each tortoise handled.

15) Proposed mining activities would result in the loss of a total of 199.63 acres of low density desert tortoise habitat and the possible "take" (killing, harming, or harassing) of individual animals. As a means of offsetting this effect, compensation, in accordance with guidelines policies and agreements, would be established.

These impact reduction measures would be implemented unless other mitigation measures are established through the consultation process with the United States Fish and Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG), which is occurring concurrently with the preparation of this EIS/EIR.

2.3. Alternatives to the Proposed Action

Alternative designs and processes to the Proposed Action were developed through initial project scoping, consultation with other agencies and the public, and by the BLM and Kern County. These are required in the review of a proposal through the EIS/EIR process. Alternatives are developed to satisfy an identified purpose or need, or in resolving issues presented as a result of this review process. All alternatives must, however, be reasonable, and documentation must be provided when considering but not selecting any alternative.

Alternatives to the Proposed Action addressed in this document fall into two categories; alternatives considered for further review through the NEPA/CEQA process; and alternatives reviewed but eliminated from further consideration.

The Proposed Action is for the development of the Baltic Mine Project, for additional exploration drilling within the project area, and for the reclamation of Rand's proposed and past activities within the project area. The only identified reasonable alternatives to the Proposed Action are those involving the Echo Bay Design Alternative and the No Action Alternative.

2.3.1. Echo Bay Design Alternative

The Echo Bay Design Alternative is the design for the project that was approved by the BLM in the 1987. It would also be an open pit mining operation, with a crushed ore, heap leach recovery process. The Echo Bay design would disturb approximately 156 acres within a 392-acre project area (Figure 2-8). The single open pit would be located in the same area as the Baltic Pit under the Proposed Action, and would be 1,600 feet long, 1,300 feet wide, and 340 feet deep. Approximately six (6) million tons of ore and 12 million tons of waste rock would be mined from the pit. Mining would be done with two (2) shifts per day, five (5) days per week. The waste rock would be deposited in two (2) waste rock storage areas totalling 55 acres; one (1) located south of the open pit, the other located to the east of the open pit. Ore would be hauled to a 30-acre heap leach facility, located to the north of the open pit in the same area as the heap leach pad under the Proposed Action, crushed, as necessary, and placed on the heap leach pad. Under the Echo Bay Design, water for the project would be obtained from two (2) existing wells located near Cuddeback Lake at a rate of 230 gpm. This water would be piped in an existing 8.5-mile pipeline and storage tank system located near US Highway 395, which would then be connected to the mine via a new 2-mile pipeline. Manpower requirements would be approximately 40 employees.

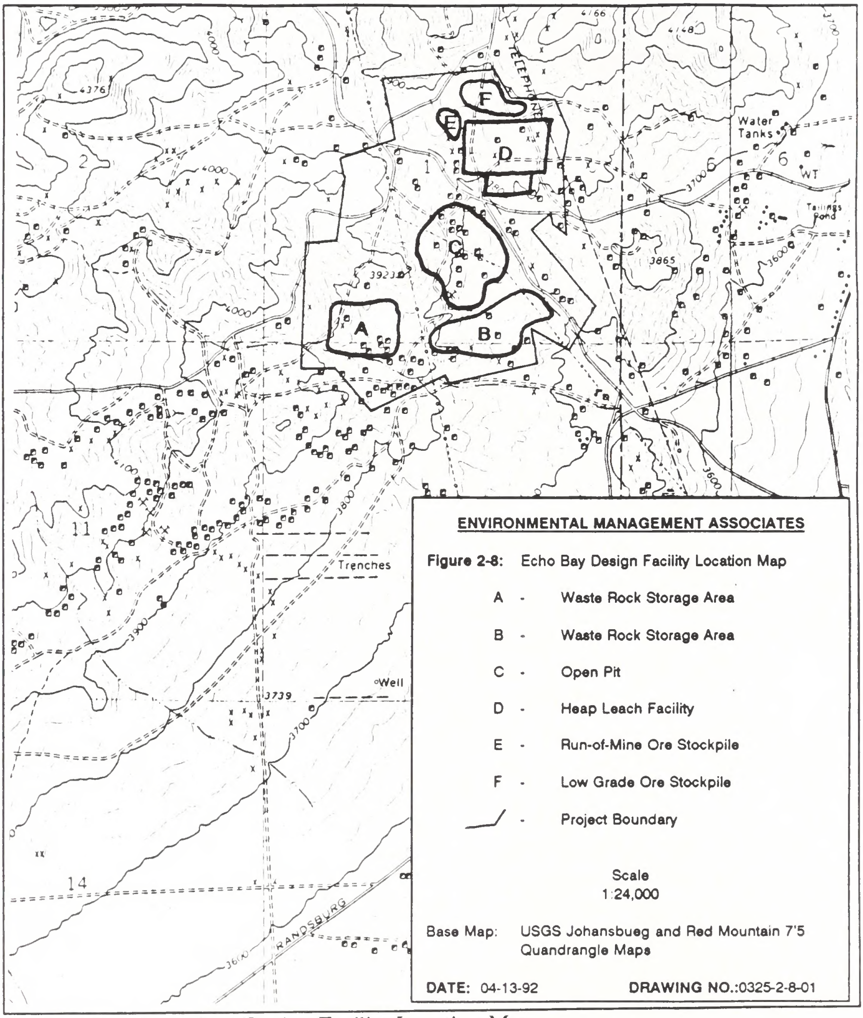


Figure 2-8: Echo Bay Design Facility Location Map

2.3.2. No Action Alternative

Consideration of the No Action or No Project Alternative is required by both NEPA and CEQA. Implementation of this alternative would mean that the Baltic Mine Project would not be developed, at least under this proposal. Such action would be inconsistent with Federal and State policy encouraging mineral development and would deny the claimant his legal right to extract minerals on his claim. This action can therefore only be implemented if "unnecessary or undue degradation" would occur. The project area is in an established mining area and is planned for continued mining used by Kern County. The area is designated as Class M (Moderate) in the California Desert Conservation Area Plan, which provides for multiple use, including mining, subject to appropriate measures to prevent unnecessary or undue degradation.

If this alternative is implemented, the site would remain in its present state and no potential for increased environmental impacts would occur. Surface disturbances that have been created by historic mining events would remain. Present uses in the area are limited predominately to mining, with grazing and recreation also continuing. The site would be available for future commercial gold processing proposals or for other proposals as permitted by BLM policy and County land use designations.

2.3.3. Common Features of Alternatives

The alternatives, with the exception of the No Action Alternative, would allow the construction of open pits and disposal sites for the waste and processed ores and utilize cyanide to remove the precious metals from the ore. The Proposed Action would have two (2) open pits, whereas the Echo Bay Design Alternative would have one (1) open pit and mine a smaller amount of material. The Echo Bay Design Alternatives would allow the use of crushing equipment as part of the mining of the ore. The Proposed Action obtains water for the project from Fremont Valley, whereas the Echo Design Alternative obtains water from Cuddeback Lake. The Proposed Action would utilize a single waste rock storage area, whereas the Echo Bay Design Alternative utilizes two (2) smaller waste rock storage areas located south of the open pit.

2.4. Alternatives Eliminated from Detailed Consideration

2.4.1. Alternative Mining and Processing Methods

Rand would mine ore from two separate ore bodies within the Baltic Mine Project area. The two pits, Lamont Extension and Baltic, contain both ore and waste material. The two deposits in the Baltic Mine Project area contain ore of which 97 percent grades less than 0.05 ounces per ton. Rand proposes to mine 24 million tons of ore and waste. Of this amount, 15 million tons are considered by Rand to have a grade above the minimum ore grade for which it is economic to process the material to extract the precious metals.

The operation as proposed must consider a minimum ore grade in order to evaluate the profitability of mining the deposit. In determining the minimum ore grade that the operation can sustain profitably, the deposits are evaluated in small blocks. These blocks are assigned ore grade values for the total block volume based on detailed development drilling. Operating, capital, and investment costs are evaluated together with a return to determine the minimum ore grade that can be mined. The minimum ore grade is the average of the grades of all blocks proposed to be mined. A model of the ore blocks is developed focusing on the maximum yield for the minimum amount of ore and waste that would have to be mined.

Increased costs in any phase of the operation would require that a higher grade ore be mined, which conversely means that less ore can be mined from the deposit.

The U.S. Geological Survey has examined ore deposits throughout the world. The mineral deposit model similar to the Baltic deposits show that the statistical mean distribution of all minable deposits fall within 10.4 million tons of minable ore at a mean grade of 0.079 ounces per ton (Berger and Singer, 1987). This shows that the project falls within the ore grade and ore tonnage mean for similar deposits, and is considered with this model to be a disseminated gold deposit. These deposit models are presently being developed by open pit methods and cyanide leach techniques.

Characteristics of the ore bodies were evaluated to determine the optimal mining technique for the Proposed Action. The deposits occur in consolidated rock, disseminated at an ore grade of about 0.015 to 0.05 ounces of gold per ton of rock. This material must be excavated in an open pit that is concentrically smaller at the bottom.

2.4.1.1. Underground Mining Alternative

Underground mining is typically suited to deep mineral deposits of high-grade veins or seams that can be mined. Such deposits generally require removal of a relatively small volume of the host material in order to recover the mineral values. In the case of high-grade veins, values are typically confined to discrete structural discontinuities such as joints or fractures in a competent host rock. Underground workings can be excavated along these deposits, leaving most of the host rock in place to support the overburden. This method of mining is not applicable to disseminated low-grade ore bodies such as those at the Baltic Mine Project.

This method develops structure-dependent deposits such as quartz veins, shear veins, and shear swarms. This model is represented in the Rand mining district. Development of underground deposits requires complex technical capabilities and engineering design which is expensive. Underground operations are extremely labor intensive. Processing methods normally employed utilize crush-mill operations, and recovery is by gravity separation, chemical leaching, or combinations of either.

Cash costs associated with underground mining operations are about $60.00 to $70.00 per ton of mined ore. Most of the costs are associated with the higher labor associated with underground mining, higher operating costs, and higher capital costs per ton of ore mined. At $400.00 per ounce, a minimum minable grade of at least 0.15 ounces per ton must be mined. From the distribution of ore grade and tonnage for the Baltic Mine Project deposits, no ore is present within the deposit that falls within the minable average for this deposit model. Therefore, underground mining is not possible and it is not reasonable to expect the operator to consider this alternative.

2.4.1.2. Reduced Project

Total tons of ore and overburden to be mined would be decreased by a certain percent. Total surface disturbance of 200 acres would be reduced, however, pit size would be less than proportionately reduced. The rate of mining and processing would be the same as for the Proposed Action, resulting in a much shorter project life. Based on the economics in developing the feasibility of the mine project, the deposit will not lend itself to reduction and still remain a viable operation.

2.4.1.3. Enlarged Project

This alternative assumes that the deposit is capable of allowing more ore to be mined. Total surface disturbance would be about 1,070 acres. The rate of mining and processing would be the same as for the Proposed Action, resulting in a longer period of operation. The deposits are not capable of economically producing more ore than the feasibility study supporting the project indicates are present for the Proposed Action.

2.4.2. Alternative Gold Extraction Techniques

2.4.2.1. Slower Processing

Total ore and overburden tons would be the same as estimated for the Proposed Action, but the ore processing rate would be decreased by 50 percent, thereby increasing the life of the project. This would result in a slower rate of leach pad disturbance; however, at the end of the project life, the pads would occupy the same area as the Proposed Action. This alternative offers no environmental advantages over the proposed process for the Lamont Extension and Baltic deposits because nearly the same area of land would be disturbed from pit operations and heap pad construction.

2.4.2.2. Faster Processing

Total ore and overburden tons would be the same as estimated for the Proposed Action, but the ore processing rate would be increased by 50 percent, thereby decreasing the life of the project. This alternative offers no environmental advantages over the proposed process for the Lamont Extension and Baltic deposits because nearly the same area of land would be disturbed from pit operations and heap pad construction.

2.4.2.3. Vat Leaching Alternative

The vat leaching process is somewhat similar to heap leaching, but is conducted in large, shallow tanks. It is an appropriate technique to employ with ores having rapid gold dissolution rates. Typically, the gold from such ores would be extracted in no more than three (3) days. It is also more capital intensive than heap leaching, requiring more surface facilities, particularly the additional investment in leach tanks. It produces the same amount of leached material as the heap leach process.

Vat leaching operations would require that the deposit be mined as proposed, except that the increased operating costs associated with vat leach processing would increase required ore grade, and decrease available ore by about 20 percent. Approximately 25 percent more waste would be moved to the waste rock storage area. This would result in an approximate five (5) percent increase in the amount of surface disturbance over that of the Proposed Action. Surface disturbance from mining operations would be the same. While there are no heap leach pads in this alternative, tailings from the vat leaching cycle would occupy a larger area than the heap leach pads. In addition, this system would require approximately 350 gpm water, 170 gpm more than for the heap leach proposal. This process is inappropriate for the Lamont Extension and Baltic ores because of the slow dissolution rate inherent in the ore. Metallurgical testing of these deposits indicate leaching campaigns in excess of 200 days would be required to reach ultimate gold extraction levels.

This alternative offers no environmental advantages over the proposed process for the Lamont Extension and Baltic deposits since more area of land will be disturbed from pit operation and tailings disposal than under the Proposed Action. In addition, less revenue is generated. As such, this alternative is not a reasonable alternative to the Proposed Action.

2.4.2.4. Carbon-in-pulp Leaching

The carbon-in-pulp (CIP) method of gold extraction requires high-energy consumption to grind crushed ore material to fine particle sizes that both liberate and expose the maximum mineral surface area. Due to the need for substantial grinding facilities and structures, this alternative process requires considerably more capital investment and would incur greater operating costs (due to higher energy requirements) than the heap leach process. A similar amount of land area is generally required.

Moreover, the carbon-in-pulp leaching process produces wet tailings, so that additional capital investment would be needed to construct suitable tailings containment facilities and associated process equipment. Because of these considerations, carbon-in-pulp leaching is more appropriate for higher grade ore bodies in the range in excess of 0.08 ounces of gold per ton of rock. This higher grade of gold does not exist in quantities to justify a profitable mine at this site.

This alternative offers no environmental advantages over the proposed process for the Lamont Extension and Baltic deposits since nearly the same area of land would be disturbed from pit operation and tailings disposal. In addition, CIP facilities would need to be constructed in the project area in addition to proposed mine facilities and waste disposal areas. As such, this alternative is not a reasonable alternative to the Proposed Action.

2.4.2.5. In-situ Leaching/Carbon Adsorption

In-situ leaching involves the injection of leaching solution directly into an ore body while it is still in place in the ground. The gold-bearing solution is recovered by pumping from extraction wells, and processed by carbon adsorption. The method requires suitable geologic formations to confine the solution until it can be recovered. The deposits are not defined between formations which would contain the leaching solutions. In the absence of such formations, the potential for adverse effects to ground water and soils may be substantial.

Many linear geologic structures such as faults and shears are located within the Rand Mountains, and are pervasive within the project area. These structures might serve as conduits for solutions if injected to leach the deposit. These conduits may spring solutions out of the ground or into sensitive areas (such as populated areas) beyond the control of the operator. It is believed that the risk of ground water and soil contamination by use of this method for the Lamont Extension and Baltic deposits precludes its consideration as a viable and environmentally safe alternative.

2.4.2.6. Flotation

The flotation method of gold extraction is used for ores containing appreciable quantities of sulfide minerals. The metallurgical tests have confirmed that the Baltic Mine Project ore is essentially sulfide-free. Consequently, for metallurgical reasons, flotation would not be suitable for this project.

2.4.3. Proposed Facilities Relocation

The overall layout of the proposed Baltic Mine Project has been designed to minimize area disturbed, energy consumption, and equipment use through reduced overburden and ore transport distances, and to maximize project efficiency. The rationale for locating project facilities and options for relocation is described below.

2.4.3.1. Alternative Heap Leach Pad Location

The proposed location of the heap leach pad was selected by Rand after consideration of several environmental and operational factors, including: proximity to the open pits; efficiencies in the construction and operation of the heap leach facility, including a consolidated project layout; desire for gravity flow from the leach pads to the processing facility; and avoidance of sensitive environmental resources.

Relocation of the heap leach pad from its proposed location to the east would increase the distance from the open pit and other mine facilities to the leach pad, which would contribute to higher costs, operational inefficiencies and haulage-related emissions. In addition, land acquisition would be necessary, thus increasing the costs associated with the location.

Relocation to the area south of the project area would also increase the distance from the leach pad to the open pit and other mine facilities, again contributing to higher costs and a less efficient operation, and increasing emissions. This alternative was also eliminated because of the higher potential to impact the desert tortoise and the need to obtain more land south of the project area to accommodate the heap leach pad. Accordingly, there appears to be no environmental or operational advantage to be gained by relocating the leach pad to any other area.

2.4.3.2. Alternative Waste Rock Storage Areas

The major considerations in selecting locations for the waste rock storage areas are: minimization of the truck haul distance and gradient from the open pit to the waste rock storage areas (and related costs); consolidation of mine facilities; adequate waste rock storage capacity; avoidance of sensitive environmental resources; and absence of economic mineral reserves or potential economic resources below the waste rock storage area.

The proposed location of the waste rock storage area is north of the Lamont Extension Pit, west of the Baltic Pit, and adjacent to the existing Lamont waste rock storage. The proposal is to simply expand the existing Lamont waste rock storage to the east (Figure 2-1). The configuration of the new waste rock storage as an expansion of the existing Lamont waste rock storage minimizes the size of the storage area and maximizes operational efficiency. In addition, the selected site minimizes impacts to the desert tortoise, a threatened species, which surveys indicated are absent from the proposed waste rock storage area.

Possible alternative locations for the waste rock storage exist both inside and outside of the project area. Disposal of the waste rock outside of the project area is undesirable because this would require the use of haul trucks outside the project area, increasing traffic and transportation costs, emissions and safety concerns. Potential disposal of the waste rock at other locations within the project area, such as the area on the southern project boundary, were considered but eliminated because of potential impacts to the desert tortoise, which surveys indicated were likely more prevalent there than to the north, and due to the possible location of additional economic gold reserves. Alternative locations on Rand's other property holdings (Yellow Aster, Descarga or Lamont) were not considered reasonable because of the existing mining use of the areas and the prohibitively high transportation and disposal costs.

2.4.4. Pit Backfilling

As an alternative to permanent surface disposal of overburden and ore, complete or partial backfilling could reduce the visual and land use effects. Complete or partial backfilling of a mined area is primarily used at strip mines where the mineral exists in relatively well-defined layers. Overburden can be removed from one area and deposited in an adjacent area, thereby minimizing costly double handling. The geometric relationship between ore and overburden in such mines generally favors placing overburden material into the shallow cuts of areas previously mined.

Open pit mines, such as those proposed for the Baltic Mine Project, are not suitable for backfilling, from both operational and economic standpoints. Surface storage of the pit material would first be required, increasing the area of disturbance. Replacement of material in the pit after completion of mining would increase capital costs, and adversely affect air quality by introduction of increased emissions. The cost of complete or partial backfilling all of the material removed would render a commercial open pit mining operation economically unfeasible.

An additional consideration in evaluating the relative merits of backfilling is the conservation of mineral resources and energy. Complete or partial backfilling could be in conflict with objectives of Federal and State mining statutes, if additional minerals could be extracted from the pit. SMARA states that "...the reclamation of mined lands ... will permit the continued mining of minerals and will provide for the protection and subsequent beneficial use of the mined and reclaimed land" (Section 2711[b]). The protection of remaining mineralization at a reclaimed mine site is incorporated into Federal regulations, such that "reclamation may not be required where the retention of a stable highwall or other mine workings is needed to preserve evidence of mineralization" (43 CFR Part 3809.05[j]).

Gold mineralization is disseminated at the Baltic Mine Project, with no sharp physical demarcation between ore and overburden. The Lamont Extension and Baltic deposits are characterized as disseminated deposits. In such circumstances, the mineral is mined to an economic "cut-off" grade. The walls and floor of the pit contain lower grade gold mineralization which may be uneconomic to mine at the current gold value. However, future improved technology (or lower unit costs that might be achieved with improved technology) and/or higher gold value, would allow the operator to use these lower grade ores and increase the ultimate recovery of the resource. Backfilling the pits created when these deposits are mined would therefore probably preclude the future recovery of the lower grade ores.

During project operations, waste and leach piles would be constructed as they are with permanent surface disposal. Overburden would be present for the duration of the project. If backfilling were used, the procedure would not totally remove the overburden pile because the rock volume is greater in its broken and unconsolidated form after mining. In addition, the pits are located in the upper reaches of the Rand Mountains. As such, they are not visible from US Highway 395, limiting the visual impacts.

Based upon these considerations, it is expected that the potential loss of natural resources and economic disadvantages of complete or partial pit backfilling are greater than potential environmental advantages. Replacement of the overburden in the mined-out pits would require several years of an economically unproductive activity and energy use, with related environmental impacts that would not otherwise occur. The economic burden of backfilling would place an unreasonable restriction on the statutory right of the claimant to remove mineral resources. As such, this alternative is not a reasonable alternative to the Proposed Action.

2.4.5. Shared Facilities Alternative

The use of waste rock storage areas or heap leach facilities at Rand's adjacent operations is an alternative to the construction of the same facilities on the Baltic Mine Project area. However, the use of this alternative is limited for several reasons. Each of Rand's existing operations has different underlying owners of the mining claims who receive a royalty from the amount of production that occurs on the project. If the Baltic ores were processed at adjacent operations, the ores from the different operations would be commingled and Rand would not be able to accurately determine royalties. In addition, Rand's existing facilities adjacent to the Baltic Mine Project are permitted only for enough room to accommodate the materials for that project. Therefore, to process Baltic Mine Project ores at the adjacent existing operations additional pad and waste rock storage areas would have to be permitted. This would have no environmental advantage over the construction of the facilities in the Baltic Mine Project area. The processing of ores or the storage of waste rock at Rand's adjacent operations would also require the hauling of material on county roads and possibly through the town of Randsburg, greatly increasing the traffic hazards in the area. For these reasons this alternative was not considered reasonable and was eliminated from further consideration.

2.4.6. 3H:1V Final Reclamation Slope Alternative

This alternative would require the benches on the waste rock storage area and heap leach pile be smoothed out after the completion of mining, and the entire slope be revegetated instead on just the crowned top surface and the benches. The appearance of the waste rock storage area and heap leach pile would be more natural, decreasing the visual impacts. An additional 20 to 41 acres of surface disturbance would be created if this alternative were implemented. The reader should refer to Appendix B for figures showing the proposed slope (2H:1V) and the 3H:1V slope alternative.

The discretionary creation of an additional 20 to 41 acres of surface disturbance to desert tortoise habitat is not a management goal for the western Mojave desert. Project proponents within the area are encouraged to minimize surface disturbance and impacts to desert tortoise habitat. While the implementation of this alternative would enhance the chances of successful revegetation and reduce erosion, the additional impacts to the desert tortoise habitat are not warranted. For this reason, this alternative was eliminated from further detailed consideration. In addition, the work required to complete the resloping of the waste rock storage area and heap would result in increased costs and emissions.

CHAPTER 3
AFFECTED ENVIRONMENT

3. AFFECTED ENVIRONMENT

3.1. Mineral Resources

The northeastern Rand Mountains were prospected as early as the 1860s; however, it was not until 1893 that gold was actually discovered in the region in the El Paso Mountains, approximately 15 miles to the north and west of the Rand Mining District (Clark, 1970). The original Yellow Aster Mine was located in 1895 by Frederic Mooers, Charles Burcham and John Singleton and operated until approximately 1942 (Figure 3-1). Subsequent to the start of mining operations in the Rand Mining District, the Stringer Mining District was created from the south and eastern portions of the Rand Mining District. Gold producing operations within this district included the Baltic, the Gold Coin Group (sometimes called the Stanford group), the G.B. (aka Gold Bug), the Hawkeye, the Gold Crown group (aka Gold King), the Old Baldy, the La Crosse, the Monarch Rand, and others (Wilke et al, 1987).

The original Baltic Mine was developed with an inclined shaft which reached a depth of 162 feet. The two (2) production veins, one striking east and the other north, intersected near the shaft. By 1915, the operation consisted of a ten-stamp mill, a twenty-horsepower steam hoist, an 8 × 10-inch Blaker crusher, and a 50-ton capacity cyanide plant (Wilke et al, 1987). Examination of the Baltic properties for silver followed the discovery of silver to the east, at the Kelly Mine, in 1919. A new shaft was sunk approximately 600 feet northwest of the original Baltic shaft. This new shaft was 610 feet deep and two (2) levels were constructed, one at 300 feet and the other at 610 feet. Although over 535 feet of drifts were developed along the 2- to

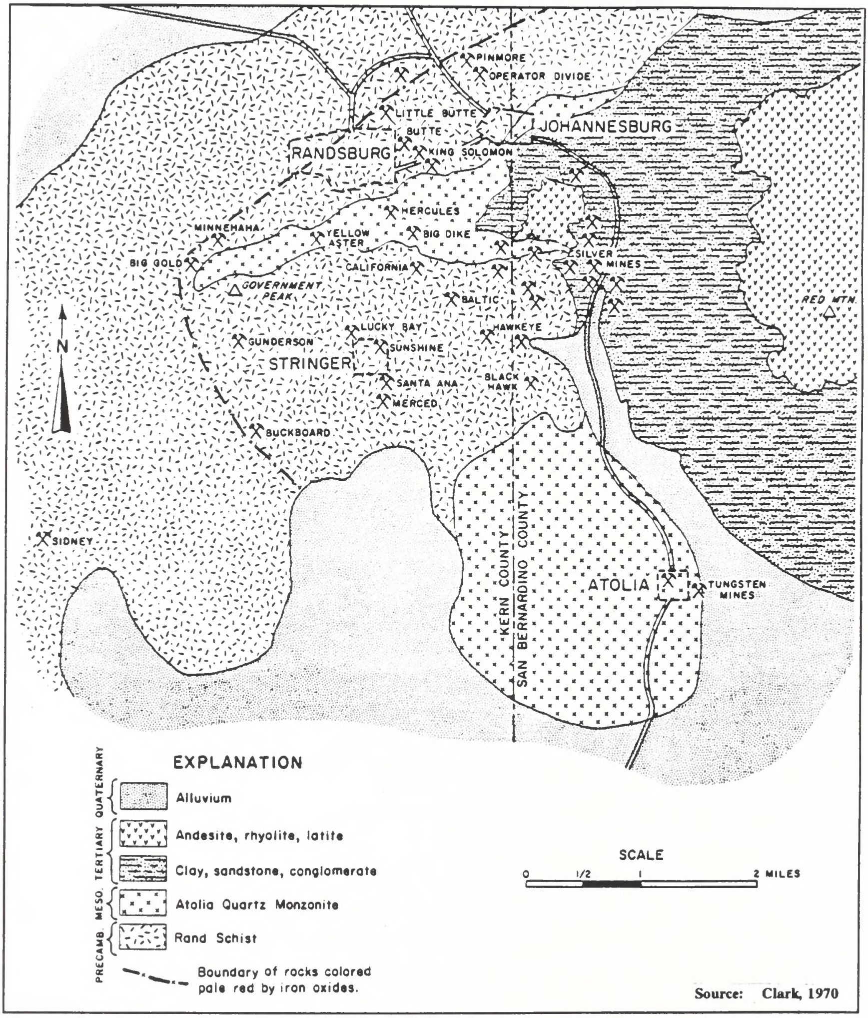


Figure 3-1: Area Geology and Historic Mine Location Map

4-foot wide vein, no commercial quantities of silver ore were discovered. The property was closed in 1925 after producing approximately 2,500 ounces of gold. The operation was idle by the 1930s, although the tailings were reworked sometime prior to 1962.

Removal of federal control over gold prices in 1972 triggered renewed interest in previously mined gold properties. The Baltic property was investigated by various individuals and companies. In 1984 a drilling program to explore the Baltic area was implemented. Extensive exploration of the project area resulted in the delineation of a large, low-grade ore body that could be developed using open pit mining and heap leach recovery techniques. The development of an open pit mine and heap leach facility was proposed by Echo Bay in 1987. The project was not fully permitted and no development activities were undertaken by Echo Bay. Rand acquired the Baltic Mine Project in 1990 and proceeded with the permitting of a slightly modified version of the plan proposed by Echo Bay.

3.2. Physiography and Geology

3.2.1. Physiography

The topography of the northeast portion of the Rand Mountains is rugged to rolling. Elevations range from 1,900 feet AMSL in Fremont Valley west of the project area to 4,741 feet AMSL at Government Peak immediately west of the project area. Topography of the project area consists of roughly east-west trending ridges with intervening valleys. The elevation of the project area varies from 3,700 feet to 3,900 feet AMSL.

Existing surface disturbance within the project area that pre-dates Rand includes the original Baltic Mine, shafts, trenches, dumps, open stopes, adits and other facilities. This disturbance amounts to approximately 122 acres (Figure 3-1). In addition, approximately 30 acres of surface disturbance from the existing Lamont Pit and waste rock storage area previously created by Rand as part of the Lamont Mine Project are now within the Baltic Mine Project area. Current mining operations in the vicinity consist of the Yellow Aster Mine Project, which is located immediately adjacent to the northwestern boundary of the Baltic Mine Project, and the Descarga Project, which is located north of the Yellow Aster Mine Project, as well as several flagstone mining operations.

3.2.2. Geology

The project is located in southeast California within the Mojave Desert Geomorphic Province of the Basin and Range Physiographic Province (Norris and Webb, 1976). The northeast portion of the Rand Mountains consists largely of the Atolia Quartz Monzonite of Mesozoic age and the Rand Schist of Precambrian Age (Figure 3-1) (see Appendix F for the Geologic Time Scale). These units have been intruded by Tertiary age volcanic rocks of andesitic, latitic and rhyloitic composition (Clark, 1970). Subsequently, clays, sandstones and conglomerates of the Paleocene or Pleistocene Epoch mantled the older units. Quaternary alluvium has been deposited in the major valleys north and south of the project area (Figure 3-1).

The project is located in a structurally complex area. The Garlock Fault Zone is approximately 6 miles northwest of the project area and the San Andreas Fault Zone is approximately 61 miles to the southwest (Figure 3-2). These two (2)

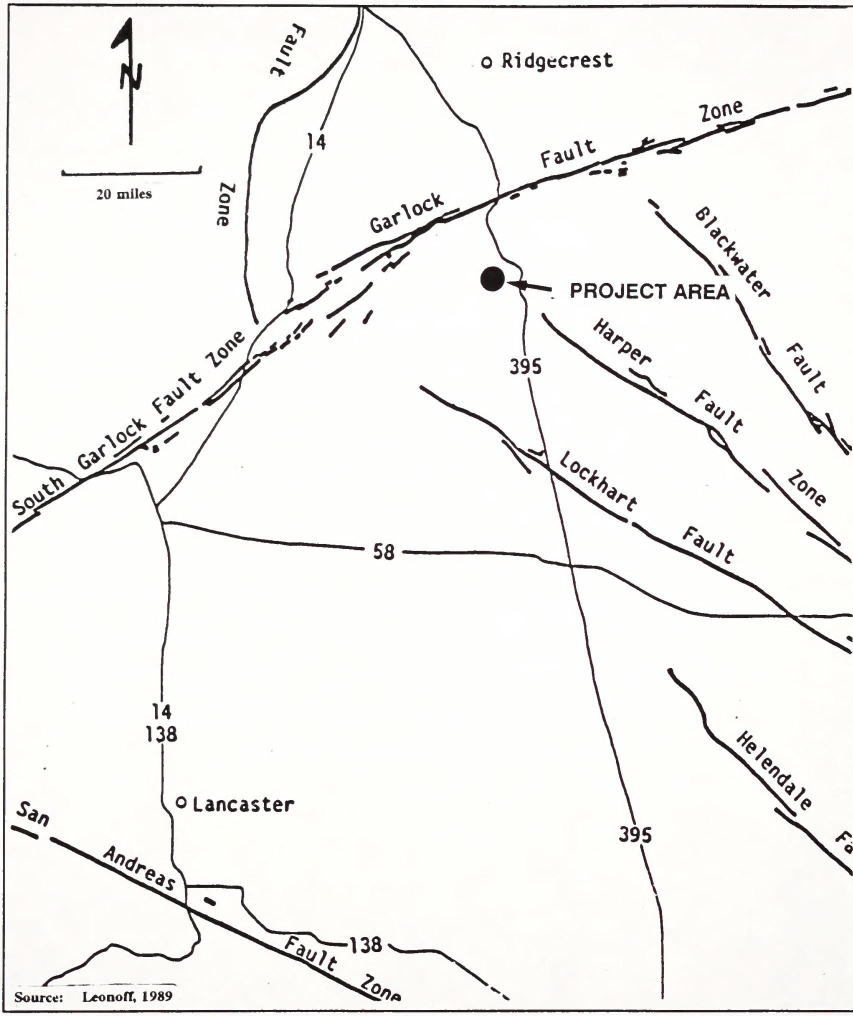


Figure 3-2: Regional Fault Location Map

faults have historic (<200 years) movement. Other regional faults are present in the area surrounding the project area and show movement during the Holocene Epoch (Leonoff, 1989). Geologic relationships in the mines in the Randsburg area indicate that mineralization, which is believed to be Tertiary in age, postdates movement on these faults.

The project area is within a county designated seismic hazard IV area. Seismicity in the vicinity of the project area is moderate. A seismic hazard analysis of the area was prepared for the project (Van Alstine, 1992). Table 3-1 identifies the faults on which an earthquake could potentially occur, their distance from the project area, their possible maximum magnitude and the maximum probable peak acceleration. The 100-year maximum probable earthquake would be a magnitude 6.5 earthquake on the Garlock Fault, with a probable peak acceleration (ground shaking) in the project area of approximately 0.35 gravity (Van Alstine, 1992).

Monitoring for ground shaking from blasting at Rand's existing operations at the Yellow Aster Mine Project was conducted from January, 1990 through August, 1990. A VME (Vibration Monitoring Equipment Co.) Blasting Seismograph was used to measure the particle velocities at several locations in the town of Randsburg, approximately 4,500 feet from the pit, during the blasts. The measured particle velocities never exceeded 0.1 inches per second (Russo, 1992).

Table 3-1: Summary of Probable Seismic Event Characteristics

Fault	Distance From Project Area (miles)	Maximum Probable Earthquake[1]	Maximum Probable Peak Acceleration[2]
Harper	4	5.75	0.198
Garlock (east)	7	7.00	0.348
Garlock (west)	9	6.75	0.259
Lockhart	12	6.00	0.121
Blackwater	13	5.75	0.099
Sierra Nevada	22	6.50	0.096
San Andreas (Mojave)	61	8.25	0.111

Source: Van Alstine, 1992
[1] - Richter Scale is measured from 1 to 10 at the epicenter.
[2] - Measures in gravity acceleration.

3.3. Soils

A soil inventory of the project area was conducted in September, 1991 (Kelley and Herriman, 1991). The inventory identified and mapped the various soil series present in the project area and discussed the suitability of the topsoil material for reclamation activities. Five (5) soil series were identified within the project area. These five (5) series were mapped as four (4) pedons: 1) the Muroc-Randsburg gravelly sandy loams; 2) the Sparkhule-Rock outcrop complex; 3) the Cajon Sand; and 4) the Manet sandy loam (Figure 2-7). The Sparkhule soil is the most abundant soil in the project area, covering approximately 370 acres. All the soils, except the Cajon and the Manet, are paleosoils which formed under more moist conditions in the

Mid-Pleistocene. Selected soils characteristics of the five (5) series are shown in Table 3-2.

Table 3-2: Soil Characteristics of Soil Series Within the Project Area

SOIL SERIES					
FACTORS	**MUROC**	**RANDSBURG**	**SPARKHULE**	**CAJON**	**MANET**
Permeability	Moderately Rapid	Moderately Rapid	Moderately Slow	Rapid	Moderately Rapid
Water Holding Capacity	Very Low	Very Low	Very Low or Low	Low	Low or Moderate
Surface Runoff	Medium	Medium	Medium or Rapid	Slow	Slow
Water Erosion	Moderate	Moderate	Moderate	Slight	Slight or Moderate
Wind Erosion	Moderate	Moderate	Slight	High	High
Effective Rooting Depth	8 to 20 Inches	8 to 20 Inches	8 to 20 Inches	60 Inches or More	60 Inches or More

3.4. Hydrology

3.4.1. Surface Water

Drainages in the northeastern portion of the Rand Mountains are ephemeral, with creeks and drainages mainly fed by precipitation from winter storms. Hydrographic basin boundaries are shown on Figure 3-3. Essentially all of the

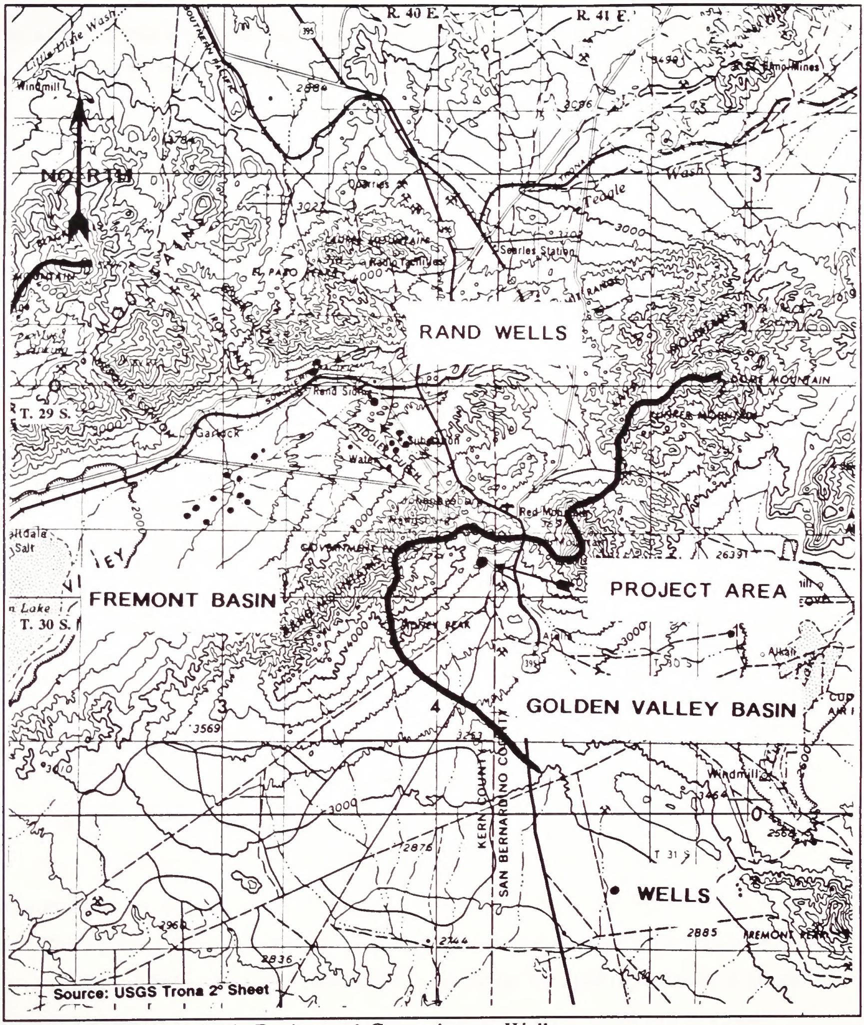
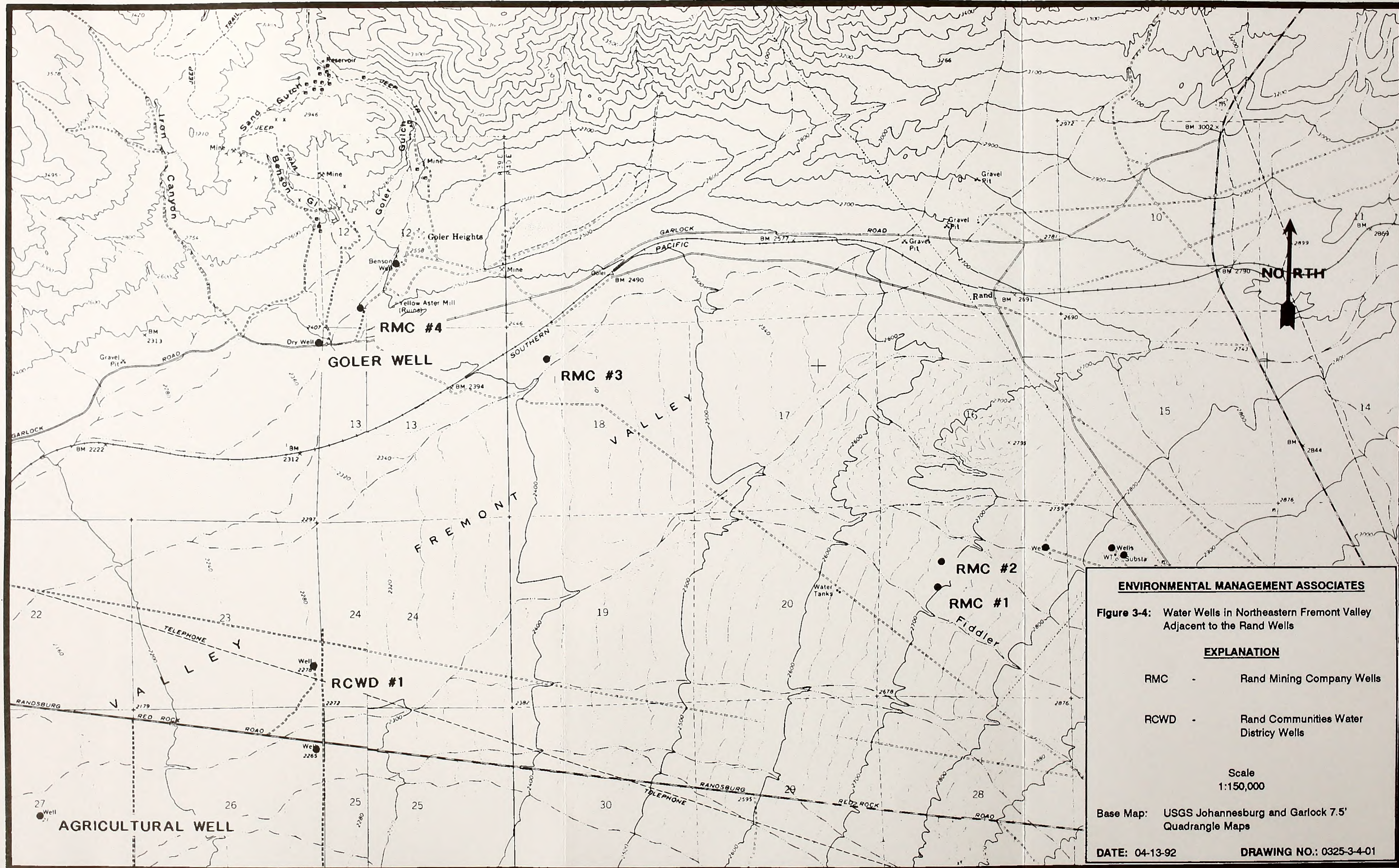


Figure 3-3: Hydrologic Basins and Groundwater Wells



ENVIRONMENTAL MANAGEMENT ASSOCIATES

Figure 3-4: Water Wells in Northeastern Fremont Valley Adjacent to the Rand Wells

EXPLANATION

RMC - Rand Mining Company Wells

RCWD - Rand Communities Water Districy Wells

Scale
1:150,000

Base Map: USGS Johannesburg and Garlock 7.5' Quadrangle Maps

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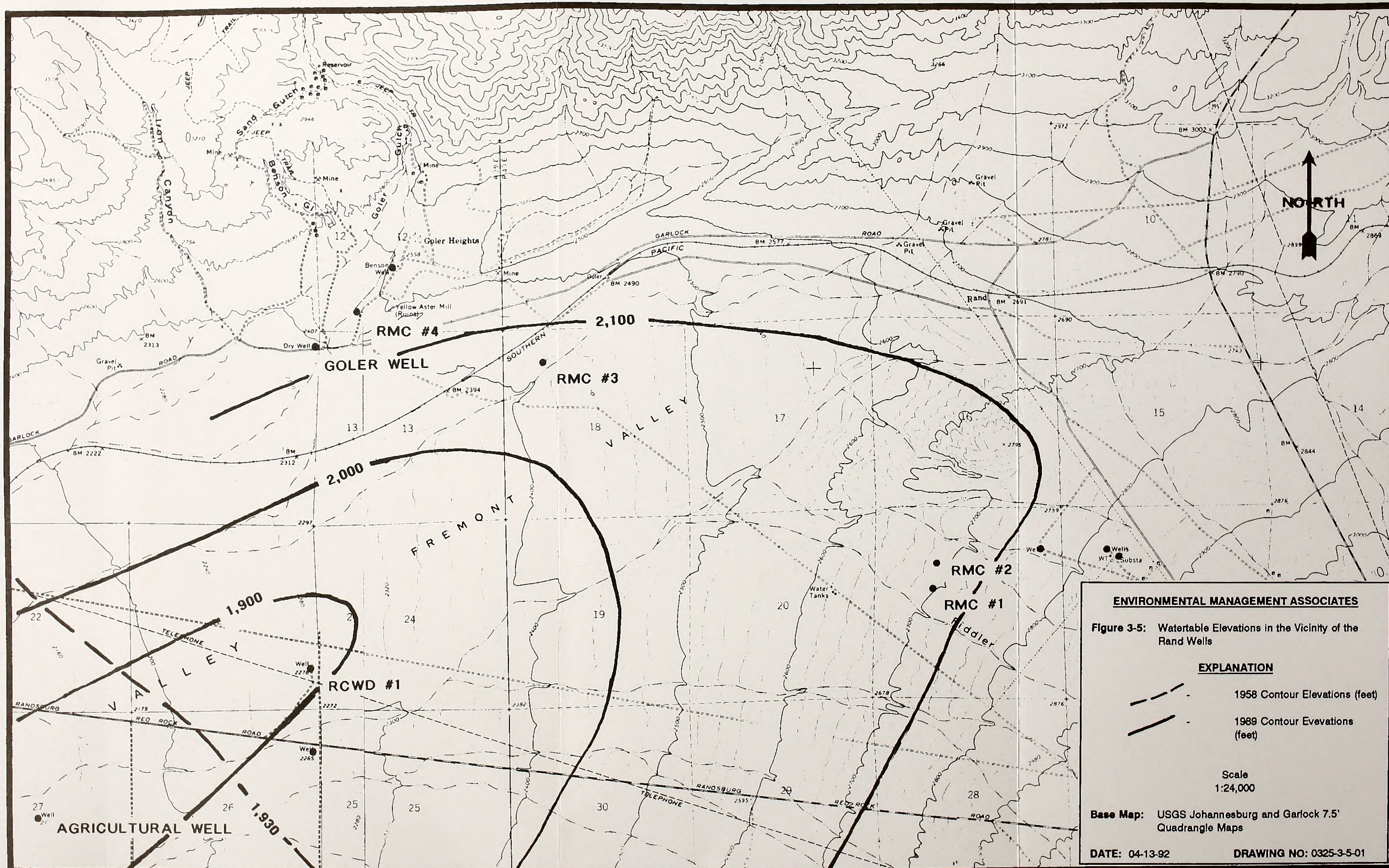


Figure 3-5: Watertable Elevations in the Vicinity of the Rand Wells

Over the period 1958 to 1976, groundwater levels in the aquifers in the southwestern portion of Fremont Valley fell a maximum of 240 feet due to the large use of groundwater for agricultural activities (Koehler, 1977). The northeast part of the Fremont Valley is not utilized for agricultural as much as the southwestern portion, and the USGS study did not collect much data from the northeastern portion of the valley. The data that was collected showed some decline in the water table, but not as much as in the southwestern portion of the valley (Koehler, 1977). Figure 3-5 shows the watertable elevations in the vicinity of the Rand wells from 1958 and 1989 (Rector, 1989). Although there is a limited number of data points and only a limited amount of data has been collected, it appears that the watertable in the vicinity of well RCWD#1 has declined approximately 30 feet over 30 years (Figure 3-5). The watertable elevations in RMC#3 and RMC#4 were approximately 1,850 feet and 2,100, respectively, in January, 1992. There is no evidence available to suggest that Rand's current pumping rates are adversely affecting the groundwater levels in the adjacent water wells.

Chemical data on the quality of groundwater in Fremont Valley is limited. Groundwater with high concentrations of dissolved solids is present and generally limited to the area of Koehn Lake. Measurements of dissolved solids from these waters are on the order of 50,000 to 100,000 ppm (Koehler, 1977). Better quality groundwater, with lower concentrations of dissolved solids, is present below the lower quality groundwater in the area of Koehn Lake, as well as to the northeast and southwest of Koehn Lake. Measurements of dissolved solids from these waters are on the order of 500 to 1,000 ppm (Koehler, 1977). There appears to be several aquifers, which are probably separated by impermeable clay lenses that generally separate the lower and higher quality groundwater (Koehler, 1977).

Water quality in the wells currently produced by Rand is approximately 730 ppm TDS, with one (1) well exhibiting an elevated iron concentration (Naylor, 1991).

3.5. Air Quality

3.5.1. Meteorology

The climate of the area is characterized by hot, dry summers and mild, dry winters with local variations due to elevation and slope aspects. Weather data collected from 1960 to 1989 in China Lake, located approximately 20 miles north of the project area, and from 1937 to 1980 in Randsburg, are summarized in Table 3-3. Because temperature is affected by elevation, the temperatures taken at China Lake generally would be higher than actual temperatures around the project area, which is approximately 1,600 feet higher than China Lake. Annual average rainfall in China Lake is 4.28 inches and in Randsburg it is 5.66.

3.5.2. Air Quality

The project area is located within the Southeast Desert Air Basin, which is designated as an attainment area under Federal standards, but is considered a non-attainment area for ozone and PM_{10} (particulate matter less than 10 microns in size) under California standards (Nester, 1990). The air quality of the project area is generally good due to the limited population of the area, the absence of concentrated industrial activity and the lack of natural emission sources. PM_{10} is the main pollutant of concern and high winds or increased surface disturbance could contribute to elevated PM_{10}/TSP (total suspended particulates) concentrations.

Table 3-3: Available Weather Data from Ridgecrest and Randsburg

	Average Temperature (°F) China Lake[1]			**Rain(inches)**	
Period	Minimum	Mean	Maximum	China Lake[1]	Randsburg[2]
January	0.0	43.3	77.0	0.71	1.08
February	0.0	49.3	86.0	0.70	1.12
March	17.0	54.7	92.0	0.50	0.72
April	28.0	61.4	102.0	0.15	0.32
May	34.0	70.5	107.0	0.12	0.38
June	40.0	79.7	115.0	0.05	0.21
July	50.0	85.6	118.0	0.23	0.10
August	50.0	84.0	113.0	0.31	0.22
September	39.0	76.2	110.0	0.25	0.26
October	21.0	64.7	103.0	0.17	0.21
November	15.0	52.0	86.0	0.50	0.56
December	2.0	43.2	86.0	0.50	0.88
Mean Annual	47.4	63.7	80.1	4.28	5.66

[1] BLM, 1992
[2] Rand, 1992

Principal existing sources of particulate emissions and fugitive dust in and around the project area are vehicular traffic on unpaved roads and current and historic mining sites. No data are available regarding the existing fugitive dust levels in the project area, although emissions from both historic and current mining sites in the area are a concern of the BLM and the residents of the Randsburg area.

Hydrocarbons are not strictly criteria air pollutants but are recognized as precursors of photochemical oxidants, including ozone, which is a criteria air pollutant and which is formed through atmospheric photochemical reactions. Principal sources of reactive hydrocarbons in the atmosphere include vehicular emissions and unsaturated hydrocarbon emissions from vegetation, particularly trees. No data are available regarding the levels of hydrocarbons in the ambient air in the project area, but they are presumed negligible due to the lack of emission sources. In addition, no data are available regarding existing levels of SO_2 (sulfur dioxide) and NO_2 (nitrogen dioxide) in the ambient air in the project area. The levels of these pollutants are also presumed negligible because of the lack of emission sources.

The nearest ongoing monitoring station for atmospheric pollutants is in Trona, California, approximately 30 miles north of the project area (California Air Resources Board, 1990). Air quality data collected from the Trona station, as well as TSP and PM_{10} data collected from other stations, are presented in Table 3-4.

As shown on Table 3-4, TSP levels in the region vary greatly. High winds in Trona may account in part for the high PM_{10} and TSP levels experienced at that monitoring station.

Table 3-4: Air Quality Data for 1989

Pollutant	Standards		Monitoring Station		
	California	Federal	Trona	China Lake	Mojave
Ozone (ppm)	1 hour: 0.09	1 hour: 0.12	First and Second High: 0.10[a]	-	-
NO_2 (ppm)	1 hour: 0.25	-	High: 0.11 Second High: 0.09	-	-
	-	Annual Average: 0.053	0.014[a]	-	-
SO_2 (ppm)	1 hour: 0.25	-	High: 0.08 Second High: 0.04	-	-
	24 hour: 0.05	24-hour: 0.14	High: 0.013[b] Second High: 0.011[b]	-	-
	-	Annual Average: 0.03	0.004[a]	-	-
PM_{10} ($\mu g/m^3$)	24-hour: 50	24-hour: 150	High: 112[b] Second High: 105[b]	High: 33[b] Second High: 32[b]	High: 54[b] Second High: 46[b]
	Annual Geometric Mean: 30	-	42.0	20.1	25.13
	-	Annual Arithmetic Mean: 50	48.5	21.5	28.6
TSP ($\mu g/m^3$)	-	-	92.5[c]	25.3[c]	-

[a] Annual Mean - All Hours
[b] 24-hour Mean
[c] Annual Geometric Mean
Source: California Air Resources Board, 1989

3.6. Vegetation and Range Resources

3.6.1. Vegetation Communities

The project area is located at elevations between 3,700 and 3,900 feet AMSL within the Creosote Bush Scrub vegetation community (McMains, 1987). Common perennial species in this community include creosote bush (*Larrea* *tridentata*), Mormon Tea (*Ephedra nevadensis*), burro bush (*Ambrosia dumosa*) and blackbush (*Coleogyne ramosissima*). A few Joshua trees (*Yucca brevifolia*) were observed on the higher slopes in the western-most portion of the survey area. Fiddle neck (*Amsinkia intermedia*) and chia (*Salvia columbariae*) were the most abundant annual species noted during the 1987 survey. Perennial vegetation cover is less than 25 percent in undisturbed areas. Annual species have been affected by past mining and off-highway vehicle (OHV) use of the area (McMains, 1987).

The Joshua tree is a California state-listed sensitive species. No other threatened, endangered, rare or sensitive botanical species are known to occur within the project area (McMains, 1987).

3.6.2. Range Resources

The project area is located entirely within the Cantil Common Allotment, which has been used for sheep grazing for approximately 130 years (Figure 3-6). Fifteen (15) permittees graze sheep in common in the allotment (USDI, 1983). Because this allotment is an ephemeral allotment, the permitted use of the allotment varies year-to-year depending on the forage production. The grazing capacity of land within this allotment varies depending primarily upon precipitation, and forage production can vary from less than 200 pounds per acre (lb/acre) to more than 5,000 lb/acre. Grazing in the allotment has not been allowed for the last five (5) years due to below-average precipitation and, therefore, limited forage production (Sjaastad, 1991). The BLM is currently evaluating livestock use of the allotment to determine what, if any, additional restrictions may be necessary on the use of the allotment for sheep grazing to protect the desert tortoise (Sjaastad, 1991).

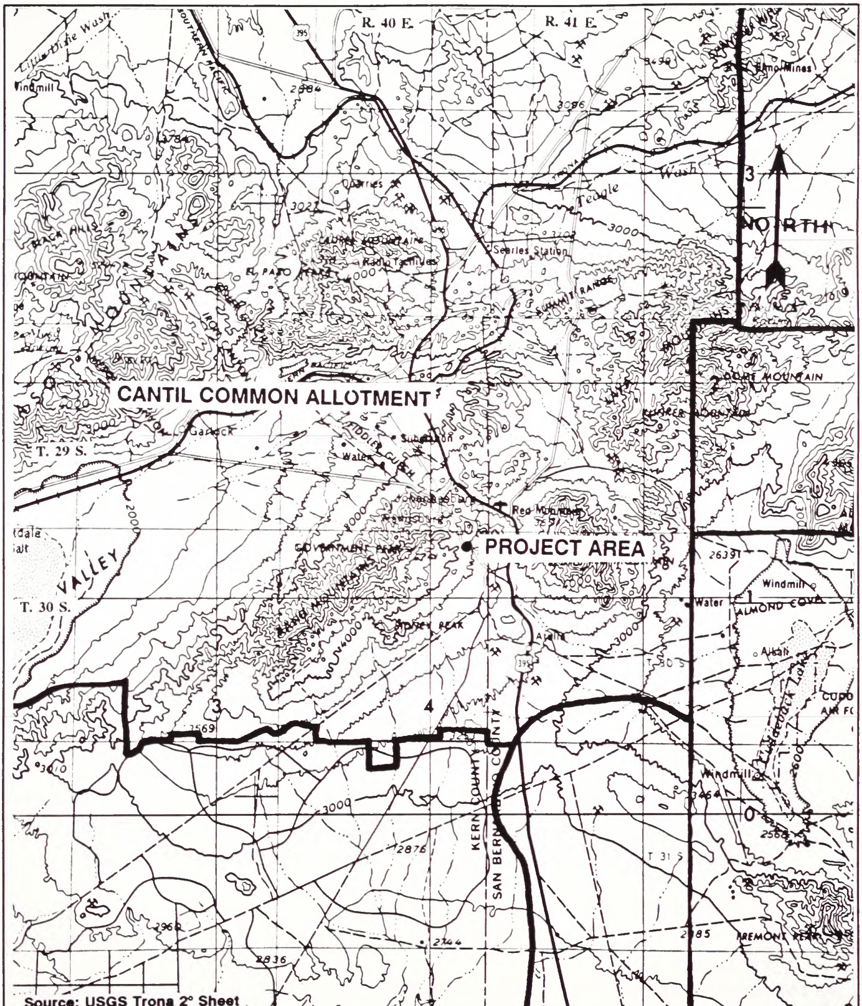


Figure 3-6: Grazing Allotment Map

3.7. Wildlife Resources

An initial biological (botanical and wildlife) survey of the project area was conducted in July of 1987 (McMains, 1987) (Appendix D). An additional wildlife survey was conducted during 1990 to assess the desert tortoise and its habitat in the project area (Rado, 1990) (Appendix E). As discussed in Chapter 2, the Proposed Action is defined to include implementation of the reclamation plan and measures designed to reduce impacts to the California desert tortoise and the Mohave ground squirrel.

Wildlife species inhabiting the northeast portions of the Rand Mountains include a variety of animals typical of the mountain and foothills of the Mojave Desert. Table 3-5 contains those wildlife species observed within the project area during the 1987 survey (McMains, 1987).

Table 3-5: Wildlife Species Observed Within the Project Area

MAMMALIAN SPECIES	AVIAN SPECIES	REPTILIAN SPECIES
Black-tailed jackrabbit (*Lepus californicus*)	Black-throated sparrow (*Amphispiza bilineata*)	Whiptail lizard (*Cnemidophorus tigris*)
Antelope ground squirrel (*Ammospermophilus leucurus*)	Raven (*Corvus corax*)	Side-blotched lizard (*Uta stansburiana*)
Desert woodrat (*Neotome lepida*)	Le Conte's thrasher (*Toxostome lecontei*)	Desert tortoise (*Xerobates agassizii*)
Coyote (*Canis latrans*)		
Desert cottontail (*Sylvilagus audubonii*)		

Although not observed during the field survey, the Mohave ground squirrel, which is a state-listed threatened species, is presumed to inhabit the project area, and the project area can be described as Mohave ground squirrel habitat. No bats have been observed in the project area; however Myotis sp. and Townsend's Big-Ear bats have been sited at the Yellow Aster Mine Project (Parker, 1992). A wildlife survey for bats has not been conducted in the project area. The desert tortoise, which occurs within and around the project area, is a federally listed threatened species and state-listed endangered species. The Le Conte's thrasher is a state-listed sensitive species. The area is also believed to be utilized by the red-tailed hawk (*Buteo jamaicensis*) and the American kestrel (*Falco sparverius*) for foraging. The great horned owl (*Bubo virginianus*) and the common barn owl (*Tyto alba*) are also potential residents of the area (McMains, 1987). The Townsend's Big-Ear bat may be listed as a federal Candidate species in the near future (Parker, 1992). The habitat structure and the density and diversity of wildlife species in the project area is considered low (McMains, 1987). None of the biological surveys have indicated the presence of migratory birds (McMains, 1987; Rado, 1990). Since 1988 Rand personnel have observed only a few migratory birds at their existing operations (Naylor, 1991). The project is not located on a migratory bird fly-way. No threatened, endangered, rare, nor sensitive species, other than those previously discussed, are known to occur in the project area (Mcmains, 1987; Rado, 1990; USDI, 1980; Parker, 1991).

An additional survey for desert tortoise was conducted in and around the project area in December, 1990 (Rado, 1990). The survey area included the proposed Baltic Mine Project area as well as portions of other Rand projects. The survey covered an area totalling 615 acres. During the 1990 survey, one (1) live desert tortoise, two (2) carcasses, 29 burrows/pallets, and nine (9) scat were observed. The highest concentration of tortoise sign and actual tortoises is in the southern portion of the project area (Rado, 1990). The report concludes that the desert tortoises in the survey area, which includes the Baltic Mine Project, are relatively low in number and sparsely distributed over the survey area (Rado, 1990).

3.8. Cultural and Paleontological Resources

3.8.1. Cultural Resources

Two (2) cultural resources inventories of the project area have been conducted, one in July, 1987 and the other in May, 1991. The 1987 survey was prepared by Philip J. Wilke, Kevin B. Hallaran, and Karen K. Swope through the Archaeological Research Unit, University of California, Riverside (Wilke et al, 1987). The 1991 survey was prepared by Robert M. Yohe II and Karen K. Swope, through the Cultural Resource Facility, California State University, Bakersfield (Yohe and Swope, 1991). The surveys were conducted on both public and private lands. A total of 60 historic loci were identified and recorded within one (1) archaeological site, CA-Ker-2221H, the Stringer District site. No prehistoric sites were found. The project area is located within the Stringer Mining District, which was originally part of the Rand Mining District and is more fully discussed in Section 3.1, Mineral Resources.

All loci which were identified in this survey are associated with the mining history of the area. Of the 60 loci, 15 were isolated refuse disposal areas, 36 were structural sites, and nine (9) were loci which had both structural and refuse disposal elements. Due to the disturbed condition of the archeological resources in the project area, no additional archeological investigation was recommended (Wilke et al, 1987). The Section 106 process, required under the National

Historic Preservation Act, has been completed. The recorded portion of CA-Ker-2221H has been determined to not be eligible to the National Register of Historic Places (Oxendine, 1992).

3.8.2. Paleontological Resources

Because of their igneous and metamorphic origin, the rock units in the northeastern portion of the Rand Mountains are not likely to contain fossils. There are no known paleontological resources within or adjacent to the project area.

3.9. Visual Resources

The visual resources of the project area were investigated for this EIS using methods outlined in Section 8400 of the BLM Manual. Using these methods, the resources are analyzed by considering the scenic quality, viewer sensitivity and the distance between the viewer and the proposed modification of the landscape. The BLM visual resource management (VRM) system, which was developed by the BLM for identifying, evaluating and classifying visual resources of public lands, assigns a management class rating from I through IV by inventorying and evaluating both scenic quality and the sensitivity of a landscape (Table 3-6). Because the project area is within an area that has an unclassified multiple use classification, a VRM rating for the project area has not been assigned. Given the existing condition of the area and the complex mix of public and private land, the projected VRM rating for the project area would probably be IV.

Table 3-6: BLM Visual Resource Management Classes

Class	Description
I	The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.
II	The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color and texture found in the predominant nature features of the characteristic landscape.
III	The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention, but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.
IV	The objective of this class is to provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. Management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic element.

Source: USDI, 1986

The landscape characteristics of the project area consist of a complex terrain of hills, ridges and valleys that support a Creosote Bush Scrub vegetation community. The landscape color consists of browns, tans and grays. Vegetation colors are generally browns, greens, yellows and tans. Because of the limited vegetation cover, landscape colors meld with vegetation colors from distant view points.

Essentially all visitors to the project area would be mine employees, contractors, other mine-related personnel and off-highway vehicle (OHV) users. Access to the actual mining operations in the Randsburg area has been limited by the companies for safety and security reasons. The project area is not visible from any major travel routes or recreation areas, except for a limited view 6 miles south of the project area for vehicles traveling north on US Highway 395. The project area is in the foreground to middleground for visitors on the local roads. Because mine workers and other related persons are the dominant potential viewers, and because of the limited recreational opportunities in the area to attract other viewers besides OHV users, the viewer sensitivity to the visual resources is currently considered to be low to slightly moderate.

Contrast ratings were conducted from three (3) selected viewing locations. These Key Observation Points (KOPs) were selected to represent the view from roads approaching the project area and a panoramic overview of the project area (Figure 3-7). The visual contrast rating sheets are included in this document as Appendix G. KOP 1 was sited to represent a view of the project area when approaching from the north on the Randsburg Loop Road. Persons viewing the project area from KOP 1 would have just come through Johannesburg with a partial view of the historic mining to the east and west of the town. The foreground view would have a gently sloping surface to the south; the middleground would be composed of low rolling hills with evidence of historic mining activity and high-tension powerlines crossing the field of view, from the north to the south, and continuing into the background.

KOP 2 represents a view of the project area when approaching the project from the south on Butte Avenue, just north of the Dog Patch area (Dog Patch is located at the intersection of Butte Avenue and Osdick Road (Figure 2-5)). Foreground views would have an open slope leading to low rolling hills in the middleground. Evidence of historic mining activity is visible in the foreground and middleground. The high-tension powerlines cross the field of view from the north to the south in the middleground. Government Peak and its communication facilities are visible in the distance to the west.

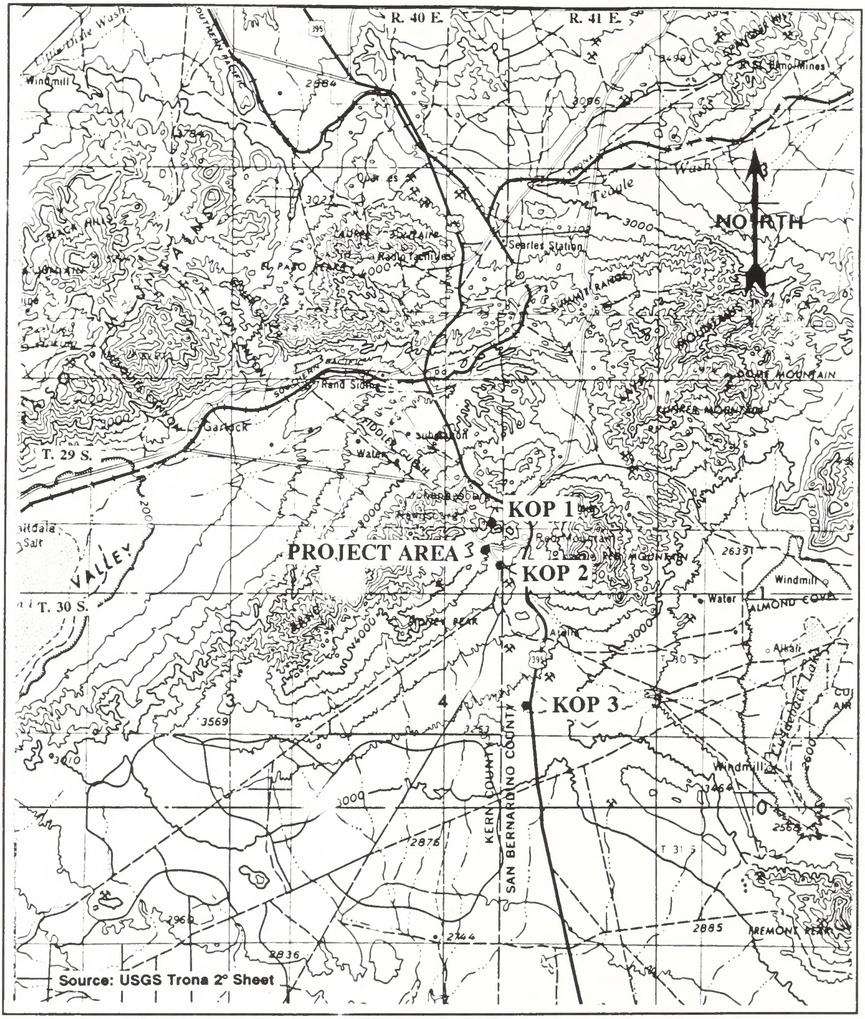


Figure 3-7: Key Observation Point Location Map

KOP 3 represents a view from US Highway 395 in Golden Valley south of the project area. This site is the only point at which the project area is even partially visible from a major public road. The project area would be situated in the background at the low point in the mountain range. The middleground would be dominated by the evidence of historic placer mining. The high-tension powerlines are visible in the middleground and background.

3.10. Noise

The proposed project area is located in a sparsely populated rural area, with the nearest residence located approximately 3,000 feet southeast of the proposed project area at Dog Patch. The principal existing sources of noise in the area are the existing mining operation at the Yellow Aster Mine Project, sonic booms from military aircraft, vehicle traffic on nearby roads, including US Highway 395, and off-highway vehicle activity. Electrical powerlines, wind and, to a lesser extent, birds and rain showers contribute to the existing ambient noise level. The local terrain is complex, which produces areas in which the noise from the existing mining and exploration operations may be sheltered or focused. The existing noise levels are elevated relative to what would normally be expected in a rural desert areas like the project area. In conjunction with the vibration monitoring conducted by Rand in the town of Randsburg for the Yellow Aster Mine Project, over-pressure (air vibration or shock waves) monitoring was conducted. No over-pressure was observed during the blasting at the Yellow Aster Mine Project in the town of Randsburg. No actual noise measurements are available for the area.

3.11. Land Use

The project is located within portions of Sections 1, 2, 11 and 12, Township 30 South, Range 40 East, MDB&M. Land use within the project area consists of livestock grazing, mineral exploration and development and public recreational use. Grazing and mineral activity have been discussed previously.

The project is located within the California Desert Conservation Area in an area unclassified as a multiple-use class (see Section 1.4.3). The Mojave Desert Tortoise Natural Area (DTNA) is located approximately 11 miles southwest of the project area. The Western Rand Area of Critical Environmental Concern (Western Rand ACEC) is located approximately six (6) miles west of the project area.

The BLM has issued a number of right-of-ways within and surrounding the project area. These include a powerline withdrawal (SO 11/11/1929; Wdl Pwr S Cl; 241; 20"), a powerline right-of-way (R 2817; 12.5"; 3/4/1911), a telephone cable right-of-way (CACA 23092; 5'; UNDGD) and two (2) telephone line right-of-ways (LA 0125334; 15'; 3/4/1911)(LA 0152574; 15'; 3/4/1911).

The project area is located in an area with a county land use designation of extraction. Uses allowed under this designation include general agricultural uses, residential uses and limited commercial uses. Mining activities are allowed in this zoning designation upon issuance of a Conditional Use Permit. Several county secondary and minor roads cross the project area; the names and locations of these are fully discussed in Section 2.2.1.5 of the Proposed Action. Kern County has conducted vehicle counts of traffic use on these county roads and has been supplied with vehicle count data on US Highway 395 from Caltrans. The most recent information is for 1990 and is presented on Figure 3-8 (Cannon, 1991). Approximately 230 trips per day are made on Butte Avenue south of Randsburg. Of these 230 trips, 30 trips continue on the Randsburg Loop Road, 100 continue on the Red Mountain Road, 50 continue on Butte Avenue, past the Mojave Road, to US Highway 395, and 50 continue on the Mojave Road. It is assumed that an additional 10 trips come from US Highway 395, west on Osdick Road, to the Mojave Road. Kern County has designated Butte Avenue as a secondary road and all other county roads in the project area as minor roads.

The habitat in the project area is an important part of wildlife land use. One (1) federal- and state-listed species, the desert tortoise, has been observed in the project area. The state-listed Mohave ground squirrel is presumed to also be present in the area.

3.11.1. Recreation Resources

Public recreational use of the Rand Mountains area consists mostly of OHV use, both by individuals and by OHV enthusiast organizations (Phillips, 1983). Identified BLM routes for OHV use in the area surrounding the proposed project are shown on Figure 3-9. Numerous organized OHV events have been held around the area in the past; however, in recent years the number of these events has been reduced (USDI, 1989). The unorganized OHV casual use in the area has increased due to restrictive limitations in the surrounding areas. The Spangler Off Highway Vehicle Area is located approximate 8 miles north of the project area, on the east side of US Highway 395.

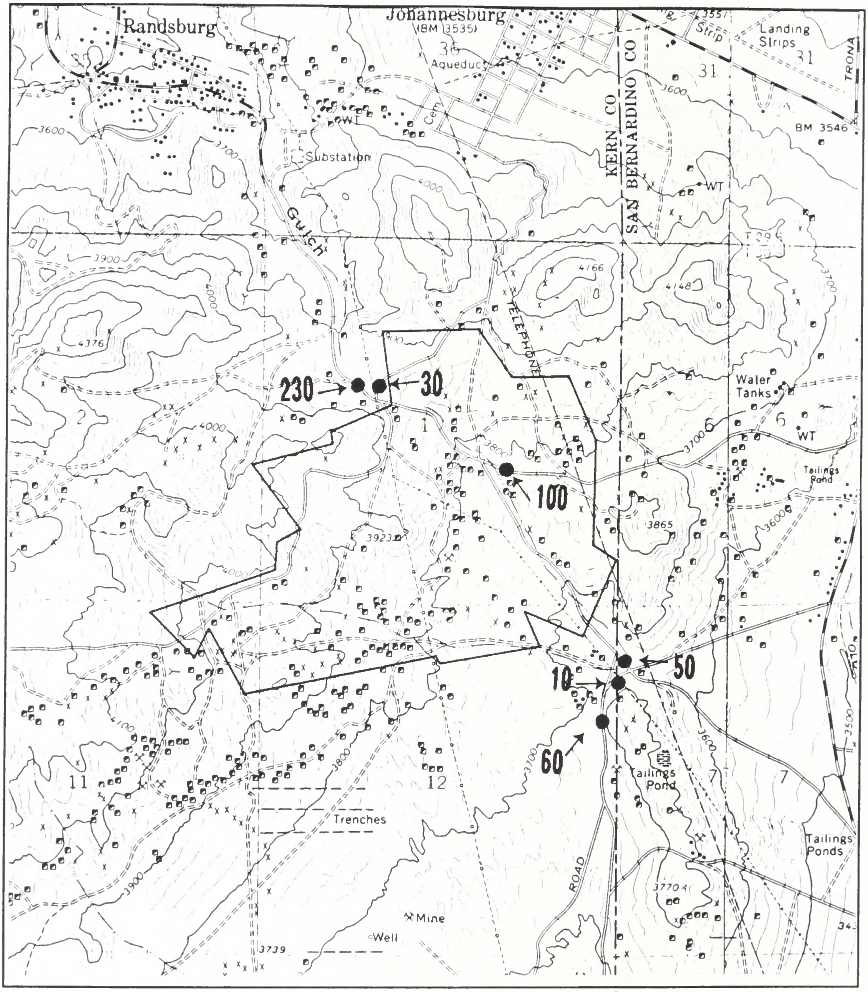


Figure 3-8: Daily Vehicle Counts on the Roads Within and Surrounding the Project Area

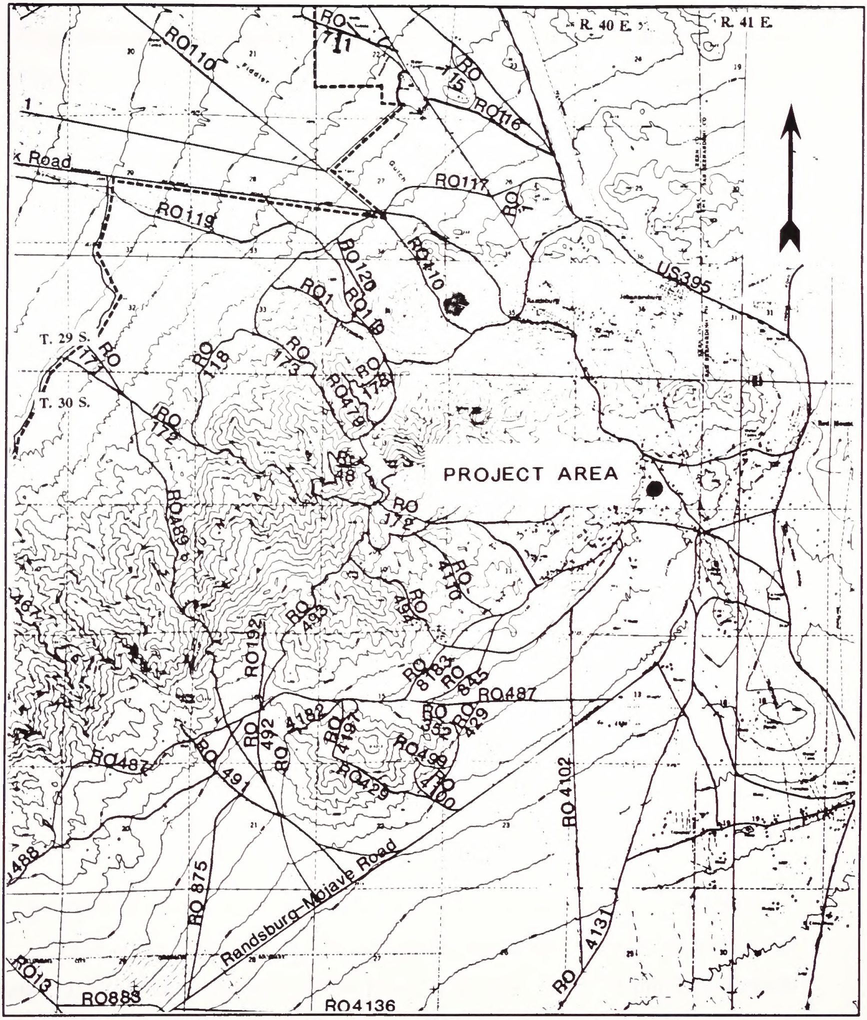


Figure 3-9: BLM Transportation Routes Surrounding the Project Area

Other recreational uses of the area include hunting for chukkar, target shooting and other miscellaneous recreational uses. No park or recreational facilities exist in the Randsburg area; the nearest public park or recreation area is Red Rock Canyon State Park, located approximately 20 miles west of the project area.

3.12. Socioeconomics

The nearest population center to the project area is the town of Johannesburg, approximately 1.0 miles north of the project area. Most services are obtained in Ridgecrest, approximately 30 miles north of the project site. Based on information obtained from the Ridgecrest Chamber of Commerce, Ridgecrest serves a population exceeding 38,000, which includes China Lake, Inyokern, Johannesburg, Randsburg, Red Mountain, Trona, Argus Westend, Kern River Valley Area and Owens Lake Area (Ridgecrest Chamber of Commerce (RCC), 1986).

The economy of Ridgecrest has been based principally on support of the Naval Weapons Center (NWC) at China Lake since its establishment in 1943. The NWC and industries directly related to the NWC are the major source of employment in the Ridgecrest area. Other employers in the area are manufacturing plants, tourism, mining and the government (RCC, 1986).

Information on housing availability for the Rand Communities (Randsburg, Johannesburg, Red Mountain and Atolia) and the surrounding area is not documented, but sufficient housing is known to be available (Stillar, 1991). Electricity in the project area is provided by SCE, telephone service is provided by Contel, and water service is provided by the Rand Communities Water District. One (1) elementary school is located in Johannesburg, approximately 1 mile north of the project site, while all other education is provided in Ridgecrest. Road maintenance is provided by the governmental division (state, county, or city) otherwise responsible for each particular road. The Kern County Sheriff's Department provides law enforcement to the Randsburg area out of the Ridgecrest substation located about 25 miles to the north. Fire protection is provided by the Kern County Fire Department's Station in Randsburg. Ridgecrest has an 86-bed hospital, two (2) medical clinics, 19 physicians/surgeons and one (1) ambulance service (RCC, 1986).

3.13. Other Resources

The Proposed Action would not be located: in or near wilderness areas or WSAs; in an area of prime and unique farmland; in a floodplain; in an area of critical environmental concern (ACEC); on a wild and scenic river; or in an area of Native American religious concern.

CHAPTER 4
ENVIRONMENTAL CONSEQUENCES

4. ENVIRONMENTAL CONSEQUENCES

4.1. Proposed Action

4.1.1. Mineral Resources

Implementation of the Proposed Action would result in the removal of approximately 24 million tons of material during the construction and operation of the mining project. The creation of the open pits, waste rock storage area, heap leach pad and other project facilities may affect the development of other mineral resources in the immediate vicinity of the project area. The development of the open pit would allow for easier access to deeper mineralization. Development of the processing facilities may allow adjacent mineral occurrences to be mined economically. On the other hand, placement on the land surface of the waste and heap may make other potential undiscovered mineral occurrences beneath these facilities inaccessible due to the increased material covering them. However, it should be noted that the portion of the project area where these facilities would be located has been explored and the likelihood of undiscovered mineral occurrences in those areas is low.

4.1.2. Physiography and Geology

The Proposed Action would permanently alter the topography of the project area, including the disturbance of approximately 200 acres and the removal of approximately 15 million tons of ore and 9 million tons of waste from the two (2) open pits. When mining is completed, one (1) open pit would be approximately

2,100 feet long, 1,300 feet wide, and 400 feet deep, and the other open pit would be approximately 2,200 feet long, 800 feet wide and 240 feet deep. Implementation of the Reclamation Plan as part of the Proposed Action for the project would result in the reclamation of the 200 acres disturbed under the Proposed Action, which includes approximately 34 acres of historic surface disturbance that pre-dates Rand's activities in the area, and the 30 acres of previous Rand disturbance from the Lamont operations which are now within the Baltic Mine Project area. Although reclamation of the project area would occur, the ore and waste rock would be permanently removed from the open pits. The waste would be placed in the waste rock storage area and the ore would be placed on the leach pad. Once reclamation was completed on the project, new, permanent landforms, with heights of up to 200 feet, would be left. The heap would have overall slopes of 2H:1V, and the waste rock storage area would be terraced with an overall slope at 2H:1V. The slope configurations for the heap would be similar to those used at the Lamont and Yellow Aster Mine Projects and no slumping or slope failure at the facility would be anticipated. The open pits would be constructed in igneous and metamorphic rock. The pit walls would have 20-foot safety benches and overall slopes of 45 degrees. Previous experience by Rand at its Lamont and Yellow Aster Pits shows that this configuration is stable and no slumping or slope failure is anticipated. The slope configurations for the waste rock storage area would also be similar to those used at the Lamont and Yellow Aster Mine Projects and no slumping or slope failure at the facility would be anticipated.

The Proposed Action would create conditions which could potentially be affected by geologic hazards, which include seismic activity and slope stability. The project is located in an area of moderate seismic activity. If a seismic event did occur, the possible hazards would include ground acceleration and ground failure. The project facilities have been designed to meet or exceed building code requirements for earthquake safety applicable to the area. Ground shaking from blasting in the pit is expected to be localized to the project area. Based on the monitoring done in Randsburg for the Yellow Aster Mine Project, it is expected that the Dog Patch area would experience no to minimal ground shaking as a resulting of blasts in the Baltic Pit and no ground shaking as a result of blasts in the Lamont Extension Pit.

4.1.3. Soils

Impacts from the Proposed Action on the soil resources in the project area would result from disturbance of the soils during salvage operations and increased erosion. The Proposed Action would result in the disturbance of approximately 200 acres of soils. The loss of the soil resource would be minimized by the salvaging and stockpiling of the soil horizons. Approximately 130,000 cubic yards of soil from the areas to be disturbed under the Proposed Action would be stockpiled (see Appendix B for details).

Some erosion of the soils in disturbed areas is expected from surface runoff and precipitation events. In addition, wind erosion would also likely occur. However, Rand would water all active project operation areas, which would minimize the amount of wind erosion.

After reclamation of the project, erosion in an amount greater than the normal losses from erosion of undisturbed areas is expected. Using the Revised Universal Soil Loss Equation (RUSLE), a slope of 2H:1V would have erosion losses in the range of 3.0 to 4.1 tons per acre per year. However, it can be anticipated that soil erosion losses in the project area would decrease over time as the amount of vegetative cover increased.

4.1.4. Hydrology

4.1.4.1. Surface Water

The Proposed Action would result in surface disturbance within the high-order drainages that trend southeast towards the Cuddeback Lake area; thus, some increase in sedimentation in these drainages would result. This increased sedimentation would be from the waste rock storage area, topsoil stockpile and roads. All flows upstream of the open pits would be captured by the pits. However, sedimentation in flows downstream of the pits would occur. The surface flows on the heap leach facility would be controlled and retained for evaporation. Surface flows upstream of the heap leach facility would be diverted around the facility via a ditch. It is anticipated that there would be only minimal sedimentation of ephemeral surface waters as a result from implementation of the Proposed Action.

Surface flows (runoff) from the unreclaimed waste rock storage areas would be less than a reclaimed waste rock storage area due to the greater infiltration rates of the waste rock. Runoff from the heap leach area would be captured and not allowed to enter the surface drainage system until after neutralization and reclamation. The open pits are areas of internal drainage, and all waters within the pit would collect and either evaporate or infiltrate.

Neutralization of process facilities prior to facility closure would minimize the possibility of leaching of chemicals from those facilities into surface waters.

If a greater than 100-year/24-hour storm event occurs, simultaneously with a 24-hour power outage, flows from the heap leach facility could exceed the design capacity of the pond. This would result in the discharge of solution from the pond into the drainage that parallels Butte Avenue and flows into the Mohr Pit, where the solution would likely collect and infiltrate (Figure 2-3). In the unlikely event that this situation occurred, the amount of precipitation that would fall onto the heap leach facility would significantly reduce the concentration of the chemical constituents in the solution in the pond prior to discharge.

4.1.4.2. Groundwater

In Fremont Valley, impacts to groundwater would be associated with the use of water from the groundwater wells. Rand currently pumps 400 gpm, or 530 acre-feet per year, for the Yellow Aster, Lamont and Descarga operations. Rand proposes to pump 180 gpm, or 290 acre-feet per year, for the life of the Baltic Mine Project. When combined with the planned reduction in water use at the Lamont Mine Project in 1992, this would result in no net change to Rand's water use. However, Rand's continued pumping of groundwater at the current level, rather than reducing production rates, would maintain the cone of depression in the watertable around the water wells over the life of the project. Once withdrawal of the groundwater ceased, however, groundwater levels adjacent to the wells, within the cone of depression, should return to previous levels over time. The nearest currently used wells to Rand's wells are those of the Rand Communities Water District, which are approximately 1.5 miles to the southwest of Rand's well #4. The Rand Communities Water District wells are not within the cone of depression of Rand's well #4, and Rand's groundwater withdrawals have not impacted these wells (Broadbent, 1989). This use of groundwater is considered a temporary use because of the limited time frame of the project. Impacts to groundwater, particularly in conjunction with Rand's other operations in the area, are discussed further in Section 6.4.2, Cumulative Impacts to Groundwater.

Since no groundwater has been located in the immediate project area, there are no anticipated impacts from mining and heap leaching to groundwater in the project area. The Proposed Action could potentially degrade the quality of any unknown groundwater in the project area through the infiltration of leachate from the waste rock storage area, the seepage or spillage of cyanide solution from the heap leach facility into the groundwater, or the infiltration of collected waters in the bottom of the open pit. The potential for any of this occurring is low.

Recent laboratory tests of the ore and the material which would be disposed of in the waste rock storage area have shown that both materials have a low acid generating potential, which means that neither material has much potential to form an acidic leachate solution with elevated levels of heavy metals (Russo, 1991). The heap-leach facility is designed, and would be constructed and operated, under an approval from the CRWQCB to further minimize the potential for spillage or seepage to the groundwater.

4.1.5. Air Quality

The primary impact to air quality from the Proposed Action would be particulate emissions (fugitive dust) from mining and ore processing operations and particulate emissions from the screening of material for the construction of the leach pad. In addition, there would be some hydrocarbon and metal emissions from the operation of mining, ore processing and construction equipment. There would be negligibly detectable fugitive hydrogen cyanide emissions from the pond and heap leach facility.

Fugitive dust emissions would be generated from surface disturbance during construction activities and travel on unpaved roads by vehicles and construction equipment during construction and mining operations. Increased surface disturbance during construction would likely increase fugitive dust emissions which would likely, in turn, cause an increase in PM_{10}/TSP concentrations. After construction activities are completed, the project would continue to generate some fugitive dust emissions throughout the operating period; however, this would be minimized through the use of water sprays and/or chemical treatments to control dust on unpaved roads, the waste rock storage area and mining and construction areas. This would limit the visibility of the particulates to less than that specified in the Authority to Construct (ATC) application submitted to the Kern County Air Pollution Control District (KCAPCD).

Using the fugitive dust emission factor for newly disturbed surfaces associated with construction presented in EPA publication AP-42 "Compilation of Air Pollution Emission Factors", an estimate of the amount of fugitive dust generated by the new construction and associated surface disturbance under the Proposed

Action can be calculated (EPA, 1985). Assuming the EPA-published emission factor of 1.2 tons of TSP per acre per month for an active construction site, approximately 80 pounds of TSP would be emitted per acre disturbed per actual day of construction activity. This emission rate could be reduced by a minimum of 50 percent (to approximately 40 pounds of TSP per acre per actual day of construction activity) by applying water spray and/or chemical treatment as a dust control measure, according to EPA AP-42. Assuming that 75 acres of the project would be disturbed for construction activities an average of 20 days, the total fugitive dust emissions, after the use of dust control measures, would be 30 tons of TSP. These emissions would occur during the initial months of the project, while construction activities are occurring. Additional particulate emissions would be generated during screening operations for the construction of the leach pad underlay. The increase in the PM_{10} and TSP emissions from the Proposed Action would cause a slight overall increase in the amount of ambient particulates in the Randsburg/Red Mountain area, which would slightly reduce air quality in the project area and the adjacent communities.

Hydrocarbon and metals emissions from internal combustion engines would occur but would be at a rate that would not cause a significant impact to the ambient air quality. The emissions from mobile sources are exempt from regulation under the ATC permit processed by KCAPCD. As a result of the natural degradation of sodium cyanide, hydrogen cyanide gas is generated; however, these emissions are expected to be negligible. Ongoing monitoring for hydrogen cyanide at the Yellow Aster Mine Project includes sampling the heap leach pad and pond and the ambient weather conditions. This monitoring indicates that the hydrogen cyanide concentrations are consistently less than or equal to 4.7 ppm, which is below the State of California threshold of 11 ppm.

There would be no direct impacts to any Class I airsheds as a result of implementation of the Proposed Action.

4.1.6. Vegetation and Range Resources

4.1.6.1. Vegetation Resources

Implementation of the Proposed Action would disturb approximately 200 acres of vegetation, primarily Creosote Bush Scrub community. With the exception of the 57 acres of proposed and existing open pit area, this impact would be temporary, until the completion of reclamation activities. In the long-term, successful reclamation utilizing regrading, topsoil placement and revegetation, all in accordance with the Reclamation Plan, is expected to effectively reduce most impacts to vegetation, although the redistribution of topsoil undertaken in association with reclamation activities would result in mixed soils which may favor the support of plant species with deep roots, such as creosote bush.

As part of the Proposed Action, Rand would transplant all non-articulated Joshua trees less than 4 feet in height which are located in areas to be disturbed. Rand would also try to avoid the removal of Joshua trees that are articulated and/or greater than 4 feet in height during construction, operation and reclamation activities. This would minimize impacts to the Joshua trees. No impacts to any known endangered, threatened, rare or candidate plant species are anticipated from the implementation of the Proposed Action.

4.1.6.2. Range Resources

The Proposed Action would result in the disturbance of approximately 200 acres of vegetation within the Cantil Common Allotment. In addition, the project area would be fenced during the construction, operation and reclamation, which would limit grazing access to an additional approximately 332 acres. Based on the grazing capacity of the allotment, this disturbance would remove between less than 200 to 5,000 pounds of forage per acre per year from the allotment. This would remove between approximately 50 to 1,330 tons of forage per year from potential use. Post-reclamation forage production would likely equal or exceed current rates due to the planting of desirable species. With the exception of the permanent removal of approximately 57 acres for the open pits from future forage production, there would be no other post-reclamation impacts on range resources such as fences, gates or water improvements.

4.1.7. Wildlife Resources

Implementation of the Proposed Action would result in the destruction of approximately 200 acres of vegetation, primarily Creosote Bush Scrub habitat, resulting in a direct impact to the wildlife in the area. With the exception of the pit area, the habitat loss would be temporary, lasting until the completion of reclamation. In addition, an indirect impact could result from wildlife avoiding the project area during operations, thus temporarily removing additional areas from available wildlife habitat surrounding the project. Wildlife within these areas of indirect impact would typically be displaced to adjacent areas due to project exploration activities, facility construction and operation of the project, all of which would increase existing levels of noise and human activity. This indirect impact to the wildlife would occur over an area estimated to be approximately 500 acres, which includes all the areas between the project facilities and an area of influence buffer. Losses to displaced wildlife are anticipated, although there is insufficient data to quantify the impact. Because Myotis sp. and Townsend's Big-Ear bats have been observed at the Yellow Aster Mine Project area and the close proximity of the Yellow Aster Mine Project to the Baltic Mine Project area, it is likely that these bats inhabit the Baltic Mine Project area. As a result, activities under the Proposed Action, such as the filling of the open shafts in the project area, could impact bats that may reside in the shafts. The proposed reclamation would result in a return of most of the disturbed area to productive habitat once reclamation is complete.

Current information, although limited, indicates that the extraction of groundwater for the Proposed Action would not result in any significant lowering of the watertable in Fremont Valley. Thus, no appreciable impact to the desert tortoise or tortoise habitat in Fremont Valley is expected from the pumping.

As part of the Proposed Action, Rand would implement the proposed specific recommendations and impact reduction measures to reduce inadvertent harm to desert tortoises and Mohave ground squirrel upon commencement of activity at the site (see Section 2.2.4). Even with these measures, there would likely be direct and indirect effects to the desert tortoise and Mohave ground squirrel associated with the Proposed Action. Direct mortality may occur as result of the operation of vehicles and equipment, vehicle traffic to and from the mine site, entrapment in holes or trenches and habitat loss from surface disturbing activities. In addition, desert tortoises may also be subject to injury or harassment during implementation of the impact reduction measures, including the excavation of any pallets or borrows and construction of the protective fencing around the heap leach facility. It is anticipated that there would be a "take" of up to 12 desert tortoises (Rado, 1990). Of these 12, it is anticipated that seven (7) would be "taken" as a result of accidental direct mortality or injury through construction and operation of the mine, travel on the access roads and excavation of active borrows. Five (5) more would be "taken" as a result of relocating tortoises out of the project area (Rado, 1990).

The occurrence of the Mohave ground squirrel in the project area has not been confirmed. However, the presence of antelope ground squirrel, which is an indicator species for Mohave ground squirrel, supports the interpretation that the project area is Mohave ground squirrel habitat. Since no Mohave ground squirrel have been identified in the project area it can not be determined that there would be a "take" of Mohave ground squirrel by implementation of the Proposed Action. Implementation of the Proposed Action would result in the "take" of approximately 200 acres of Mohave ground squirrel habitat.

The use of netting over the process water pond would limit impacts to any migratory birds. Experience at the Yellow Aster Mine Project shows that the use of netting is effective, with only one (1) bird mortality occurring since the netting was installed in 1989 (Naylor, 1991). In addition, the use of netting over ponds by oil companies in the Bakersfield, California area, has been proven effective in excluding migratory birds (Waiwood, 1992). The occurrence of migratory birds in the Bakersfield area is high because of the proximit f the Pacific Fly-way. Ponding of leach solution on the heap is not anticip 'imiting the wildlife's ability to ingest the solution. No impacts to any kno langered, threatened, rare, candidate or sensitive wildlife species other than those already discussed in this chapter are anticipated.

4.1.8. Cultural and Paleontological Resources

4.1.8.1. Cultural Resources

None of the 60 loci were determined eligible to the National Register of Historic Places. The site's integrity is poor due to vandalism, recycling of mining equipment, and disturbances by subsequent mining operations. Pertinent research questions cannot be addressed with the minimal physical remains present. No further action is required for the portion of CA-Ker-2221H within the project area. Unknown cultural resources could be discovered and disturbed during the construction, operation and reclamation.

4.1.8.2. Paleontological Resources

Because there are no known paleontological resources in the area of the Proposed Action, there would be no impacts to paleontological resources as a result of implementation of the Proposed Action. Unknown paleontological resources could be discovered and disturbed during the construction, operation and reclamation.

4.1.9. Visual Resources

Impacts to visual resources from the Proposed Action would result from the visibility of surface disturbance associated with construction and operation of project facilities and dust plumes from blasting in the open pit. The leach pad and access roads constructed as part of the Proposed Action would represent a visual contrast for viewers in the proximity of the project. However, the proposed project would not alter the existing appearance to the casual viewer because the type of activities outlined in the Proposed Action are consistent with past and present activities in the area. Implementation of the reclamation plan would mitigate some of the impacts associated with the surface disturbance over the long term. Following completion of the operation, the access roads constructed under the Proposed Action would be recontoured and seeded. The waste rock storage area would not be recontoured but would be seeded and would ultimately resemble a stepped mesa. The level of impact to visual resources would depend upon the number of viewers of the project, the viewers' observation point, the compatibility of the operations with the BLM's visual management objectives, and the duration of the disturbance. Visual effects of the Proposed Action were analyzed using the standard procedures in the Section 8400 of the BLM Manual. The form of the reclaimed project would approach the smooth, rounded character of the surrounding landscape, but would continue to have some areas with a conical form. The line of the reclaimed project would approach soft and undulating, but would remain discontinuous and have some areas with an angular line. The color of the reclaimed project would approach that of the surrounding landscape.

Operations under the Proposed Action would have some visual contrast with the surrounding land. However, when the Proposed Action is viewed in relationship to the other current and historic activities in this part of the Rand Mountains, there is only a weak contrast. The project area, with the implementation of the Proposed Action, as viewed from each of the KOPs, would contrast only slightly with the existing situation (Appendix G).

Following completion of the mining operations, reclamation would include reshaping, where feasible, to blend with the surrounding undisturbed lands, and revegetation. This would minimize the contrast of color and lines that exists from the current situation and which would be created by the mining under the Proposed Action. The open pits, waste rock storage area and heap leach pile would remain as a permanent change to the line and form of the area.

4.1.10. Noise

The construction and mining operations proposed to be conducted under the Proposed Action would be continuing sources of noise. These operations would be essentially identical to those currently occurring in the area at the existing Yellow Aster Mine Project. The noise generated by these operations would be typical of most construction and mining projects and could be intense, up to 95 dBA at 25 feet. Blasting could cause very short-duration noise levels in excess of 100 dBA at 25 feet. Assuming an average reduction of 6 dBA when the distance from a noise source is doubled, the impacts to the nearest residences, which are approximately 3,000 feet southeast of the proposed project area, could be in the range of 50 to 60 dBA adjacent to the outside of the residential structure. This would be a maximum noise level, because as operations progress, a majority of the equipment operations and blasting would occur in the open pits, which would be below grade. The walls of the pits would absorb some of the noise and tend to direct the rest of the noise upward, thus reducing the noise levels at the residence. This analysis is consistent with the over-pressure (air vibration or shock wave) monitoring conducted in Randsburg for the Yellow Aster Mine Project. Some recreational users and other residents of the area, such as those in Randsburg, Dog Patch and Red Mountain, would likely be affected by blasting noise, but construction and operational noise would likely result in minimal impacts to the human environment.

As discussed above in Section 4.1.7, wildlife populations may be affected by noise from the construction or mining phases of the Proposed Action, and would likely avoid the area during the life of the project.

4.1.11. Land Use

The Proposed Action would be compatible with the existing land uses in and around the project area. Also, the Proposed Action would be consistent with the current Kern County land use designation for the project area. The proposed project would be consistent with the BLM's regulations and the California Desert Conservation Area Plan and amendments. That portion of the project which is located on BLM-administered land is located in a Class M, Moderate Use area.

A maximum of approximately 200 acres of land would be cleared for this project. Land use impacts from the proposed project would include restricted public access in the proposed project area. Also, these lands currently available for grazing would be committed to mineral development for the life of the project.

These effects on grazing would be short-term, lasting only until the disturbed areas have been reclaimed; however, access to the pit areas would be permanently restricted for safety reasons. No ACECs would be impacted by the Proposed Action.

The Proposed Action is consistent with the past use of the land for mineral development, in addition to other uses. Approximately 34 acres of pre-existing hazards in the form of open shafts, pits, cuts and trenches would be eliminated as a result of the Proposed Action. This action is consistent with the multiple use class designation for the area under the CDCA Plan.

As part of the Proposed Action, certain county roads would be vacated and an alternate county road would be constructed (Figure 2-5). Traffic on Butte Avenue, from Randsburg to Red Mountain, would be re-routed around the project area on a reconstructed portion of the Randsburg Loop Road and the new road, which would connect with the Red Mountain Road (Figure 2-5). This would result in approximately 50 additional vehicles entering US Highway 395, traveling on US Highway 395 for 0.5 miles, then exiting US Highway 395 to get to the Mojave Road. This increased use of US Highway 395 would be an approximate 25 percent increase in the use of the intersections in the Red Mountain area of US Highway 395, and an approximate 1.2 percent increase in the total use of the highway in this area. The increased traffic on US Highway 395 would cause an incremental increase in the accident potential for that portion of the highway.

4.1.11.1. Recreation Resources

A maximum of approximately 200 acres of land would be cleared for this project. Recreation impacts from the proposed project would include restricted public access for recreation in the proposed project area. These effects on recreational use would be short-term, lasting only until the disturbed areas have been reclaimed; however, access to the pit areas would be permanently restricted for safety reasons. OHV casual use would be impacted due to the road and route closures within the project area.

4.1.12. Socioeconomics

Impacts from the Proposed Action on the population of the area would occur during the construction and operation phases of the project. During the construction phase of the project, which would last approximately five (5) months, an average of approximately 20 contract construction workers would be expected to be working on the project site. Approximately 60 individuals would be hired as regular employees for the mining and leaching operations under the Proposed Action (of which Rand anticipates that 80 percent of these employees would be from the local labor force). This would result in a total annual payroll of approximately $1,410,000.00 (Russo, 1992). In addition, Rand would pay approximately $170,000.00 per year in property taxes. Approximately $1,000,000.00 in operating supplies and $800,000.00 in maintenance supplies would be purchased from local vendors, and approximately $200,000.00 of power would be purchased from the electrical utility. The creation of these new jobs and the amount of local expenditures would result in secondary economic benefits through increased local service employment. Using the BLM's mining employment multiplier for the California desert area of 2.666, approximately 160 secondary jobs would be created by implementation of the Proposed Action (Anderson, 1989).

Mining operations would be conducted by two (2) shifts per day, working five (5) days per week. Each shift would be comprised of approximately 12 people. The gold recovery process operation would operate 365 days a year and utilize 12 people. The administrative, maintenance and engineering staff, which total approximately 24 people, would work one (1) shift per day, five (5) days per week. It is anticipated that 20 to 30 percent of the employees would live locally, in the towns of Randsburg, Johannesburg and Red Mountain. The other 70 to 80 percent of the employees would reside in Ridgecrest and commute to the mine site each day. Because carpooling is prevalent in this area, approximately 24 trips per week-day, and four (4) trips per weekend-day, between Ridgecrest and the project site are expected. With two (2) mining and three (3) leaching shifts operating per day, this traffic would be spread over a 24-hour period. The construction workers would live in Ridgecrest and commute seven (7) days a week to the project site, resulting in approximately 30 trips per day. Currently the use of US Highway 395 between Ridgecrest and the project area is approximately 4,000 vehicles per day (Cannon, 1991). Traffic resulting from the Proposed Action would result in an approximate 1.2 percent increase in the use of US Highway 395 during the construction phase, and an approximate 0.6 percent increase in the use during the operation phase.

The housing requirement for the construction work force would be met by rented RV park space, apartments or motel rooms (with or without kitchen facilities). Given the limited time which the construction workers would be in the local area, any impact caused by their entry into the housing market would be very short-term in nature. The permanent worker force would be hired principally from the local labor force; therefore, no appreciable impact to the housing market is anticipated from this portion of the Proposed Action.

Closure of Butte Avenue would increase the emergency response time from the Kern County Fire Department's Station in Randsburg to the residences in the Dog Patch area, southeast of the project area (Figure 2-5). The traffic from Randsburg to Dog Patch would be re-routed around the project area on a reconstructed portion of the Randsburg Loop Road and the new road that would connect with the Red Mountain Road, then into Red Mountain. Traffic would then be required to enter US Highway 395, travel on US Highway 395 for 0.5 miles, and then exit US Highway 395 to get to Dog Patch (Figure 2-5). This would increase travel distance by approximately 1.5 miles and the travel time by about five (5) minutes. The increased use of US Highway 395 has been previously discussed in Chapter 4.1.11, Land Use.

4.1.13. Other Resources

The Proposed Action would have no impacts to wilderness areas, WSAs, prime and unique farmland, floodplains, ACECs, wild and scenic rivers or areas of Native American religious concern.

4.2. Echo Bay Design Alternative

4.2.1. Mineral Resources

Implementation of the Echo Bay Design Alternative would result in the removal of approximately 18 million tons of material, which is approximately 25 percent less surface disturbance than the Proposed Action. This surface disturbance would be for a smaller heap leach pad and one (1) pit, rather than the two (2) pits under the Proposed Action. The two (2) waste rock storage areas would actually cover a larger area than the one (1) waste rock storage area under the Proposed Action. The development of only one (1) open pit would reduce the amount of deeper mineralization exposed for possible future development.

4.2.2. Physiography and Geology

The Echo Bay Design Alternative would permanently alter the topography of the project area and result in the disturbance of approximately 156 acres and the removal of approximately 18 million tons of ore and waste from one (1) open pit. The slope configurations for the waste rock storage area and the spent ore disposal pile would be similar to those of the Proposed Action. The Echo Bay Design Alternative would result in one (1) open pit, instead of the two (2) open pits under the Proposed Action. However, the one (1) open pit would cover only 19 acres less than the two (2) open pits under the Proposed Action. The heap leach pad would cover 40 less acres than under the Proposed Action. The waste rock storage areas would cover essentially the same amount of area, but would consist of two (2) piles rather than one (1) pile. One (1) of the piles would be located south and the other southwest of the Baltic Pit, rather than west of the

Baltic Pit, as is the case in the Proposed Action. Seismicity and slope stability impacts from the Echo Bay Design Alternative would be essentially identical to those under the Proposed Action.

4.2.3. Soils

The environmental consequences of the Echo Bay Design Alternative on the soil resources of the area would be similar to those under the Proposed Action. Impacts from the Echo Bay Design Alternative on the soil resources in the project area would result from the disturbance of approximately 156 acres of soils. As with the Proposed Action, the loss of the soil resource would be minimized by the salvaging and stockpiling of the soil horizons. Approximately 96,500 cubic yards of soil from the areas to be disturbed under the Echo Bay Design Alternative would be stockpiled. Because of the smaller particle size of material on the heaps under the Echo Bay Design Alternative because of ore crushing, there would be greater amount of sediment and slimes transported to the pregnant solution containment area.

4.2.4. Hydrology

4.2.4.1. Surface Water

The Echo Bay Design Alternative would result in a smaller area of surface disturbance than the Proposed Action, 156 acres compared to 200 acres, within the high-order drainages that trend southeast towards the Cuddeback Lake area, and thus would likely produce proportionally smaller impacts. In all other aspects, the potential impacts to surface waters would be essentially identical to the Proposed Action.

4.2.4.2. Groundwater

Under the Echo Bay Design Alternative, impacts to groundwater would be associated with the pumping of approximately 230 gpm from the groundwater wells in the Cuddeback Lake area, east southeast of the project. The consequences of this pumping on the groundwater resources of the Cuddeback Lake area and users of that water are not known. Under this Alternative, groundwater use in the Fremont Valley would decrease by approximately 180 gpm in 1992, when the Lamont Mine Project ceased leaching operations.

Since no groundwater has been located in the project area, the potential for impacts to groundwater quality from the Echo Bay Design Alternative are considered identical to the Proposed Action.

4.2.5. Air Quality

The primary impact to air quality from the Echo Bay Design Alternative would be greater particulate emissions than under the Proposed Action because of the use of a crushing plant in the processing of the ore. The hydrocarbon and metal emissions from the operation of mining, ore processing and construction equipment would be essentially the same as the Proposed Action. All emission levels would be under limits set in the Permit to Construct and Permit to Operate issued to the project by the KCAPCD.

4.2.6. Vegetation and Range Resources

4.2.6.1. Vegetation Resources

Implementation of the Echo Bay Design Alternative would disturb approximately 156 acres of vegetation, primarily Creosote Bush Scrub community, compared to the approximately 200 acres of vegetation disturbed under the Proposed Action. As with the Proposed Action, successful reclamation should effectively reduce most impacts to vegetation with the exception of the pit area. All other environmental consequences of the Echo Bay Design Alternative to the vegetative resources would be similar to those under the Proposed Action.

4.2.6.2. Range Resources

The Echo Bay Design Alternative would result in the disturbance of 156 acres of vegetation within the Cantil Common Allotment, compared to the approximately 200 acres under the Proposed Action, which would result in the loss of between 39 tons and 965 tons of forage per year. All other impacts would be proportional to the decrease in surface disturbance.

4.2.7. Wildlife Resources

The Echo Bay Design Alternative would disturb 156 acres, resulting in the loss of this amount of wildlife habitat. This would occur mainly in the area of the open pits and the heap leach pad. However, the surface disturbance under this alternative would occur in the southern portion of the project area, which has the highest density of desert tortoise. As a result, implementation of the Echo Bay Design Alternative would increase the possible impact to tortoises specifically located in the project area, and therefore increase the "take" of desert tortoises. All other impacts would be proportional to the decrease in surface disturbance.

4.2.8. Cultural and Paleontological Resources

4.2.8.1. Cultural Resources

Implementation of the Echo Bay Design Alternative would disturb less loci than the Proposed Action. However, since these loci are part of a single site and the recorded portion of that site is considered not eligible to the National Register of Historic Places, impacts to cultural resources from the Echo Bay Design Alternative would be very similar to the Proposed Action.

4.2.8.2. Paleontological Resources

Because there are no known paleontological resources in the project area, implementation of the Echo Bay Design Alternative would not produce any impacts to paleontological resources.

4.2.9. Visual Resources

Impacts to visual resources from the Echo Bay Design Alternative would be greater than those under the Proposed Action. The crushing plant would generate particulate emissions which would be more visible to the casual observer. The waste rock storage areas would be in the southern portion of the project area, which is the most visible portion. The form, line and color of the reclaimed project under this alternative would be similar to that under the Proposed Action.

4.2.10. Noise

The construction and mining operations proposed to be conducted under the Echo Bay Design Alternative would be continuing sources of noise essentially identical to those under the Proposed Action, except that a stationary crushing facility would be located adjacent to the processing plant. The effect of the noise generated by the crushing plant on the nearby residents may be somewhat greater than the other mining activities associated with the Proposed Action.

4.2.11. Land Use

Implementation of the Echo Bay Design Alternative would result in land use impacts which would be essentially identical to the Proposed Action, except that a maximum of approximately 156 acres of land, rather than 200 acres of land, would be cleared for this project alternative. In addition, none of the impacts associated with the vacations of the county roads under the Proposed Action would occur under this alternative.

4.2.11.1. Recreation Resources

Implementation of the Echo Bay Design Alternative would result in recreational impacts which would be similar to, but less than, those under the Proposed Action. This is because none of the activities associated with the vacation of the county roads would occur, and the amount of land closed to OHV use would be reduced.

4.2.12. Socioeconomics

Impacts from the Echo Bay Design Alternative on the population of the area would differ somewhat from the Proposed Action during the construction and operation phases of the project. Rand would require approximately 40 employees for the mining and leaching operations under this alternative. During the construction phase of the project, which would last approximately five (5) months, an average of approximately 230 contract construction workers would be expected to live in Ridgecrest and commute seven (7) days a week to the project site. Mining operation, administrative, maintenance and engineering staff under the Echo Bay Design Alternative would be identical to those under the Proposed Action. It is anticipated that 20 to 30 percent of the employees would live locally, in the towns of Randsburg, Johannesburg and Red Mountain. The other 70- to 80 percent of the employees would reside in Ridgecrest and commute to the mine site each day. Because carpooling is prevalent in this area, approximately 20 trips per week-day (20 percent less than the Proposed Action), and four (4) trips per weekend-day (the same as the Proposed Action), are expected between Ridgecrest and the project site. With two (2) mining and three (3) leaching shifts operating per day, this traffic would be spread over a 24-hour period. Traffic resulting from the Echo Bay Design Alternative would result in an approximate 0.9 percent increase in the use of US Highway 395 during the construction phase, and an approximate 0.4 percent increase in the use during the operation phase. The annual payroll would be approximately $1,000,000.00 (Russo, 1992). Property taxes and local purchases would be approximately $120,000.00 and $1,000,000.00

annually, respectively. The creation of these new jobs and the amount of local expenditures would result in secondary economic benefits through increased local service employment. Using the BLM's mining employment multiplier for the California desert area of 2.666, approximately 107 secondary jobs would be created by implementation of the Echo Bay Design Alternative (Anderson, 1989).

All the impacts associated with the vacations of the roads under the Proposed Action would not occur under this alternative.

4.2.13. Other Resources

The Echo Bay Design Alternative would have no impacts to wilderness areas, WSAs, prime and unique farmland, floodplains, ACECs, wild and scenic rivers or areas of Native American religious concern.

4.3. No Action Alternative

4.3.1. Mineral Resources

Under the No Action Alternative, none of the surface disturbance associated with the mining operations would be created. None of the precious metals which would be produced under the Proposed Action would be mined and the mineral resources would not be developed.

4.3.2. Physiography and Geology

None of the impacts associated with the mining operation and reclamation under the Proposed Action would occur under the No Action Alternative. However, the approximately 34 acres of historic surface disturbance that would have been affected by the mining operations under the Proposed Action would not be reclaimed under the No Action Alternative.

4.3.3. Soils

None of the impacts to the soil resources identified under the Proposed Action would occur under the No Action Alternative.

4.3.4. Hydrology

4.3.4.1. Surface Water

None of the impacts to the surface water resources associated with the implementation of the Proposed Action would occur under the No Action Alternative.

4.3.4.2. Groundwater

Under the No Action Alternative, Rand's current use of 400 gpm of groundwater from Fremont Valley would decrease by approximately 180 gpm when the Lamont Mine Project ceased leaching operations in 1992, and there would be no use of groundwater from the Cuddeback Lake area.

4.3.5. Air Quality

Under the No Action Alternative, none of the impacts to the air quality associated with the Proposed Action would occur.

4.3.6. Vegetation and Range Resources

4.3.6.1. Vegetation and Range Resources

Under the No Action Alternative, none of the impacts to the vegetation resources associated with the Proposed Action would occur.

4.3.6.2. Range Resources

Under the No Action Alternative, none of the impacts to range resources associated with the Proposed Action would occur.

4.3.7. Wildlife Resources

Under the No Action Alternative, none of the impacts to wildlife resources associated with the Proposed Action, including proposed impact reduction measures to enhance desert tortoise habitat, would occur.

4.3.8. Cultural and Paleontological Resources

4.3.8.1. Cultural Resources

Under the No Action Alternative, none of the impacts to cultural resources associated with the Proposed Action would occur.

4.3.8.2. Paleontological Resources

There would be no impacts to paleontological resources as a result of implementation of the No Action Alternative.

4.3.9. Visual Resources

Under the No Action Alternative, none of the impacts to visual resources associated with the Proposed Action would occur. This includes the potential incremental enhancement to the visual resources resulting from the reclamation of historic surface disturbance.

4.3.10. Noise

Noise impacts resulting from activities associated with the Proposed Action would not occur under the No Action Alternative.

4.3.11. Land Use

None of the land use impacts associated with the implementation of the Proposed Action would occur under the No Action Alternative. None of the existing 34 acres of existing mining hazards would be reclaimed under this alternative.

4.3.11.1. Recreation Resources

None of the recreational impacts associated with the implementation of the Proposed Action would occur under the No Action Alternative.

4.3.12. Socioeconomics

Under the No Action Alternative, none of the socioeconomic impacts associated with the implementation of the Proposed Action would occur. This includes the approximately $3,600,000.00 annually generated in payroll, taxes and local expenditures, and the employment of approximately 60 individuals. In addition, the approximately 160 secondary employment jobs would not be created.

4.3.13. Other Resources

The No Action Alternative would have no impacts to wilderness areas, WSAs, prime and unique farmland, floodplains, ACECs, wild and scenic rivers or areas of Native American religious concern.

4.4. Mitigation Measures and Residual Impacts

4.4.1. Mineral Resources

No mitigation measures are considered possible. Residual impacts would be the permanent removal of 15 million tons of ore from the open pits.

4.4.2. Physiography and Geology

No mitigation measures are considered possible. There would be a residual impact to the physiography from the permanent change in the topography by the creation of the open pits, waste rock storage area and heap leach pile.

4.4.3. Soils

Impacts to soils should be mitigated by keeping surface disturbance to the minimum that is required to construct and operate the project. The topsoil stockpile should be designed to minimize wind and water erosion, to the degree practicable, and should not be disturbed until the commencement of reclamation activities. This should include the creation of a low relief stockpile, which should be seeded in the first year after stockpiling with a nitrogen-fixing species. No other mitigation measures are considered necessary. There would be a residual impact to the soils after mitigation because there would be some erosion of the soils that would still occur, and only the upper portion of the soil profile would be stockpiled while the lower portion would be buried under the waste rock storage area and heap leach pile.

4.4.4. Hydrology

4.4.4.1. Surface Water

Roads should be crowned and water bars should be constructed where necessary to minimize erosion and sediment production. Topsoil stockpiles should be seeded with a nitrogen-fixing species to limit erosion. No other mitigation measures are necessary. There would be a residual impact to surface water after mitigation because some sedimentation would still be possible.

4.4.4.2. Groundwater

If continued pumping from Rand's wells results in any indication of impacts to the pumping capabilities of the adjacent wells, then a program to monitor the existing wells in the area, consisting of the measuring of the static water levels in the adjacent wells and Rand's wells, should be implemented. Sampling should be conducted on a quarterly basis to determine the appropriate corrective action plan, which should then be implemented. No other mitigation measures are considered necessary. The residual impact to groundwater after mitigation is the consumption of groundwater resources.

4.4.5. Air Quality

Any disturbed surfaces no longer needed for project activities should be reclaimed to minimize fugitive dust emissions. All operations should be conducted in compliance with permits granted by the KCAPCD. No other mitigation measures are considered necessary. Residual impacts to air quality after mitigation are an increase in PM_{10}/TSP emissions from mining operations and hydrocarbon and combustion emissions from internal combustion engines.

4.4.6. Vegetation and Range Resources

4.4.6.1. Vegetation Resources

Any disturbed surfaces no longer needed for project activities should be reclaimed by recontouring the disturbed surfaces to approximate original contours and seeding the area in conformance with the Reclamation Plan. To mitigate impacts to Joshua trees, Rand should, after the non-articulated, less than 4-foot Joshua trees have been removed to the stockpile areas, allow nurseries and other authorized individuals or groups into the project area to salvage all remaining Joshua trees which would otherwise be destroyed as a result of the construction activities. The BLM should notify the nurseries and others and there should be a reasonable period prior to the start of construction during which time the salvage operations should occur.

Proposed construction and operations should utilize existing roads and already disturbed surfaces to the extent practical to minimize additional surface disturbance and associated vegetation losses. No other mitigation measures are considered necessary. Residual impacts to vegetation resources would be the short-term loss of vegetation from 200 acres and the long-term loss of vegetation from 57 acres.

4.4.6.2. Range Resources

No mitigation measures are considered necessary. Residual impacts to range resources would be the short-term loss of forage from 200 acres and the long-term loss of forage from 57 acres.

4.4.7. Wildlife Resources

Impacts to wildlife habitat through surface disturbance associated with construction and operation of the project should be minimized by disturbing only that area required to construct and operate the project. Proposed construction and operations should utilize existing roads and previously disturbed surfaces to the extent practical to minimize additional surface disturbance and associated wildlife habitat losses. OHV traffic should be prohibited in the project area to minimize additional loss of wildlife habitat. To minimize impacts to bats that may inhabit shafts in the project area a survey for bats, to BLM specifications, should be conducted prior to beginning project-related activities. If bats are discovered to inhabit the project area, then appropriate mitigation measures should be implemented to minimize impacts to bats.

Measures to reduce potential impacts resulting from the Proposed Action, both direct and indirect, to the desert tortoise and the Mohave ground squirrel have been incorporated into the Proposed Action (see Section 2.2.4). No additional mitigation measures are considered necessary. Residual impacts to wildlife resources would be the short-term loss of habitat from 200 acres and the long-term loss of habitat from 57 acres.

4.4.8. Cultural and Paleontological Resources

4.4.8.1. Cultural Resources

If previously unknown cultural resources are discovered during the construction, operational or reclamation phases of the project, the resources should be left in place and the BLM archaeologist immediately notified. No other mitigation measures are necessary. The residual impact to cultural resources after mitigation would be the destruction of some loci.

4.4.8.2. Paleontological Resources

If fossils are discovered during the construction, operation or reclamation of the project, the fossils should be left in place and the BLM immediately notified. Within 48 hours of notification, the BLM should determine the significance of the fossils and develop a plan to mitigate and/or salvage the fossils. No additional mitigation measures are considered necessary. There are no residual impacts to paleontological resources.

4.4.9. Visual Resources

Lights used for mining and processing operations at night should have reflectors or shields to eliminate or minimize fugitive light. No other mitigation measures are considered necessary. Residual impacts to visual resources would be a change in the visual character of the landscape by increasing the amount of mining-related landforms.

4.4.10. Noise

Blasting activities should be limited to daylight hours and coordinated between the Baltic Mine and Yellow Aster Mine Projects to avoid coincident blasts. Rand should follow through with its public notification process, as discussed in Section 2.2.1. All heavy equipment, drilling rigs, and other internal combustion engines should employ mufflers to minimize indirect impacts on sensitive noise receptors and wildlife from noise generated during construction, operation and reclamation activities. If noise levels from blasting are found to impact the Dog Patch area, then Rand should implement appropriate noise reduction techniques for blasting activities. No additional mitigation measures are necessary. There are no noise-related long-term residual impacts.

4.4.11. Land Use

No mitigation measures are considered necessary. Residual impacts are consistent with federal and county land use planning for the area.

4.4.11.1. Recreation Resources

No mitigation measures are considered necessary. Residual impacts to recreational resources are short- and long-term restrictions on the recreational use of the area.

4.4.12. Socioeconomics

No mitigation measures are considered necessary. Residual impacts to the socioeconomics are mostly beneficial, except for the increase in time and traffic to drive around rather than through the project area.

4.4.13. Other Resources

No mitigation measures are considered necessary. There are no residual impacts to other resources.

CHAPTER 5
OTHER REQUIRED IMPACT CONSIDERATIONS

5. OTHER REQUIRED IMPACT CONSIDERATIONS

As required by the National Environmental Policy Act and the California Environmental Quality Act, this chapter discusses specific impacts of the Proposed Action in ways not otherwise addressed in specific detail in Chapter 4, Environmental Consequences of the Proposed Action and Alternatives.

5.1. Unavoidable Adverse Impacts

Unavoidable adverse impacts which may result from the implementation of the Proposed Action include: the generation of dust from project-related activities; the loss of vegetation and wildlife habitat in the project area; the destruction of the identified and recorded cultural resources; the consumption of groundwater resources; the permanent alteration of the topography of the project area; and the potential further reduction in the visual resources of the project area.

The fugitive dust generated by the project-related surface disturbance and rock moving activities would contribute to a decrease in the quality of the air resources in the air basin. Dust suppression measures would be implemented to minimize these impacts. Mitigation measures to control impacts to air quality would be required of the project by the Kern County Air Pollution Control District.

Project-related activities would remove vegetation and disturb the surface of 200 acres, which would also eliminate wildlife habitat from this disturbed area. This impact would continue for the duration of the project. Mitigation measures would be required of the project by the BLM, USFWS, CDFG and Kern County to minimize impacts to protected species.

The identified and recorded portion of the one historic cultural site would be disturbed by the Proposed Action. This would be an adverse impact to the recorded portion of the site. The BLM and the State Historic Preservation Office (SHPO) have determined that the identification and recordation of the site is sufficient mitigation.

The topography would be permanently altered by the construction of the open pits, waste rock storage area and leach pad in the project area. This would create an adverse impact to the topography of the area. In addition, this change in the topography would have an adverse impact on the visual resources of the area.

5.2. Irreversible and Irretrievable Commitment of Resources

The only appreciable irreversible or irretrievable commitments of resources would be to the topography, biological resources, cultural resources, groundwater resources, and mineral resources. The topography would be permanently altered by the placement of the open pits, waste rock storage area and leach pad in the project area. Wildlife habitat, including that for the desert tortoise and possibly the Mohave ground squirrel, may be permanently lost, although implementation of proposed impact reduction measures should result in the net increase of protected habitat. Some cultural resources in the project area would be directly impacted; however, those resources have been severely disturbed and all research value has been recovered. There would be a net consumption of groundwater resources, but only for the life of the project. The removal of ore from the open pits would be an irreversible commitment of geologic and mineral resources.

5.3. Relationship Between Local Short-Term Uses of the Environment and the Maintenance and Enhancement of Long-Term Productivity

The principal land uses in the project area have been established by past activities and are defined in the Federal Land Management and Policy Act (FLPMA) as grazing, wildlife habitat, mineral exploration and production and outdoor recreation. The Proposed Action would commit approximately 200 acres of the 532 acre project area to a single land use for approximately six (6) years, during the operation of the mine. The reminder of the project area would be fenced, but would continue to be available for wildlife habitat. Recreation opportunities would be reduced by the closure of the roads and routes through the project area.

Upon completion of the mining activities, the project area would be reclaimed and the existing land uses would be re-established over a majority of the project area. The length of time for successful reclamation may be greater than 10 years. Although the open pits, which cover approximately 57 acres, would be reclaimed to a level that minimized potential risk to health and safety, it would not re-establish grazing, wildlife habitat and recreational land uses in the area of the open pits. The pits would, however, remain accessible for future mineral development.

The project proponent believes that the Proposed Action is justified at this time because of the economic and social benefits generated by the project. Project employment (60 individuals and a $1,410,000.00 annual payroll), secondary employment (160 individuals), direct expenditures and indirect expenditures ($1,800,000.00 annually), electrical power purchases ($200,000.00 annually) and property tax ($170,000.00 annually) would contribute to the viability of the local and regional economy. The development of the mineral resources is in the national interest to satisfy industrial and security needs. In providing these benefits, the project would not preclude the long-term use of a majority of the project area for other principal land uses.

5.4. Growth-Inducing Effects of the Proposed Action

It is expected that the growth-inducing effects of the Proposed Action would be limited to the housing demand for employees and secondary economic growth from expenditures by the project proponent and its employees. The Proposed Action would provide direct employment for approximately 60 people for the life of the mine. Secondary employment is anticipated to be approximately 160 people. It is believed that the existing and planned residential areas in Ridgecrest, the Rand Communities, California City and Mojave are adequate to meet the needs of employee housing. It is anticipated that most of the employees would come from the existing labor market in the region. The expenditures by the project proponent and its employees would create some secondary (indirect) employment in the retail and services sectors, but it is expected these positions would be filled from the existing labor market in the region.

5.5. Energy Consumption and Conservation

Construction and operation of the Proposed Action would result in the consumption of non-renewable energy resources. These resources would primarily include petroleum products, such as diesel fuel, gasoline and propane. Fuel consumption by heavy equipment would be the largest single energy requirement. One of the primary opportunities for energy conservation would be regular, scheduled maintenance of the vehicles and equipment to maximize fuel efficiency. The

Proposed Action has been designed for operational efficiencies, including minimizing haul road length to reduce fuel consumption. In addition, the project proponent encourages carpooling by project employees to reduce gasoline consumption.

CHAPTER 6
CUMULATIVE IMPACTS

6. CUMULATIVE IMPACTS

6.1. Introduction

This chapter summarizes the potential incremental increase in cumulative environmental impacts on the environmental resources in the northeastern Rand Mountains area which could result from the implementation of the Proposed Action. Cumulative impacts are those effects on the resources of an area or region caused by the combination of existing, proposed and reasonably foreseeable future activities, including mineral and other projects, which may be individually minor but together significant. An analysis of the cumulative impacts of the project is required under NEPA and CEQA. The actual area of cumulative impacts will vary in size and shape depending on which environmental resource is being addressed. However, the general area of the northeastern Rand Mountains, the northeastern portion of Fremont Valley and the northwestern portion of the Cuddeback Lake basin can be considered the area of cumulative impacts analysis (see Figure 3-3 for the general location). The foreseeable future scenario (see Section 6.3) has been developed by the BLM and Kern County and includes the activities of the mining and livestock industries and OHV use, all of which have the potential to impact the environmental resources of concern. The 10-year time frame for the reasonably foreseeable future scenario is based on the reasonably foreseeable future mine life of the Baltic Mine Project.

The BLM has completed the required reviews of the Yellow Aster Mine Expansion Project (Yellow Aster) EA (EA-065-90-116) and approved the project as defined in the proposed action portion of the Yellow Aster EA (USDI, 1990). This Baltic Mine Project EIS/EIR includes the analysis of the cumulative impacts of the proposed action in the Yellow Aster EA on the hydrology and biology of the northeastern Rand Mountains area. This chapter also adds whatever incremental increase would be associated with impacts to the hydrology and biology from the Proposed Action and the reasonably foreseeable future activities outlined in the foreseeable future scenario of this EIS/EIR. In addition, this chapter assesses cumulative impacts to the other environmental resources of focus in this EIS/EIR: physiography (particularly surface disturbance) and socioeconomics.

6.2. Description of Other Activities in the Area of Cumulative Impacts

Mining and livestock operations and OHV use are ongoing in the northeastern Rand Mountains area. Livestock operations are conducted by 15 permittees which graze sheep on the Cantil Common Ephemeral Allotment, which comprises the entire cumulative impacts area (Figure 3-6). Mineral exploration and development activities are conducted by Rand, other companies and individuals. Off-highway vehicle use of the area is high and is conducted by individuals and private associations (Phillips, 1991).

Mineral exploration and development has been a use of the area for the past 100 years. Figure 6-1 shows the location of all the historic mine shafts within the area and Figure 3-1 shows the location of the major historic mining operations. Rand's mining and exploration activities are ongoing in the northeastern Rand Mountains area. Rand's operations in the northeastern Rand Mountains area include: the Yellow Aster Mine Project; the Lamont Mine Project; the Descarga Project; and other exploration activities adjacent to these projects and in the northeastern Rand Mountains area. In addition, flagstone is mined from three (3) locations within the area of cumulative analysis. These operations are shown on Figure 6-2. Other

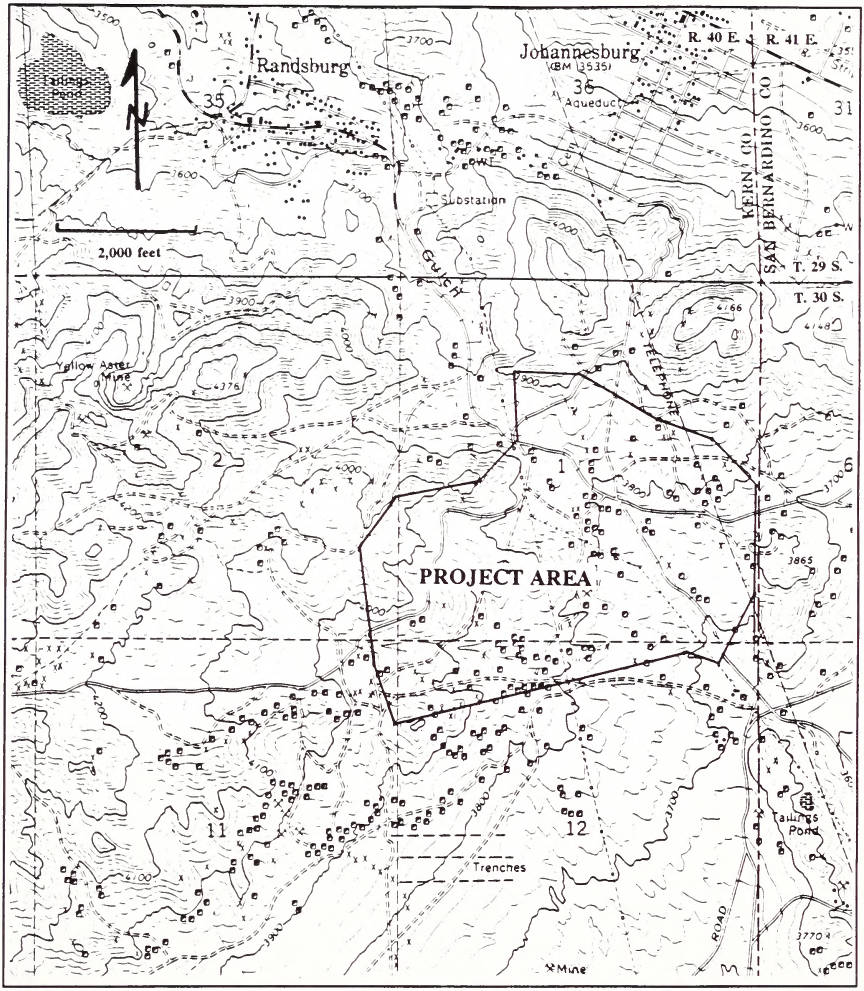
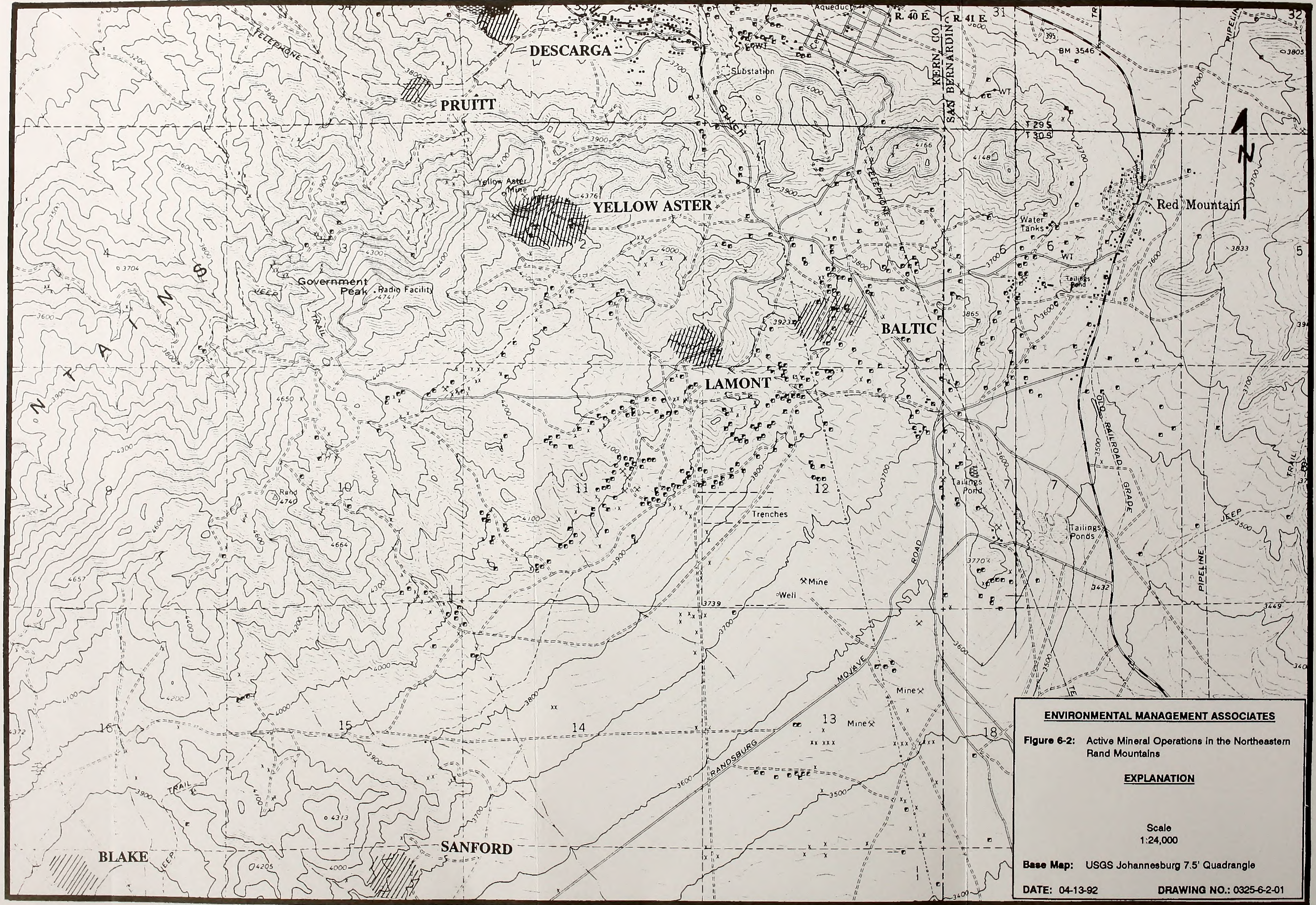


Figure 6-1: Location Map of the Historic Mine Sites in the Area Surrounding the Project



ENVIRONMENTAL MANAGEMENT ASSOCIATES

Figure 6-2: Active Mineral Operations in the Northeastern Rand Mountains

EXPLANATION

Scale
1:24,000

Base Map: USGS Johannesburg 7.5' Quadrangle

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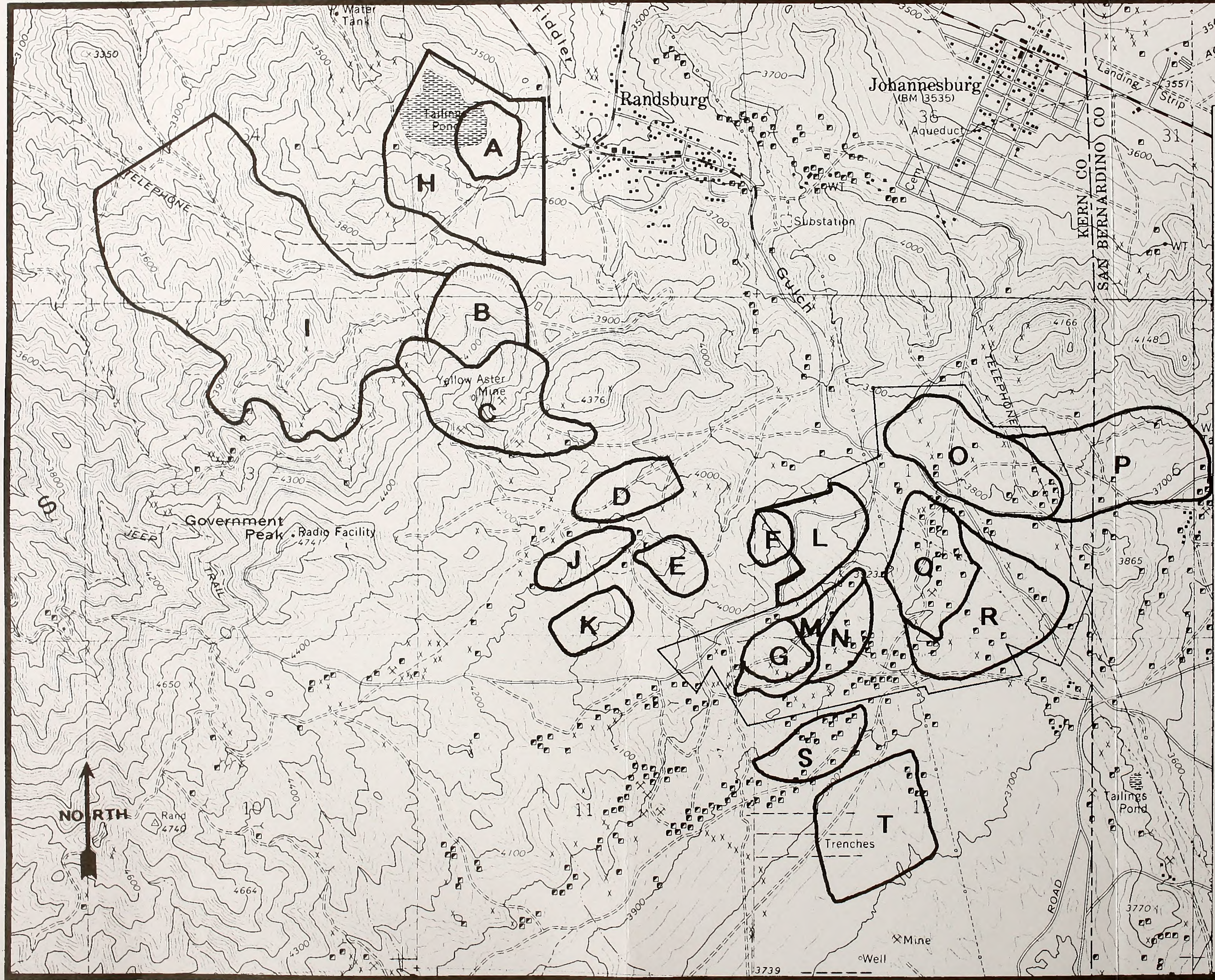
companies have claims in the northeastern Rand Mountains area, but at present are only conducting annual assessment work. A majority of the mining activities in the northeastern Rand Mountains are conducted by Rand. Figure 6-3 shows, in more detail, the locations of specific components of Rand's existing mining operations, as well as areas of possibly foreseeable development.

6.2.1. Yellow Aster Mine Project

The Yellow Aster Mine Project is an open-pit, heap leach operation located approximately 2 miles west of the proposed Baltic Mine Project area. The current reserves at this project are 13.6 million tons of ore. An additional 14.7 million tons of waste will be mined as part of the operations. Current operations consist of the mining of 28,000 tons of ore and waste per day. The waste rock is disposed at a waste rock storage area adjacent to the north side of the open pit, and the run-of-mine ore is placed on a valley fill leach pad southeast of the open pit (west of the proposed Baltic Mine Project area). Current water requirements for this project are approximately 165 gpm, or 265 acre-feet per year. The total surface disturbance at the Yellow Aster Mine Project is approximately 105 acres. Approximately 60 individuals are employed at the Yellow Aster Mine Project.

6.2.2. Lamont Mine Project

The Lamont Mine Project is an open pit mine, with associated waste rock storage areas and a heap leach operation, located adjacent to the proposed Baltic project area. Rinsing of the ore on the heap leach pad is currently ongoing. Loaded carbon from the Lamont carbon columns is processed at the Yellow Aster facility. A total of approximately 2.1 million tons of ore and 2.4 million tons of



ENVIRONMENTAL MANAGEMENT ASSOCIATES

Figure 6-3: Location Map of Rand's Existing and Possibly Forasaaable Mining Activitias

EXPLANATION

A	-	Dascerga Projact Aree
B	-	Yellow Astar Weste Rock Storaga Araa
C	-	Yallow Astar Opan Pit
D	-	Yallow Astar Haap Laach Facility
E	-	Lamont Heep Leech Facility
F	-	Lamont Wasta Rock Storege Area
G	-	Lamont Opan Pit
H	-	Possibla Haap Laach Facility
I	-	Possibla Wasta Rock Storage Area and Haep Leech Fecility
J	-	Possibla Opan Pit
K	-	Possibla Heap Laach Facility
L	-	Baltic Wasta Rock Storaga Araa
M	-	Lamont Extension Opan Pit
N	-	Possibla Lamont Extansion Opan Pit Expension
O	-	Beltic Heap Laach Facility
P	-	Possibla Baltic Haap Laach Facility Expansion
Q	-	Baltic Opan Pit
R	-	Possibla Baltic Opan Pit Expansion
S	-	Possibla Wasta Rock Storaga Araa
T	-	Possibla Heap Laach Facility
	-	Projact Area

Scala
1:24,000

Base Map: USGS Johannasburg and Rad Mountain 7.5' Quadrangla Maps

DATE: 04-13-92 **DRAWING NO.:** 0325-6-3-01

waste have been mined from the Lamont Pit. The waste rock was disposed in waste rock storage areas adjacent to the north side of the open pit and west of the open pit. The Lamont Pit and the north waste rock storage area are now included within the Baltic Mine Project area. The run-of-mine ore was placed on a leach pad west of the open pit (west of the proposed Baltic Mine Project area). Current water requirements for this project are approximately 180 gpm, or 290 acre-feet per year. This water use will continue until approximately June, 1992. The total surface disturbance at the Lamont Mine Project is 75 acres. Yellow Aster Mine Project personnel operate the Lamont Mine Project.

6.2.3. Descarga Project

The Descarga Project is a heap leach operation that was designed to test leach ore from the Randsburg area and reprocess the mine waste from the historic Yellow Aster mining operation. The project is permitted for a 1.55 million-ton heap leach pad. The leach pad currently contains 325,000 tons of material. This project was constructed on 25 acres of existing surface disturbance. Yellow Aster Mine Project personnel operate the Descarga Project.

6.2.4. Exploration

Rand is currently conducting exploration activities at various locations in the general vicinity of the Baltic Mine Project, as well as in the northeastern Rand Mountains area (Figure 6-4). As discussed in Section 2.2.2, Rand is exploring within the Baltic Mine Project area (Areas "A" and "B" on Figure 6-4). At the Yellow Aster Mine Project, exploration is being conducted to the west of the current open pit and at depth (Area "C" on Figure 6-4). In addition, there is an

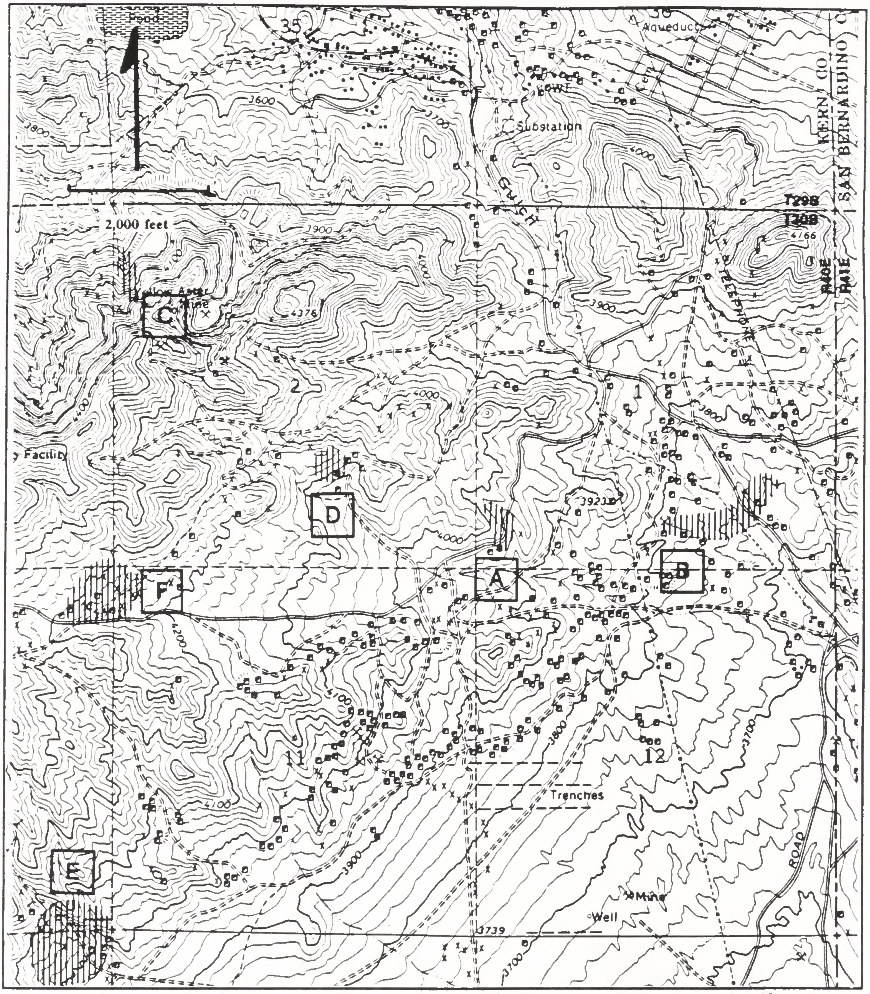


Figure 6-4: Rand's Exploration Targets in the Northeastern Portion of the Rand Mountains

area of mineralization between the Yellow Aster and Lamont heap leach pads which is currently being explored (Area "D" on Figure 6-4).

Outside of the existing project areas, Rand is conducting exploration activities to the west of the proposed project area (Figure 6-4). Currently, geological evaluations are being conducted at the Buckboard and Big Horse claim block areas (Areas "E" and "F" on Figure 6-4). Rand is currently drilling these areas to determine the extent and grade of the mineralization.

6.2.5. Flagstone Mining Operations

Randsburg Schist flagstone is mined from three (3) locations in the area (Figure 6-2). Flagstone is used as a decorative rock for fireplaces, walkways, pools, homes and buildings. The operations consist of open pit quarrying and sorting of the material for shipment. All three (3) mines operate on federal land under non-competitive salable mineral contracts with the BLM. The first operations is a small family operation located in the SW¼ of the SW¼ of Section 34, Township 29 South, Range 40 East (Figure 6-2). Mr. and Mrs. Pruitt intermittently produce approximately 3,000 tons per year. Surface disturbance is approximately 10 acres, and the Pruitt's have one (1) to three (3) employees from the local area. The second operation is controlled by the Sanford Stone Company and is located in the NE¼ of Section 22, Township 30 South, Range 40 East (Figure 6-2). This is a full-time operation that employees approximately 20 people that are housed at the mine. Total production is approximately 10,000 tons per year and the surface disturbance is approximately 80 acres. The third operation is adjacent to the second, in the NW¼ of Section 21, Township 30 South, Range 40 East (Figure 6-2). This is also a full-time operation controlled by

Mr. Roy Blake. There are approximately 25 employees and total production is approximately 10,000-tons per year. Surface disturbance is approximately 60 acres.

6.2.6. Livestock Operations

As discussed in Section 3.6.2, the Cantil Common Ephemeral Allotment has been grazed only once in the past five years because of limited forage production during the drought conditions.

6.2.7. Off-Highway Vehicle Use

The current level of OHV use in the area is discussed in Section 3.11.

6.3. Foreseeable Future Operations

The 10-year time frame for the reasonably foreseeable future scenario is from 1992 through 2001. The operations predicted in this scenario are anticipated to commence within the 10-year time frame, and are to be completed by, or extend beyond, the year 2001.

6.3.1. Mineral Exploration and Development

Given the number of active and inactive mining operations in the northeastern Rand Mountains area, coupled with the mineral exploration activities in the area, continued mineral-related activities can be anticipated for the foreseeable future. This is supported by the geology and identified ore reserves and mineralization in the area. Therefore, the BLM and Kern County have developed the following scenario for the purpose of ascertaining the cumulative environmental impacts in the northeastern Rand Mountains area in the reasonably foreseeable future.

6.3.1.1. Exploration

Surface disturbance of five (5) acres per year would occur due to continued mineral exploration in the northeastern Rand Mountains area. This equates to approximately 3 miles of new road each year, or 30 miles of road over a 10-year foreseeable future scenario. This scenario includes, but is not limited to, the exploration activities under the Proposed Action.

6.3.1.2. Yellow Aster Mine Project

The Yellow Aster Mine Project would continue operations, as approved, for the foreseeable future. Exploration activities have identified areas of possible economic precious metal mineralization around the perimeter of the Yellow Aster Pit. It is foreseeable that the reserves of the mine could be increased substantially, requiring the possible disturbance of approximately 30 acres for the enlargement of the Yellow Aster Pit. This would precipitate a required expansion of the waste rock storage areas and heap leach facility.

Two (2) potential locations have been identified and are shown on Figure 6-3, one (1) located immediately north of the existing Yellow Aster Pit (Area "H") and one (1) located to the northwest of the open pit (Area "I"). The northern area, known as the Descarga area, could be used as a location for a heap leach facility, in addition to the existing facility Rand has at the site (see Section 6.3.1.3, Descarga Project). Surface disturbance could be as much as 165 acres, including disturbance caused by operations prior to Rand. This site would also require the improvement of the existing road from the Yellow Aster Pit to haul ore to the pad. The pad would be lined with a synthetic membrane and the precious metal recovery plant would be approximately the same size and type as the one proposed for the Baltic Mine Project. The northwestern area could possibly be used as a location for both a heap leach facility and waste rock storage area. Surface disturbance at this site could be up to 320 acres. No new employees would be required to conduct operations at these two (2) areas because existing employees could be used.

Mineralization at depth in the Yellow Aster Mine Project is thought to be unoxidized and this mineralization is currently considered to be economically unrecoverable. However, as development of the mine continues, it is possible that this deep mineralization may become economic and Rand then would continue to mine to greater depths. Development of this deep mineralization could result in the possible disturbance of an additional 50 acres. No new employees would be required to conduct this operation because existing employees could be used.

6.3.1.3. Descarga Project

At the Descarga Project, it is foreseeable that, in addition to leaching Yellow Aster ore, there is additional material from the historic operations that may be economic to process. No additional disturbance or personnel would be necessary to conduct these operations.

6.3.1.4. Lamont Mine Project

At the Lamont Mine Project, it is foreseeable that additional exploration, west of the Lamont Pit and outside of the Baltic Mine Project boundary, could occur. This could result in the construction of some additional drill roads and the drilling of exploration holes. Any surface disturbance under this foreseeable action would be covered by the previously discussed exploration surface disturbance. No new employees would be required to conduct this operation.

6.3.1.5. New Precious Metal Mine

It is foreseeable that an orebody in the exploration area to the west of the current mining operations would be drilled out and mined (Areas "E" and "F" on Figure 6-4). This area is known locally as Josephine Ridge. A leach pad, precious metal recovery plant and waste rock storage area would be constructed adjacent to the open pit. The pad would be lined with a synthetic membrane and the precious metal recovery plant would be approximately the same size and type as the one proposed for the Baltic Mine Project. This action would result in the disturbance of approximately 40 acres and the hiring of 16 additional employees.

6.3.1.6. Baltic Mine Project

In the Baltic Mine Project area, it is foreseeable that exploration activities would continue south and east of the Baltic Pit and around the Lamont and Lamont Extension Pit (Areas "A" and "B" on Figure 6-4). This could result in (see Section 6.3.1.3, Descarga Project). Surface disturbance could be as much as 165 acres, including disturbance caused by operations prior to Rand. This site would also require the improvement of the existing road from the Yellow Aster Pit to haul ore to the pad. The pad would be lined with a synthetic membrane and the precious metal recovery plant would be approximately the same size and type as the one proposed for the Baltic Mine Project. The northwestern area could possibly be used as a location for both a heap leach facility and waste rock storage area. Surface disturbance at this site could be up to 320 acres. No new employees would be required to conduct operations at these two (2) areas because existing employees could be used.

Mineralization at depth in the Yellow Aster Mine Project is thought to be unoxidized and this mineralization is currently considered to be economically unrecoverable. However, as development of the mine continues, it is possible that this deep mineralization may become economic and Rand then would continue to mine to greater depths. Development of this deep mineralization could result in the possible disturbance of an additional 50 acres. No new employees would be required to conduct this operation because existing employees could be used.

6.3.1.3. Descarga Project

At the Descarga Project, it is foreseeable that, in addition to leaching Yellow Aster ore, there is additional material from the historic operations that may be economic to process. No additional disturbance or personnel would be necessary to conduct these operations.

6.3.1.4. Lamont Mine Project

At the Lamont Mine Project, it is foreseeable that additional exploration, west of the Lamont Pit and outside of the Baltic Mine Project boundary, could occur. This could result in the construction of some additional drill roads and the drilling of exploration holes. Any surface disturbance under this foreseeable action would be covered by the previously discussed exploration surface disturbance. No new employees would be required to conduct this operation.

6.3.1.5. New Precious Metal Mine

It is foreseeable that an orebody in the exploration area to the west of the current mining operations would be drilled out and mined (Areas "E" and "F" on Figure 6-4). This area is known locally as Josephine Ridge. A leach pad, precious metal recovery plant and waste rock storage area would be constructed adjacent to the open pit. The pad would be lined with a synthetic membrane and the precious metal recovery plant would be approximately the same size and type as the one proposed for the Baltic Mine Project. This action would result in the disturbance of approximately 40 acres and the hiring of 16 additional employees.

6.3.1.6. Baltic Mine Project

In the Baltic Mine Project area, it is foreseeable that exploration activities would continue south and east of the Baltic Pit and around the Lamont and Lamont Extension Pit (Areas "A" and "B" on Figure 6-4). This could result in additional reserves which would require additional heap leach pads, processing facilities and waste rock storage area if developed (Areas "S" and "T" on Figure 6-3). The pad would be lined with a synthetic membrane and the precious metal recovery plant would be approximately the same size and type as the one proposed for the Baltic Mine Project. These actions would result in the disturbance of approximately 200 acres. This disturbance is in addition to the 200 acres outlined in the Proposed Action.

The mineralization at depth in the Baltic, Lamont and Lamont Extension Pits is unoxidized and considered to be economically unrecoverable. As development continues, it is foreseeable that this mineralization could become economically recoverable and Rand would continue to mine to greater depths. This action would result in the disturbance of 50 additional acres. No new employees would be required to conduct these operations.

6.3.1.7. Flagstone Mining Operations

It is foreseeable that the flagstone operations would continue throughout the 10-year time frame. Non-competitive contracts for the salable minerals are currently issued on a two-year term. However, the BLM is considering a change in the regulations regarding contracts for non-competitive mineral sales. Regardless, if operations continue under non-competitive or competitive contracts, it is reasonable that the size of the operation could triple in the foreseeable future, resulting in an additional 300 acres of surface disturbance.

6.3.1.8. Mineral Development Summary

The total existing surface disturbance for mining activities in the cumulative analysis area is approximately 355 acres. The total surface disturbance proposed under the Proposed Action, as described in Chapter 2, for mining activities in the cumulative analysis area is approximately 200 acres. The total reasonably foreseeable surface disturbance for other mining activities in the cumulative analysis area is approximately 1,215 acres. Therefore, all existing, proposed, and reasonably foreseeable mining-related surface disturbance totals approximately 1,770 acres.

6.3.2. Grazing Management

Existing actual use in the Cantil Common Ephemeral Allotment ranges from 0 to an historic average 8,435 AUMs (animal unit months) (USDI, 1980). The BLM is currently in consultation with the US Fish and Wildlife Service (USFWS) regarding the desert tortoise in the Cantil Common Ephemeral Allotment. Most of the allotment is considered Class 1 tortoise habitat, or land that is in the best condition to support desert tortoises. The project area itself is considered Class 3 tortoise habitat, or land that is in the poorest condition to support desert tortoises (Rado, 1990). As a result of this consultation between the BLM and the USFWS, the BLM sees two (2) possible foreseeable future scenarios. The allotment would either be closed to grazing for the foreseeable future, or the amount of permitted grazing would be significantly limited, so that only a very reduced number of sheep would be allowed to graze. If grazing is allowed to continue within the area of cumulative analysis there would be some surface disturbance associated with transport and grazing of the sheep and the sheep would consume a certain amount of forage. However, a decision has not been made by the BLM on the amount, if any, of permitted use that would occur within the area of cumulative analysis, and therefore a quantification of the impacts is not possible.

6.3.3. Off-Highway Vehicle Use

The high level of use of the northeastern Rand Mountains area for OHV use will continue through the foreseeable future, particularly in the area around Randsburg. It is expected that there will be an increase in use because of the high percentage of unoccupied private land in the area and the unclassified nature of the interspersed public lands. This use will be slightly restricted on the private and public lands occupied by Rand's various operations. The OHV use in the area of cumulative analysis, particularly unrestricted use on unoccupied private land, would result in additional surface disturbance, which could be on the order of five (5) acres per year.

6.4. Evaluation of Potential Cumulative Impacts

Environmental consequences of the proposed Baltic Mine Project were evaluated in Chapter 4 for each environmental resource. Of the environmental resources evaluated in Chapter 4, only physiography, groundwater hydrology, wildlife resources and socioeconomics are considered to have the potential to be impacted to a degree that cumulative impact assessment of these resources in conjunction with the Proposed Action is appropriate. Impacts to the other resources would not result in unavoidable adverse impacts that could be cumulatively important and are not evaluated in this chapter of the EIS/EIR.

6.4.1. Physiography

There is a cumulative impact to the physiography of the northeastern Rand Mountains area resulting from the total number of open pit mining operations, exploration drill road construction and OHV use. The total amount of surface disturbance resulting from the Proposed Action, which is outlined in Chapter 2, and the other activities in the area and the foreseeable future activities, which are outlined in Sections 6.2 and 6.3, are approximately 1,820 acres. The open pits, waste rock storage areas and heap leach pads represent a permanent change to the physiography of the area. However, the waste rock storage areas and leach pads will be partially recontoured to minimize the impact to the physiography. The roads and other mining facilities will be reclaimed, thus creating only a temporary change to the physiography of the area. The Proposed Action would create approximately 200 acres of surface disturbance, which is 11.0 percent of the total topography disturbed in the reasonably foreseeable future scenario.

6.4.2. Groundwater Hydrology

Cumulative use of the groundwater resources in the northeastern Rand Mountains and the Fremont Valley are outlined in the Yellow Aster EA (USDI, 1990) and Sections 6.2 and 6.3 of this Chapter. Water use under the Proposed Action does not change Rand's total annual use of water from the Fremont Valley, because water use at the Lamont Mine Project will terminate prior to the time use of similar quantities of water at the Baltic Mine Project would start, but would only extend the period over which the use would occur. Because there is no evidence of appreciable water table declines in the vicinity of the Rand wells, and there are few other wells located in the immediate vicinity, the Proposed Action is not expected to have an incremental increase in the cumulative impacts to groundwater in the area; however, the actual cumulative impacts to the groundwater in the area are not known.

6.4.3. Biological Resources

Cumulative impacts to the wildlife resources in the northeastern Rand Mountains are outlined in the Yellow Aster EA (USDI, 1990) and the Draft Habitat Management Plan (Draft HMP) (USDI, 1989), and the applicable sections of those documents are incorporated by reference into this EIS/EIR. Within the area of cumulative affect for this project, the BLM has established the Rand Mountains-Fremont Valley Management Area (RMFVMA), which is located to the west and northwest of the project area (Figure 6-5). The BLM's goal in the RMFVMA is to ensure a viable population of desert tortoise, and to identify the management actions necessary to meet that goal (USDI, 1989). Within the RMFVMA, the CDFG has established an ecological reserve to provide protection for the Mohave ground squirrel and desert tortoise (Figure 6-5).

The decline in the populations of the desert tortoise and the Mohave ground squirrel are at least partially due to human activities in the RMFVMA (USDI, 1989). Principal adverse human activities include OHV and mining activities. As a result of the analysis conducted in the Draft HMP for the RMFVMA, the Draft HMP recommends, among other things, the closing of a majority of the RMFVMA to mineral entry and location, and designating that area as Class 1 habitat (USDI, 1989) (Figure 6-6). The remaining areas within the RMFVMA are not considered essential to the maintenance of viable desert tortoise and probable Mohave ground squirrel populations in the area. These

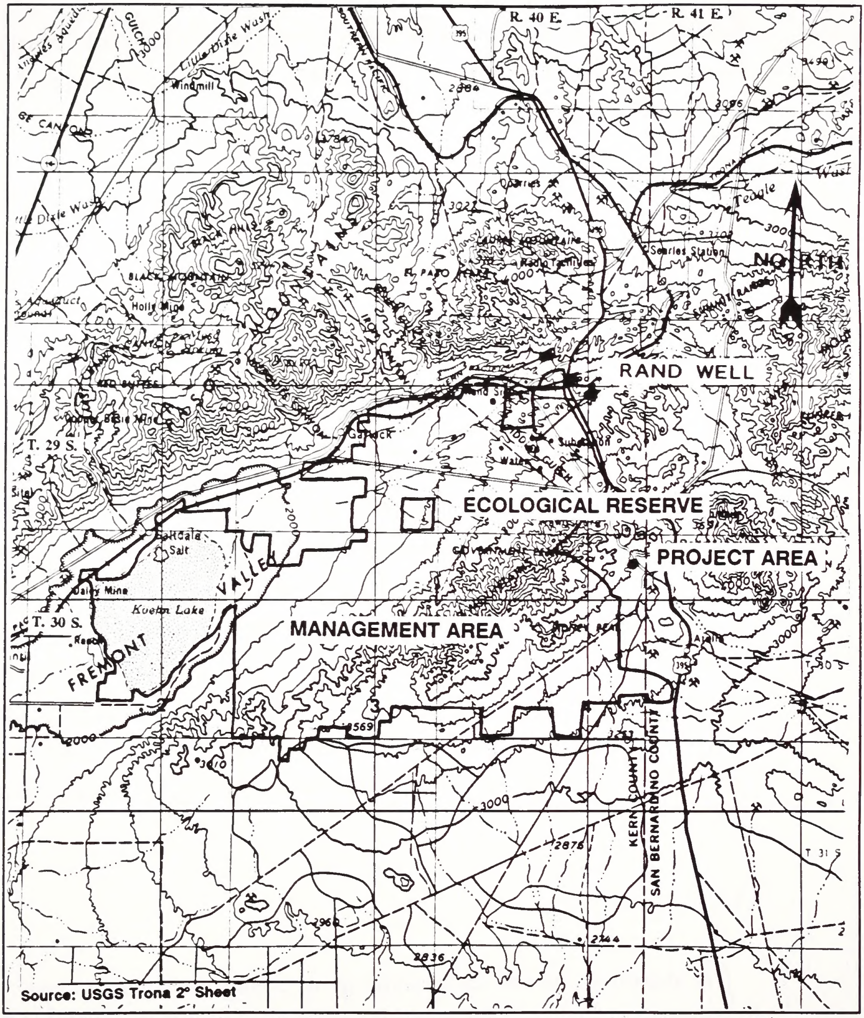


Figure 6-5: Rand Mountains/Fremont Valley Management Area Location Map

areas would not be categorized for desert tortoise habitat and would remain open to mineral entry and location. The Baltic Mine Project is not located in the proposed Class 1 habitat area.

The wildlife species in the area of cumulative impacts that are the subject of a majority of the concern are the desert tortoise and, to a lesser degree, the Mohave ground squirrel. Impacts to the desert tortoise and the desert tortoise habitat result from the cumulative disturbance of 1,820 acres in the Creosote Brush Scrub vegetation community by mining operations, motorized vehicle traffic and increased predation from increased human activity in the area. Mitigation measures to minimize the impacts to the desert tortoise and Mohave ground squirrel have been implemented for the existing mining projects, and impact reduction measures are proposed as part of the Proposed Action. In addition, these or equivalent mitigation measures would almost certainly be implemented for the foreseeable future mining actions. The use of the area for the grazing of sheep is currently being assessed to determine what additional measures should be implemented to minimize grazing impacts to the desert tortoise and Mohave ground squirrel. Although there is no way to specifically quantify the current level of impacts to the desert tortoise and Mohave ground squirrel, the Proposed Action would result in some incremental increase to the local existing cumulative impacts.

6.4.4. Socioeconomics

The short-term incremental increases in the cumulative impacts to socioeconomic issues resulting from implementation of the Proposed Action would occur due to the hiring of the new mine employees and the use of non-local

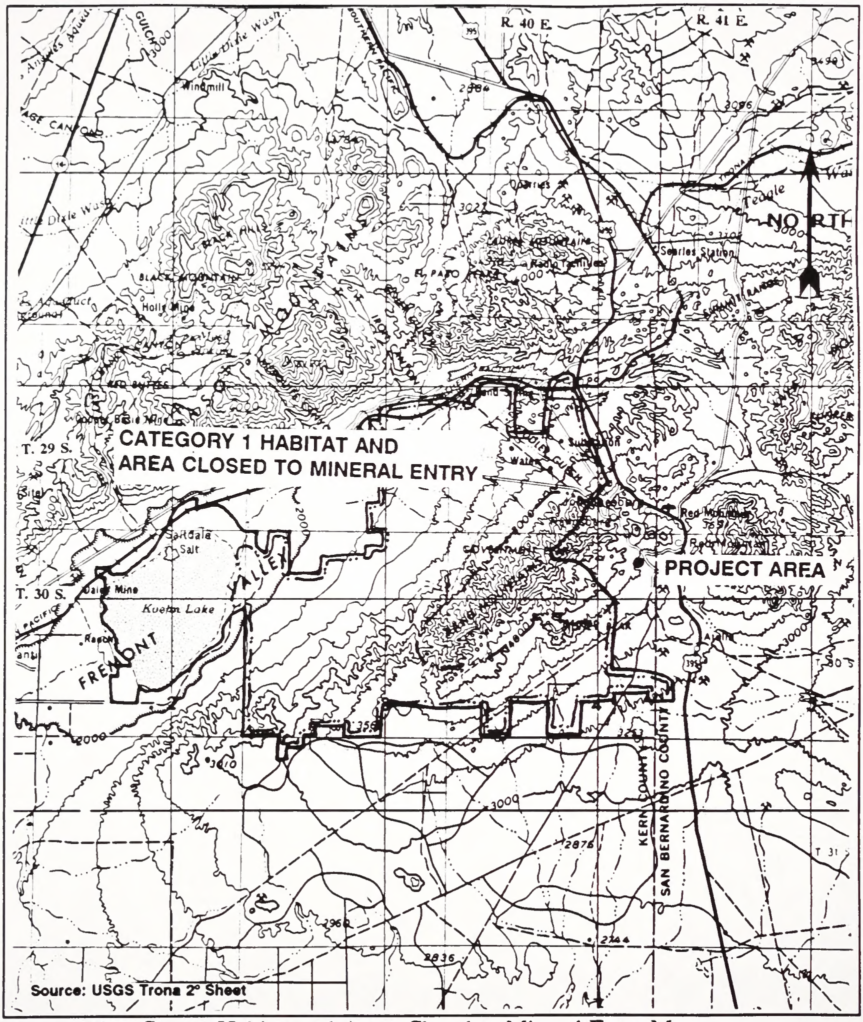


Figure 6-6: Class 1 Habitat and Areas Closed to Mineral Entry Map

contract labor for the construction of the new mine facilities. The amount of traffic on US Highway 395 that is related to the activities outlined in Sections 2.2.1.4, 6.2 and 6.3 is estimated to be approximately 115 trips per day, or approximately 2.9 percent of the total trips per day, on US Highway 395 between Randsburg and Ridgecrest. The Proposed Action would account for approximately 40 percent of the additional 115 trips per day. The increase in the use of housing has been discussed in Section 4.1.12.

The incremental increase in the cumulative impacts to socioeconomics would result from the proposed work force at the Baltic Mine Project operations, as well as other operations identified under the foreseeable future scenario. The increase in the local mining-related work force as a result of the Proposed Action would be 40 percent of the total local mining-related work force outlined in Sections 2.2.1.4, 6.2 and 6.3.

CHAPTER 7
COORDINATION AND CONTACTS

7. COORDINATION AND CONTACTS

7.1. Public Scoping

This EIS/EIR has been prepared for use by the BLM and Kern County in their consideration of the modification of the POO and the application for CUP, respectively, both submitted by Rand in February, 1991, and by all other agencies which may be required to utilize an EIS or EIR to issue permits or otherwise consider the project. A Notice of Preparation (NOP) of an EIR was distributed by Kern County on June 11, 1991. A copy of the NOP and distribution list are included in this EIS/EIR as Appendix H. As a result of distribution of the NOP, several comments were received which addressed both specific and general concerns regarding the project. These comments have been included in the EIS/EIR as Appendix I. An initial project meeting was held with the BLM, Rand and EMA on July 8, 1991 to discuss the preparation of the environmental document and outline the specific areas of environmental concern. In addition, a public scoping meeting was held at the Johannesburg Community Center on August 17, 1991. This scoping meeting was attended by the BLM, Kern County, Rand, EMA and approximately 55 members of the public. All members of the public at the meeting identified themselves as residents of either the Randsburg-Johannesburg-Red Mountain area or the local region. A memo was prepared by the BLM regarding the discussions at the public meeting and is included in the EIS/EIR as Appendix J.

At the public meeting several issues were raised by the public and discussed. These included:

1) Convenience and public safety issues regarding the road closures and realignment of the county road;

2) Concern regarding noise from blasting, back-up warning signals, heavy equipment and personal stereo equipment;

3) Concern regarding the location of the open pit;

4) Concern regarding dust generated by blasting, as well as the lack of communication by Rand to inform to residents of when a blast would occur; and,

5) Concern regarding the contamination of the communities potable water supply both during and after the operation, and the adequacy of the water supply in the area for both public and mining uses.

Other issues raised in responses to the NOP, such as wildlife, range and recreation issues, were not raised nor discussed by the public at the meeting.

In accordance with comments received to the NOP, and as a result of the initial project meeting and public scoping meeting, several specific areas of concern were identified. In December, 1991, the BLM determined that an EIS would be required and a Notice of Intent was published in the Federal Register (Appendix K). The Proposed Action Chapter, as well as the analysis and mitigation portions of this EIS/EIR, focus on these specific issues and areas of concern, but also discuss impacts to other resources in the area.

7.2. Contact List

In addition to those contacted as a result of the scoping process, the following individuals, organizations, and agency representatives were contacted during the preparation of this EIS/EIR. Where appropriate, specific communications are identified as a reference (see Chapter 9, References).

State of California Agencies

California Regional Water Quality Control Board - Lahontan Region
Ted Sarry, Engineer
Jay Cass, Engineer

County of Kern Agencies

Kern County Department of Public Works
Ty Cannon, Traffic Engineer

Private Organizations

Kelley and Associates
Richard Herriman, Soil Scientist

Individuals

Ted Rado, Wildlife Biologist

CHAPTER 8
LIST OF PARTICIPANTS

8. LIST OF PARTICIPANTS

This Environmental Impact Statement/Environmental Impact Report (EIS/EIR) was prepared by Environmental Management Associates, Inc. (EMA) under a contract with Rand Mining Company for the Bureau of Land Management, Ridgecrest Resource Area Office in Ridgecrest, California and the Kern County Department of Planning and Development Services. The following is a list of individuals responsible for preparation of the EIS/EIR.

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Jill C. Pitts - Environmental Specialist
Lynn Henry - Administrative Secretary
Joan Harpham - Administrative Secretary
Barbara Memmo - Secretary

Rand Mining Company

Members of the Rand Project and Engineering Staff

BLM - Ridgecrest Resource Area Office

Peter Milne - BLM Project Lead
Linn Gum - Minerals Staff Chief
Robert Parker - Area Biologist
Joe Liebhauser - Environmental Coordinator
Dave Sjaastad - Supervisor Range Conservation
Margaret Phillips - Lead Outdoor Recreation Planner
Joan Oxendine - Area Archaeologist
Glenn Harris - Area Natural Resource Specialist

BLM - Desert District Office

Molly Brady - District Chief, Planning and Environmental Assistance
Robert Waiwood - District Geologist
Doug Romoli - District Environmental Planner

BLM - California State Office

Jack Mills - Environmental Coordinator
Jim Hamilton - Mining Engineer and Project Lead for Mining Law

Kern County Department of Planning and Development Services

Bill Larsen, Senior Planner

CHAPTER 9
REFERENCES

9. REFERENCES

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CHAPTER 10
GLOSSARY

10. GLOSSARY

ACEC -	Area of Critical Environmental Concern.
AMSL -	Above Mean Sea Level.
AN/FO -	A mixture of ammonium nitrate and fuel oil, used as an explosive for blasting purposes.
animal unit month (AUM) -	The amount of forage necessary to sustain one cow and one calf, or its equivalent, for one month.
Baltic Mine Project area -	The 532 acres area identified in the Plan of Operations filed with the BLM and the CUP application filed with Kern County.
BLM -	See Bureau of Land Management.
barren solution -	Non-precious metals-bearing cyanide solution.
Bureau of Land Management -	The agency of the United States Government, under the Department of the Interior, responsible for administering the public lands of the United States.
CEQA -	See California Environmental Quality Act.
CUP -	See Conditional Use Permit.
California Environmental Quality Act -	This act establishes the mechanism by which government agencies in California document and consider the environmental implications of decisions made by the agency. The act also contains substantive provisions with which the government agencies must comply.
Conditional Use Permit -	The permit issued by Kern County which authorizes certain activities in the county as a

	conditional use within certain zoned areas of the county, in this case the mining operation within an area zoned for agricultural and other uses.
cone of depression -	The depression in a watertable or piezometric surface produced by pumping.
cyanide -	A solid chemical compound (sodium or calcium cyanide) which is dissolved in water to form a solution suitable for the extraction of precious metals from ore by using a leaching process.
EA -	See Environmental Assessment.
EIR -	See Environmental Impact Report.
EIS -	See Environmental Impact Statement.
Echo Bay Project -	The single open pit, crushing, heap leach mining operation outlined as the Randsburg Project in the Plan of Operations filed by Echo Bay Minerals with, and approved by, the BLM in 1987.
Echo Bay Project area -	The 392 acre area outlined in the approved Plan of Operations filed with the BLM in 1987.
endangered species -	An animal or plant species which is in danger of extinction throughout all or a significant portion of its range (as defined in the Endangered Species Act Amendments of 1982).
Environmental Assessment -	An analytical document prepared under the National Environmental Policy Act that outlines the potential environmental effects of the Proposed Action and its possible alternatives and leads to a decision to prepare an Environmental Impact Statement or a Finding of No Significant Impact (FONSI).

Environmental Impact Report - A detailed statement prepared under the California Environmental Quality Act describing and analyzing the significant environmental effects of the proposed project and discussing ways to mitigate or avoid the effects.

Environmental Impact Statement - An analytical document prepared under the National Environmental Policy Act that discusses the potential significant impacts to the human environment of a Proposed Action and its possible alternatives. An EIS is developed for use by decision makers to weigh the environmental consequences of a potential decision.

fee land - Land in which the United States government has conveyed the fee simple interest in the surface, and possibly the minerals, into private ownership.

geologic time scale - See Appendix D.

heap leach pad - A facility on which a pile of ore is placed in several layers, each approximately 25 feet in height. The pile is underlain by impermeable material to collect the leach solutions.

lode - A mineral deposit that is contained within bedrock, as opposed to a placer deposit.

MOU - See Memorandum of Understanding.

Memorandum of Understanding - An agreement between parties, in this case the Bureau of Land Management, Kern County and the project proponent, that outlines each party's responsibilities and required actions for the completion of the environmental document under the National Environmental Policy Act and the California Environmental Quality Act.

NEPA - See National Environmental Policy Act.

National Environmental Policy Act - The act that established the procedures by which the environmental consequences of a decision by agencies of the federal government are analyzed and documented prior to the decision being made.

Negative Declaration - A document prepared under the California Environmental Quality Act which makes the finding from the initial study that the project will not have a significant adverse affect on the environment.

OHV - Off-highway vehicle.

open pit - The area from which ore and waste rock are removed.

PM_{10} - Particulate matter that is less than 10 microns in diameter.

POO - See Plan of Operation.

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.

placer - A deposit of mineral resources which is formed by an alluvial process and contained within alluvial material.

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.

precious metals recovery plant - A plant and equipment used to extract the precious metals from the pregnant solution.

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.

Preparation Plan - A document agreed to and signed by the lead agencies, project proponent and the environmental document preparer, which outlines the scope, content and timetable for the preparation of an environmental document (EA, EIR, EIS).

project area - Has the same meaning as Baltic Mine Project area.

Proposed Action - A description of the project as proposed by the project proponent in the Plan of Operations and the Conditional Use Permit application.

public land - Any land and interest in land owned by the United States within the states and administered by the Secretary of the Interior through the Bureau of Land Management, without regard to how the United States acquired ownership, except: (1) lands located on the Outer Continental Shelf, and (2) lands held for the benefit of Indians, Aleuts, and Eskimos.

Reclamation Plan - A document that details the specific measures to be taken by the project proponent to reclaim the project lands during mining operations and after mining and leaching have been completed.

SMARA - See Surface Mining and Reclamation Act.

solution ditch -	An above-ground, trough-shaped structure that is lined with an impermeable material and engineered to convey cyanide solution from the heap leach pad to the solution pond.
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.
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.
unnecessary or undue -	In conjunction with the degradation of lands, describes activities which would cause environmental impacts greater than what would normally occur for specific activities, or would be necessary to conduct specific activities.
WSA -	Wilderness study area.
Waste Discharge Requirements -	A permit issued by the California Regional Water Quality Control Board which governs the construction, operation and closure of the heap leach pad, process ponds and the precious metals recovery plant.

APPENDIX A

Memorandum of Understanding and Preparation Plan

AF 579

RAND MINING COMPANY BALTIC MINE PROJECT ENVIRONMENTAL ASSESSMENT/ENVIRONMENTAL IMPACT REPORT

PREPARATION PLAN (TABLE OF CONTENTS, "FOCUS" ISSUES, AND SCHEDULE)

By request of the two (2) lead agencies (Ridgecrest Resource Area Office of the Bureau of Land Management [BLM] and the Kern County Department of Planning and Development Services [Kern County]), the Environmental Assessment (EA)/Environmental Impact Report (EIR) prepared by Environmental Management Associates (EMA) for the Rand Mining Company (Rand) Baltic Mine Project (Project) will focus on those issues of special concern which may not have been adequately addressed in the previous EA or Negative Declaration prepared for the Echo Bay Minerals, Inc. (Echo Bay) design for the Project, or which have been identified as issues of concern by commentors to the Notice of Preparation (NOP) distributed by Kern County or identified through other sources.

Echo Bay previously submitted a Plan of Operation (POO) to the BLM and an application for a Conditional Use Permit (CUP) to Kern County for an earlier design of the Project. The BLM prepared an EA for, and approved, the POO for the Echo Bay design of the Project. The BLM has determined that this POO approval remains valid for the 156 acres of surface disturbance within the 392-acre operations area. Kern County also conducted an environmental review of this Echo Bay-design for the Project (preparing a Negative Declaration under the California Environmental Quality Act (CEQA)). However, the application for a CUP was withdrawn by Echo Bay before the Negative Declaration was certified or the CUP was approved.

Rand subsequently acquired the Project from Echo Bay and has revised the Echo Bay design, slightly increasing the number of acres to be disturbed within the original area of operations to 164 acres. Rand has also added 35 acres of additional surface disturbance within an 140-acre addition to the operations area. Thus, surface disturbance under the revised Rand design for the Project will total 190 acres, within a revised operations area totalling 532 acres, compared to 156 acres of surface disturbance within an operations area of 392 acres for the Echo Bay design for the Project.

The following discussion regarding the EA/EIR focus issues follows the order of the attached proposed draft of the Table of Contents of the Draft EA/EIR. This proposed draft Table of Contents of the Draft EA/EIR follows the format suggested by Kern County as the preferable, although not mandatory, format for the EA/EIR. Also attached as Table 1 is the proposed Schedule for the preparation and completion of the EA/EIR.

CHAPTER 3 - DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

Section 3.1 - Proposed Action

The BLM has previously prepared an EA for, and approved, the Plan of Operation (POO) submitted by Echo Bay for an earlier design of the Project. The BLM has also determined that this approval remains valid for the 156 acres of surface disturbance approved within the 392-acre operations area. In contrast, Kern County prepared a Negative Declaration for the Echo Bay-design of the Project, but the application for a CUP was withdrawn by Echo Bay before the Negative Declaration was certified or the CUP approved.

To accommodate these two (2) different regulatory perspectives on what constitutes the "Proposed Action" for the purpose of the EA/EIR, the EA/EIR will primarily characterize (and, in the remaining sections of the EA/EIR, analyze the impacts of) the Project as now proposed by Rand as if there were no previous approval of the Echo Bay design. However, the EA/EIR will also: (1) briefly describe and evaluate the impacts of the Project by comparing the impacts of the Rand design for the Project to the impacts of the Project as proposed by Echo Bay; and (2) briefly evaluate the impacts of that portion of the Rand design of the Project for only for that area outside of the area of operations submitted by Echo Bay and approved by the BLM.

In conformance with the requirements of the BLM, the project description will include, to the degree consistent with the above limitations, all phases of the mining operation, and will include all roads, utilities, and processing facilities and any related BLM actions. In addition, in response to the comments received to the NOP, the project description in the EA/EIR will generally discuss reclamation of the site; procedures for topsoil stockpiling, revegetation methods, slope stability, and measures to minimize wind and water erosion and siltation. The section will also discuss closure elements: the ability of the heap to withstand the maximum credible earthquake: the mine waste strategy to prevent pollution: an analysis of alternative waste containment systems: and any relevant bench or pilot tests of representative ore samples to be leached to determine acid generating potential, ability to neutralize cyanide, and leachable heavy metals.

Section 3.2 - Alternatives to the Proposed Action

At present, the only alternative to the project as proposed by Rand which is proposed to be analyzed in the body of the EA/EIR is the "No Action" alternative. The EA/EIR section on alternatives will contain a brief discussion of alternative locations for those process components which have the ability to be relocated; a brief discussion of alternative technologies for mining and processing the ore, including cyanide application and pond covers/system enclosures; and a brief discussion on the alternatives for backfilling of the pits and decommissioning the heap leach piles; but will not evaluate these as alternatives in the body of the document.

CHAPTER 7 - HYDROLOGY

The EA/EIR will discuss (as available) information on groundwater occurrence and depth, and water quality data, from both the project area itself and the groundwater pumping area in Fremont Valley.

CHAPTER 9 - BIOLOGICAL RESOURCES

The principal biological resource of concern is the desert tortoise, although the Mohave ground squirrel will be a secondary focus of the EA/EIR. The EA/EIR will rely on the study recently completed for Rand of the Project area by Ted Rado and any complementary field work conducted by the BLM, information collected in previous field reports, environmental documents for adjacent projects, and agency planning documents/requirements. The document will evaluate the potential for impacts to the desert tortoise, such as from travel (on project roads, to and from the project area and the Fremont Valley pumping area, between the project area and employees' residences, etc.) and any impacts (ongoing or new) associated with the operation of the water well field in Fremont Valley.

Rand has committed to implementing, as a part of the proposed Project, those mitigation measures agreed to by Rand, the BLM, the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG) just a few months ago for the Rand Yellow Aster Project (which is adjacent to the Baltic project area). Therefore, the environmental impact of the proposed project will be evaluated in the EA/EIR by assuming that these measures are part of the Proposed Action. Thus, the impacts of the Project on the tortoise and the squirrel will be substantially less than those of the same project without these mitigation measures. Discussions between Rand and the three (3) agencies are continuing in regards to compensation for habitat lost as a result of additional habitat lost as a result of the surface disturbance occurring in the additional area of operations, and EMA will endeavor to have the EA/EIR remain current with any agreements which may be reached by the parties.

In addition to the impacts to the tortoise and the Mohave ground squirrel, in accordance with the comments received on the NOP, EMA will also generally discuss the short- and long-term impacts to vegetation and wildlife in Fremont Valley from the groundwater pumping operations; impacts to the big-eared bat and LeConte's thrasher, and the effects of reclamation (topsoil stockpiling, slope stability, and measures to minimize wind and water erosion and siltation) on protection and rehabilitation measures for these species of special concern.

CHAPTER 11 - CULTURAL AND PALEONTOLOGICAL RESOURCES

EMA will summarize the historical context of the Project area, as presented in the two (2) cultural resource surveys previously prepared, and generally describe the identified sites (without locating any of the sites or loci). EMA will endeavor to have the EA/EIR remain current with any decisions reached by the BLM Archaeologist regarding the eligibility of any or all of the identified sites for the National Register of Historic Places, and the results of any BLM consultation with the State Historic Preservation Office.

CHAPTER 14 - LAND USE

In accordance with comments received to the NOP, the EA/EIR will generally provide information regarding the current and planned use designations of the Project area; the number of acres in agricultural production, soil classification and acreages, and cropping history; a discussion of the impacts of the project and related developments on agriculture; and a brief discussion of whether development will create patterns of discontiguous growth.

CHAPTER 18 - CUMULATIVE IMPACTS

Cumulative impacts to the resources of focus in this EA/EIR will be addressed in a reasonably comprehensive manner. Existing and reasonably foreseeable mining operations (including the Yellow Aster, Descarga, Descarga "Reclamation", and Lamonte projects) existing or proposed in the immediate vicinity of the Project will be assumed as the "projects" to be analyzed in the Cumulative Impact Chapter of the Draft EA/EIR, as will those grazing activities, ORV and recreational use, and other developments in the immediate vicinity of the Project which could adversely impact the resources of focus in the EA/EIR. This will be accomplished by gathering information on the existing and reasonably foreseeable levels of these activities from the applicable public agencies and Rand.

The parties signing below have agreed to and accepted this Preparation Plan for the EA/EIR for the Baltic Mine Project:

U.S. BUREAU OF LAND MANAGEMENT

Lee Delaney — Dated 7/25/91

Lee Delaney
Area Manager, Ridgecrest Resource Area

RAND MINING COMPANY

Ted Naylor — Dated 7/25/91

Ted Naylor
Project Manager

KERN COUNTY DEPARTMENT OF PLANNING AND DEVELOPMENT SERVICES

William Larsen — Dated 7/29/91

William Larsen
Senior Planner

ENVIRONMENTAL MANAGEMENT ASSOCIATES, INC.

Dwight L. Carey — Dated July 19, 1991

Dwight L. Carey
Vice President

[Note: The following agencies submitted comments in response to the NOP for the EA/EIR issued by Kern County, and these comments were used in the preparation of this discussion of the "focus" issues for the EA/EIR:

- The Desert Tortoise Council
- California Regional Water Quality Control Board. Lahontan Region
- Kern County Museum
- Kern County Floodplain Management Section
- California Department of Transportation
- California Department of Food and Agriculture
- Kern County Water Agency
- California Department of Conservation

The following agencies received the NOP for the EA/EIR and apparently did not respond or submit comments:

- Kern County Public Works Department
- Kern County Public Works Department/Roads
- Kern County Environmental Health Services Department
- Kern County Fire Department
- Kern County Sheriff's Department/Crime Prevention
- Kern County Air Pollution Control District
- Kern County Parks and Recreation Department
- Kern County Clerk
- California Department of Fish and Game (however. Rand. BLM and EMA have all already been in contact with the Fresno office regarding the tortoise)
- Public Utilities Commission
- U.S. Fish and Wildlife Service
- Soil Conservation Service
- Environmental Protection Agency
- California Department of Water Resources
- State Historic Preservation Office
- California Air Resources Board
- California Department of Health Services
- East Kern Resource Conservation District
- County of San Bernardino
- Sierra Sands School District
- Rand Community Water District

- Southern California Edison/Ridgecrest
- California Department of Parks and Recreation
- California Reclamation Board
- Native American Heritage Commission
- California State Lands Commission
- Waste Management Board.]

RAND MINING COMPANY
BALTIC MINE PROJECT
ENVIRONMENTAL ASSESSMENT/ENVIRONMENTAL IMPACT REPORT

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TABLE 1
RAND MINING COMPANY - BALTIC MINE PROJECT
SCHEDULE FOR PREPARATION AND COMPLETION OF THE EA/EIR

ACTIVITY	START DATE	END DATE
Rand Submits Application for Conditional Use Permit to Kern County	02/19/91	02/19/91
Rand Submits Amended Plan of Operations to BLM	02/21/91	02/21/91
Rand Submits Biological Assessment for Additional Operations Area and Requests BLM Initiation of Section 7 Consultation with USFWS	04/12/91	04/12/91
Kern County Distributes "Notice of Preparation of Draft Environmental Impact Report" for Review and Comment	05/09/91	06/14/91
First EA/EIR Initiation Meeting - BLM, Rand and EMA	06/11/91	06/11/91
Rand Delivers Supplemental Cultural Resources Report to BLM	06/11/91	06/11/91
BLM Reviews Supplemental Cultural Resources Report and Makes Determination Regarding Significance of any Sites	06/11/91	07/19/91
BLM Conducts Informal Section 7 Consultation with USFWS (and 2081 Permit Consultation with CDFG) regarding Desert Tortoise and Mohave Ground Squirrel	06/11/91	11/08/91
Second EA/EIR Initiation Meeting - BLM, Rand and EMA	07/09/91	07/09/91
EMA Prepares and Submits Draft MOU to BLM and Rand	07/09/91	07/09/91
EMA Prepares and Submits Draft of EA/EIR Preparation Plan to BLM, Kern County and Rand	07/09/91	07/09/91
BLM, Kern County and Rand Review and Accept EA/EIR Preparation Plan	07/09/91	07/19/91
BLM and Rand Agree to MOU and Distribute for Signature	07/09/91	07/19/91
EMA Prepares and Submits to BLM, Kern County and Rand Internal Draft of EA/EIR "Description of Proposed Action and Alternatives" Chapter and "Reasonably Foreseeable Future Scenario" Section of "Cumulative Impacts" Chapter	07/09/91	08/12/91
BLM Submits Cultural Resources Report to SHPO	07/19/91	08/09/91
SHPO Review	08/09/91	09/20/91
BLM, Kern County and Rand Review and Return Comments to EMA on Draft of EA/EIR "Description of Proposed Action and Alternatives" Chapter and "Reasonably Foreseeable Future Scenario" Section of "Cumulative Impacts" Chapter	08/12/91	08/26/91
BLM Submits EMA Prepared Internal Drafts of EA/EIR "Description of Proposed Action and Alternatives" Chapter and "Reasonably Foreseeable Future Scenario" Section of "Cumulative Impacts" Chapter to BLM-Riverside and BLM-Sacramento for Concurrence on Approach	08/12/91	08/26/91
EMA Prepares Remaining Chapters of the EA/EIR and Submits One (1) Copy of the Complete Internal ("Administrative") Draft of the EA/Draft EIR each to BLM, Kern County and Rand	08/12/91	09/30/91

Table 1 (Continued)
Rand Mining Company - Baltic Mine Project
Schedule for Preparation and Completion of the EA/EIR

ACTIVITY	START DATE	END DATE
Rand Holds Public "Open House" for Yellow Aster and Proposed Baltic Projects in Morning	08/17/91	08/17/91
BLM/EMA Hold Public Meeting on Proposed Baltic EA in Afternoon	08/17/91	08/17/91
BLM, Kern County and Rand Review and Comment on the Internal Draft of the EA/Draft EIR	09/30/91	10/14/91
EMA Revises the Internal Draft of the EA/Draft EIR and Prepares and Distributes 50 Copies to Agencies and Public with "Notice of Completion"	10/14/91	11/04/91
Public Review Period (45 days)	11/08/91	12/27/91
Formal Section 7 Consultation with USFWS (and CDFG 2081 Permit Consultation)	11/08/91	03/09/92
EMA Prepares Draft of CEQA and Other Required "Findings" and Submits to Kern County for Review and Comment	11/18/91	02/07/91
EMA Reviews Public Comments and Prepares and Submits the Internal Draft of the Responses to Comments and Revisions to the EA/Draft EIR ("EA/Final EIR") to BLM, Kern County and Rand	12/27/91	01/24/92
BLM, Kern County and Rand Review and Comment on the Internal Draft of the EA/Final EIR	01/24/92	02/07/92
BLM Reconfirms Use of EA for Mining Project Using Cyanide with BLM-Riverside and BLM-Sacramento	08/12/91	08/26/91
EMA Revises the Internal Draft of the EA/Final EIR and Prepares and Distributes 50 Copies to Agencies and Public	02/07/92	02/28/92
Kern County Reviews and Comments on Draft CEQA and Other Required Findings Prepared by EMA	02/07/91	02/28/91
BLM Issues Decision Record Approving Project	02/28/92	03/13/92
Certification of EA/EIR and Approval of Conditional Use Permit by Kern County Board of Zoning Adjustment	02/28/92	03/18/92
Kern County Files Notice of Determination with County Clerk and State Clearinghouse	03/18/92	03/18/92

MEMORANDUM OF UNDERSTANDING
Among

Rand Mining Company

The County of Kern

and

U.S. Department of the Interior
Bureau of Land Management
California Desert District

I. INTRODUCTION AND PURPOSE

Rand Mining Company (hereinafter "Rand") is proposing to develop the Baltic Mine project (hereinafter "project") to be located on public land within the boundaries of land administered by the U.S. Department of the Interior, Bureau of Land Management, California Desert District (hereinafter "BLM"), and the County of Kern, California (hereinafter "the County"). BLM has determined that an environmental impact statement (EIS) is required. The EIS must comply with the National Enviromental Policy Act of 1969 (NEPA), 42 U.S.C. 4321 et seq., and related requirements, including the Council on Environmental Quality (CEQ) Regulations, 40 CFR 1500-1508 and BLM NEPA Handbook H-1790-1. The EIS will need to be prepared before a decision on the Project can be made.

Kern County has determined that an environmental impact report (EIR) is required. The EIR must comply with the California Environmental Quality Act (CEQA), California Public Resources Code Division and all other applicable laws and regulations.

The purpose of this Memorandum of Understanding (hereinafter "MOU") is to set forth the understanding between BLM, the County and Rand (hereinafter "Parties") pertaining to conditions and procedures to be followed in preparing and completing a joint EIS/EIR, including the environmental and technical information collection, analysis and reporting necessary to fully comply with the NEPA and CEQ regulations, CEQA, and guidelines pertaining thereto.

II. GENERAL RESPONSIBILITIES

A. The BLM shall be responsible for ensuring compliance with all requirements of NEPA and CEQ regulations and shall be responsible for the scope and content of the EIS.

B. The County shall be responsible for ensuring compliance with all requirements of CEQA, and shall be responsible for the scope and content of the EIR.

*C. Rand shall, as needed and appropriate, enter into a contract(s) with an independent contractor(s), hereinafter collectively referred to as "Contractor" selected by the BLM and the County for appropriate baseline data collection, scoping project impact assessment and preparation of the EIS/EIR. Any retained contractor(s) may employ such other contractors and experts, with the approval of the BLM, County, and Rand as are required for adequate data collection, analysis and EIS/EIR preparation.

D. As required, BLM shall be responsible for consulting with U.S. Fish and Wildlife Service for a section 7 consultation and the California State Historic Preservation Office for a section 106 consultation. At the discretion of the BLM, the contractor shall furnish such data or information as required to accomplish such consultation.

III. OBTAINING A CONTRACTOR

A. BLM and the County shall develop, in consultation with Rand, the evaluation criteria to be used for selecting the contractor for preparation of the EIS/EIR documents. The evaluation criteria shall contain, but not be limited to, the following factors:

1. Expertise in data gathering and analysis in appropriate areas of environmental concern, such as biology, visual resources, soils, water and air resources and quality, threatened and endangered species and

other wildlife and vegetation, cultural and historic resources and social and economic analysis.

(*As appropriate)

2. Demonstrated ability to understand and perform environmental analyses through expertise and experience.

3. Ability to produce thorough, concise, readable and informative documents.

4. Evidence of good working knowledge of NEPA, CEQA and other applicable Federal, state and local laws, regulations and administrative requirements.

5. Demonstrated experience and ability to prepare and complete environmental documents, including draft and final EISs/EIRs, on similar or related projects within a reasonably established time schedule.

B. Prospective contractors will be asked to submit expressions of interest in preparing the EIS/EIR. BLM, the County, and Rand shall identify the contractors who potentially meet the evaluation criteria from the list of those prospective contractors expressing interest in preparing the EIS/EIR.

C. BLM and the County in consultation with Rand shall evaluate the qualifications of the prospective EIS/EIR contractors with the use of the evaluation criteria. BLM and the County shall have mutual responsibility for the final selection of the consultant. The contractor shall not be involved in preparing the engineering plans and construction designs. The contractor shall not have any financial or economic interest in the planning, design, construction, or operation of the proposed project. Prior to the execution of the contract(s) between Rand and the contractor, the contractor shall execute a Statement of Financial Interest (SOFI), prepared by BLM in accordance with 40 CFR 1506.5(c), specifying that the contractor has no financial or other interest in the outcome of the project.

* D Rand shall prepare and execute a contract(s) with the approved contractor for preparation of an EIS/EIR which is consistent with this MOU and is agreeable to BLM and the County. All costs incurred pursuant to the contract shall be the sole responsibility of the Rand.

(* As appropriate)

E. The contract shall provide that the contractor agrees to hold harmless and indemnify BLM and the County with respect to any and all claims, demands, cause(s) of action, and liabilities which may arise from the contractors performance, purchases or services utilized in the preparation of the EIS/EIR.

F. The contract shall provide that the contractor shall cooperate in defense of any suit involving the legality or adequacy of BLM's or the County's compliance with NEPA or CEQA with regard to this EIS/EIR.

G. Rand shall require the full cooperation of the contractor with respect to participation in public meetings required by BLM and the County to foster public familiarity and participation with respect to the NEPA/CEQA process.

H. If, for any reason, a change in the contractor or subcontractors becomes necessary, the BLM and the County will engage in the same selection procedure provided above, and apply the same standards to the selection of such subsequent contractor or subcontractors.

IV. GENERAL PROVISIONS

A. The parties shall make every effort to comply with the time schedule to be established during Preparation Plan development as identified in Section V.C.

B. Subject to the confidentiality requirements in paragraph V.Q., in all instances involving questions as to the content or relevance of any material (including all issues, data, analyses, conclusions and wording) in the EIS/EIR, BLM shall make the final determination on the inclusion, deletion or revision of the material, and shall have the ultimate responsibility of ensuring compliance with the requirements of NEPA. The County shall make the final determination with regard to compliance with CEQA.

C. Rand agrees to hold harmless and indemnify the BLM and the County and their officers, agents, and employees, with respect to any and all judgements or settlements arising from claims, demands or causes of action in connection with any failure by Rand to pay for the employment of the contractor or which may arise from termination of the performance of the Consulting Contracts or from any other failure by Rand to pay the contractor for their services or purchases of materials utilized for the development and preparation of the EIS/EIR, or from termination of this MOU. This indemnification by Rand does not extend to suits by third parties (other than the contractor against the BLM or the County involving the legality or adequacy of compliance with NEPA or CEQA). In addition Rand agrees to hold harmless or indemnify BLM or the County with respect to all judgements or settlements arising from any and all claims, demands or causes of action in connection with any portion or element of work to be performed by the (project proponent) or any contractor as contemplated by and, or in connection with this MOU.

D. Parties Agree:

1. For the purpose of coordinating the responsibilities of the parties for the preparation of an EIS/EIR on the Project:

a. Rand designates: Ted Naylor

b. BLM designates: Peter Milne

c. County designates: William Larson

as representatives of the parties. Actual delivery of written notice to the above representatives or such substitute representatives as the respective parties may hereinafter designate, shall constitute notice to that organization.

2. The Representatives named above shall:

a. Devote such time and effort to coordinating and reviewing the contractor's and others' work contemplated by this MOU to reasonably maintain the schedule to be established in the preparation plan as identified in Section V.5.

b. Review all substantive phases of the preparation of the EIS/EIR.

c. Have their respective representatives attend necessary public meetings and meetings necessary with federal, state, regional and local agencies for the purpose of increasing communications and receiving comments, as the same may be necessary, desirable, or required by law, and insofar as such meetings are relevant to the development and preparation of the EIS/EIR. To the extent practicable, the parties will consolidate meetings with interested agencies and organizations in order to minimize the number of such meetings and the costs associated with such meetings.

d. Ensure coordination of effort and exchange of data and information.

V. PROCEDURES

*A. BLM shall prepare environmental assessment to document the need to prepare an EIS/EIR.

B. BLM and the County shall jointly designate any other lead or cooperating agencies.

C. BLM shall prepare and publish a Notice of Intent (NOI) in the Federal Register as soon as practicable after completion of the EA.

D. The County shall prepare and issue a Notice of Preparation (NOP).

E. The Contractor shall submit to BLM and the County for approval a detailed Preparation Plan to guide the preparation of the EIS/EIR and define the organization, scheduling and content of the EIS/EIR. The Preparation Plan will be prepared in accordance with BLM NEPA Handbook H-1790-1 (Chapter V. Section B).

F. The contractor shall prepare a detailed Study Plan as appropriate or needed which includes a description of the Baseline Data Collection Program. This description will describe the scope of the intended baseline study needs for each environmental category pertinent to preparing the EIS/EIR. The baseline data collection needs for each environmental category will identify the specific types of data to be collected and the methodologies to be followed during data collection activities.

G. Once approved by BLM and the County, and concurred with by Rand, the Preparation Plan, and Study Plan shall establish the scope of the work required in the acquisition of environmental data and the development and preparation of the EIS/EIR.

H. The approved Preparation Plan, and Study Plan may be modified at the request of either BLM or the County, subject to concurrence by the other party. BLM and the County shall inform Rand in writing of any such changes.

I. The contractor will be responsible for conducting scoping meetings with the public and other agencies at the beginning of the process. These meetings will be held to determine the areas of public and agency concerns pertaining to the proposed project, and to guide the parties in scoping the EIS/EIR, BLM and the County in consultation with Rand, shall determine the final scope of the EIS/EIR.

J. Subject to paragraph U of this section, the contractor shall have primary responsibility for writing or rewriting all sections, parts, or chapters of the EIS/EIR consistent with the overall time schedule developed in the Preparation Plan.

K. Generally, joint meetings of the parties shall be held to coordinate EIS/EIR preparation. BLM staff or the County staff may at times work directly with the contractor without the participation of the other party, but the other party shall be informed of such meetings and be given the opportunity to participate. All significant meetings or conversations will be summarized in writing if mutually agreed upon, for the benefit of all parties.

L. Contact or communication between Rand and the contractor shall be the minimum necessary to carry out the purpose and objectives of this MOU. Participation of Rand in any private meetings, discussion, or working sessions shall be at the discretion of BLM and the County.

M. BLM and the County shall monitor the work of the Contractor to ensure compliance with NEPA and CEQA. On a regular basis, the contractor will report to BLM, the County, and Rand on the progress of the work, problems encountered, recommendations for modifications to the Study Plan and Preparation Plan, and suggested changes in methodology or schedules for completion of the EIS/EIR. Working papers or documents shall be transmitted simultaneously to BLM, the County and Rand for review. BLM and the County will determine the need for review by concerned governmental agencies, or other interested parties, and solicit their comments as appropriate.

N. The contractor shall produce a preliminary draft EIS/EIR for review by BLM and the County. The preliminary draft shall include all text, maps, appendices, tables, charts and other materials that will be incorporated in the Draft EIS/EIR. As determined by BLM and the County, a reasonable number of copies shall be provided by the contractor to each party to meet internal review needs. Concurrently, additional copies may be provided to Rand.

O. BLM and the County shall review the preliminary draft EIS/EIR and provide comments to the contractor in writing. Effort shall be made to provide comments within four weeks of receipt of the completed preliminary draft. BLM and the County may request a meeting with contractor and Rand to discuss comments and necessary revisions of the preliminary draft EIS/EIR acceptable to BLM and the County. Additional review may be required.

P. On written direction of BLM and the County, the contractor shall prepare and submit a draft EIS/EIR for approval by the BLM State Director and the authorized County Official before printing and distribution to the public.

Q. The printing and mailing of the draft EIS/EIR shall be the responsibility of the contractor. BLM and the County will provide a mailing list to the contractor distributing the EIS to the public and to other federal, state, and local agencies as required by law. BLM will file the draft EIS/EIR with the Environmental Protection Agency (EPA) and publish a Notice of Availability of the document in the Federal Register.

R. BLM, the County, and the contractor shall jointly schedule and conduct public meetings to receive comments on the draft EIS/EIR during the public review period. BLM shall receive and log written comments submitted on the draft EIS/EIR during the public review period. Copies of the comments will be submitted to the contractor to prepare preliminary responses. BLM and the County shall review the preliminary responses for accuracy, and identify any necessary revisions before they are incorporated into the Final EIS/EIR. The final EIS/EIR will be prepared and reviewed in the same manner as the draft EIS/EIR.

S. BLM and the County shall have final authority to determine the text of the final EIS/EIR. Upon acceptance and approval of the final EIS/EIR, BLM shall authorize its release to the public and to other federal, state and local agencies. The contractor shall be responsible for printing and mailing the final EIS/EIR, and BLM and the County shall be responsible for providing a current mailing list. BLM will file the final EIS/EIR with EPA and publish a Notice of Availability in the Federal Register.

T. BLM and the County reserves the right to prepare, at its option and independent of the contractor, selected sections of the draft or final EIS/EIR. As appropriate, BLM will provide such prepared material in a time manner consistent with the agreed upon schedule established during the scoping period to ensure its integration into the final EIS/EIR.

U. Rand and the contractor will, upon request, provide BLM and the County all procedures and underlying data used in developing submitted sections of the draft and/or final EIS/EIR including, but not limited to, final reports, subcontractor reports, and interviews with concerned private and public parties, whether or not such information may be contained in the working papers or the draft and/or EIS/EIR. BLM and the County shall maintain the confidentiality of all information, documents or materials which Rand or the contractor designates as confidential in accordance with federal laws, regulations and policies.

V. BLM and the County will notify Rand and the contractor if appropriate, of any pertinent meetings that are scheduled. BLM and the County reserve the right to consult directly, without notice or report to Rand, with other federal, state and local officials during the preparation of the EIS/EIR to ensure objectivity and compliance with NEPA and CEQA. BLM and the County will immediately notify Rand if matters discussed at any such consultation will require significant changes in Plan of Operations that Rand has filed with the BLM or the County or require Rand to incur significant additional costs pursuant to this MOU or the Consulting contract.

W. With respect to all analysis, including review, drafts and final copies of the EIS/EIR Rand and the contractor shall be responsible for stenographic, clerical, graphics, layout, printing and like costs. Rand shall be solely responsible for the costs of preparing and providing to the BLM and the County sufficient copies of the draft and final EIS/EIR and modifications as well as a copy of supporting technical documents prepared to conjunction with draft and/or final EIS/EIR by the contractor.

X. For the duration of the project, Rand and the contractor will not enter into any other contracts or agreements resulting in the contractor's provision of services to Rand related to the project.

Y. Any and all media releases, public mail-outs, or formal/public discussions shall be made with the approval and at the direction of the BLM and the County.

VI. TERMINATION

A. Any party to this MOU may terminate the same upon 30 days written notice to the other party. During the 30-day period, the parties will actively attempt to resolve any disagreement.

B. In the event of termination of the MOU and if preparation of an EIS/EIR is still required, it is agreed as follows:

1. **BLM, the County and Rand shall have access to all documentation, reports, analyses, and data developed by the contractor but Rand shall own and possess the same.**

2. Liability to the contractor for termination shall be in accordance with section IV.C.

VII. MODIFICATION

This MOU may be modified by the parties hereto by mutually agreed upon written amendment.

VIII. MISCELLANEOUS

No member of or delegate to Congress, or resident commissioner, shall be admitted to any share or part of this agreement, or to any benefit arising form it. However, this clause does not apply to the agreement to the extent that is made with a corporation for the corporation's general benefit.

IX. Assignment of this MOU may be made by Rand only with consent of the BLM and the County.

This MOU will be effective as of the last date signed below.

By_______________

Rand Mining Company

Date April 29, 1992

By_______________

County of Kern, Senior Planner

Date_______________

By_______________ 4/29/92

BLM, Ridgecrest Area Manager

APPENDIX B

Reclamation Plan

RAND MINING COMPANY

BALTIC MINE PROJECT

RECLAMATION PLAN

BUREAU OF LAND MANAGEMENT
RIDGECREST RESOURCE AREA
Ridgecrest, California

and

KERN COUNTY
DEPARTMENT OF PLANNING AND
DEVELOPMENT SERVICES
Bakersfield, California

April, 1992

RAND MINING COMPANY

BALTIC MINE PROJECT

RECLAMATION PLAN

Prepared for:

BUREAU OF LAND MANAGEMENT
RIDGECREST RESOURCE AREA
Ridgecrest, California

and

KERN COUNTY
DEPARTMENT OF PLANNING AND
DEVELOPMENT SERVICES
Bakersfield, California

April, 1992

Prepared by:

RAND MINING COMPANY
P.O. Box B
Randsburg, California 93554

RAND MINING COMPANY
BALTIC MINE PROJECT
RECLAMATION PLAN

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RAND MINING COMPANY
BALTIC MINE PROJECT
RECLAMATION PLAN

1. INTRODUCTION

This Reclamation Plan has evolved as a result of the review of the project under the Environmental Impact Statement/Environmental Impact Report (EIS/EIR) process in response to agency and public comment. Therefore, the Reclamation Plan contains the environmentally preferred actions (alternatives) identified in the Draft EIS/EIR and from agency comments following release of the Administrative Review Draft.

The Baltic Mine Project (Project) is owned and operated by Rand Mining Company (Rand), a subsidiary of Glamis Gold, Inc. The project consists of two (2) surface mines and associated waste rock stockpile and ore processing facilities located in eastern Kern County, California. Briefly, the Project includes two (2) open pits, a waste rock stockpile, heap leach system, precious metals recovery processing plant and ancillary facilities.

1.1. Project Location

The Project is located in Kern County, approximately 40 miles northeast of the town of Mojave and 25 miles south of the community of Ridgecrest (Figure 1). Access to the project area is via Butte Avenue, a paved county road, from the town of Randsburg. The mineral deposit lies within the Stringer mining district.

1.2. Project Description

The location of the Baltic Mine Project is dictated by the presence of the gold deposit. The size and shape of the project area, and the facilities arrangement within the area, is dependent upon the patented and unpatented mining claims owned or

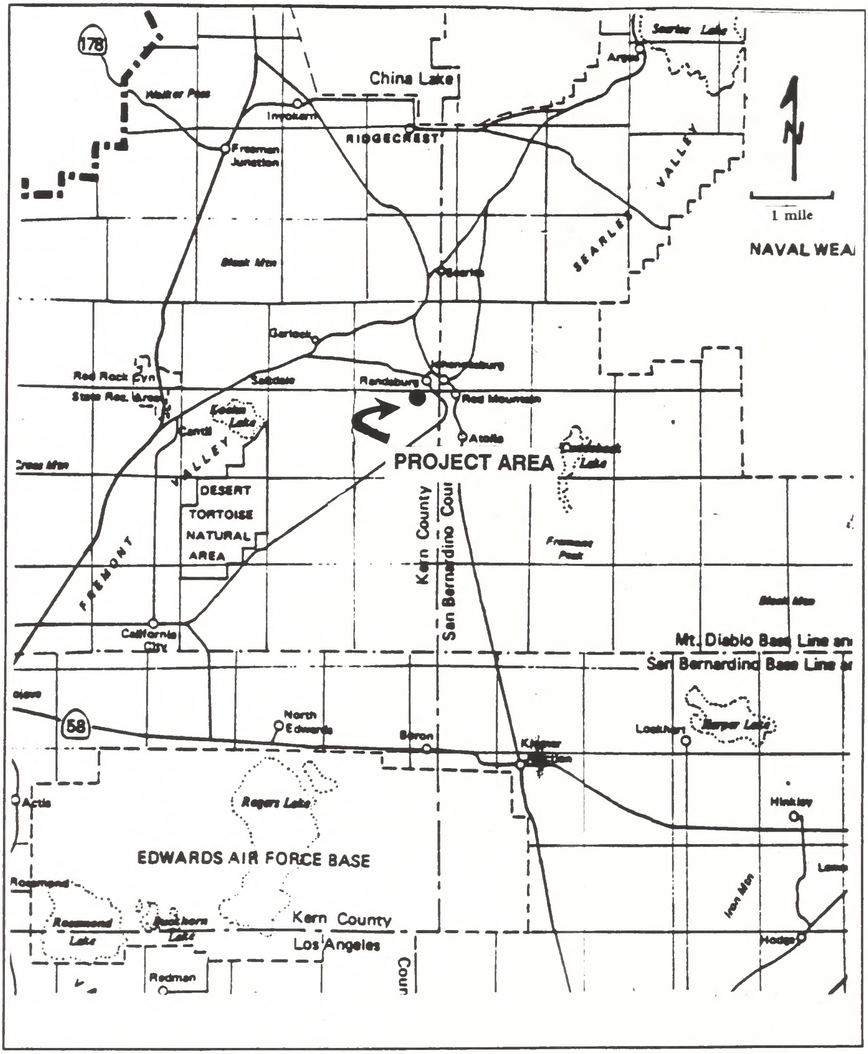


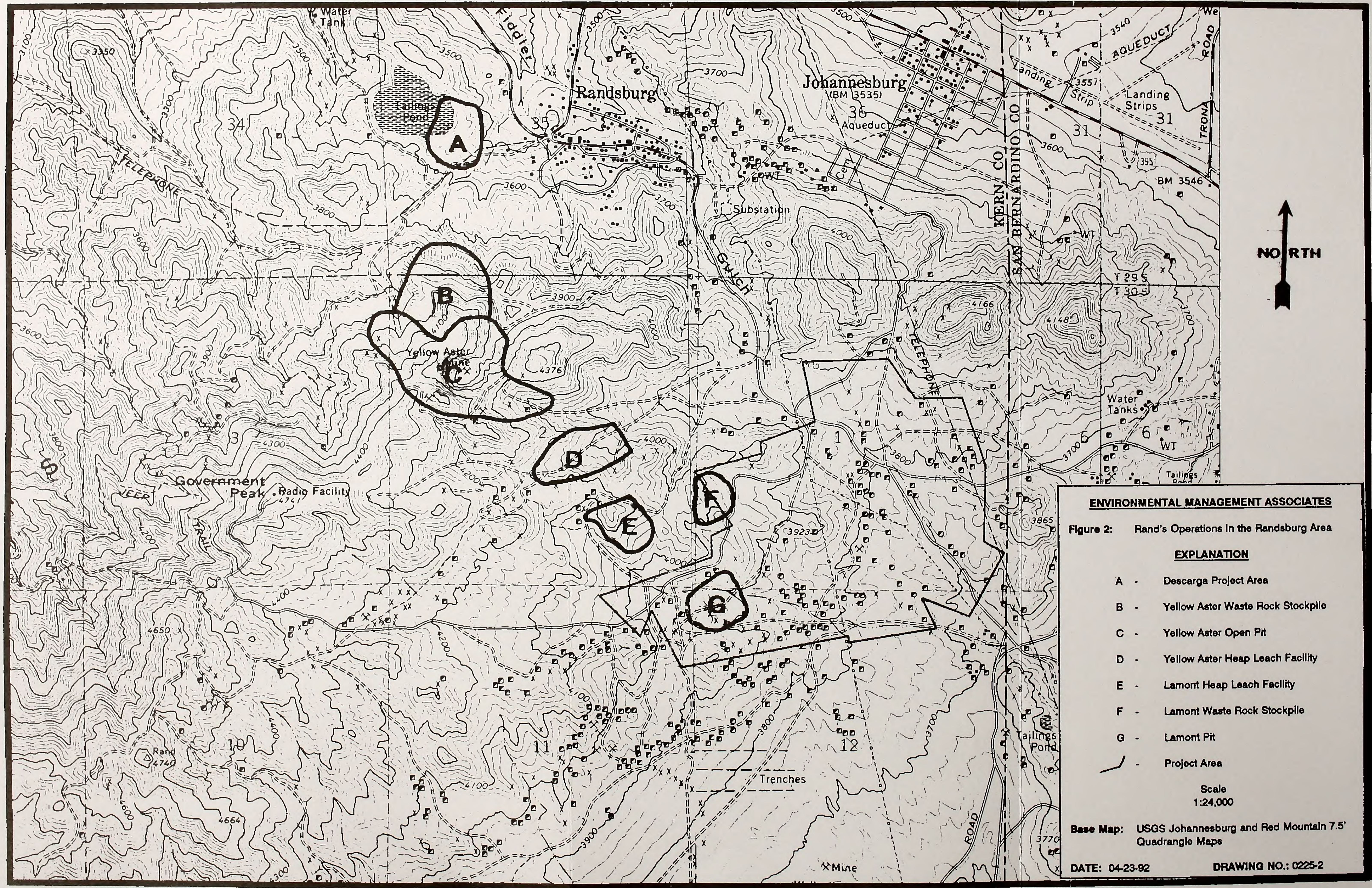
Figure 1: General Project Location Map

controlled by Rand Mining, the location of the mineral deposit and pre-Project encumbrances such as rights-of- ways and roads. The reader is referred to the Baltic Mine Project Draft EIS/EIR for a complete dissertation on the site selection and alternatives studied for the Project.

The Project would require the new or continued disturbance of approximately 230 acres of combined public and private land within a 532 acre project area. The project area is located within portions of Sections 1, 2, 11 and 12, T30S, R40E, MDBM, adjacent to Rand's other operations in the area (Figure 2). The project area is located between elevations 3,700 feet above mean sea level (msl) and 3,900 feet msl on the lower flank of the northeastern portion of the Rand Mountains, southeast of Government Peak.

Present ore reserve estimates are 15 million tons (short tons) of heap leach material. Annual production would come from three (3) million short tons of heap leach material. The active mine life is estimated at five (5) to six (6) years. Another nine (9) million tons of sub-economic material (waste rock) would be mined and disposed of on-site.

The Project would involve development of one (1) new mine (Baltic) and the expansion of the existing Lamont mine. Mineralized rock would be mined and processed using the standard technology of a heap leach pad and cyanide solution extraction, carbon adsorption circuit, carbon desorption circuit and electrowinning process. Generally, after the soils are stripped, ore grade material would be removed via standard drill and blast methods, loaded and hauled by truck to the leach pad. The gold would be chemically extracted by a cyanide solution, which with the exception of loss by evaporation, is contained in a designed and engineered closed system.


ENVIRONMENTAL MANAGEMENT ASSOCIATES
Figure 2: Rand's Operations In the Randsburg Area
EXPLANATION
A - Descarga Project Area
B - Yellow Aster Waste Rock Stockpile
C - Yellow Aster Open Pit
D - Yellow Aster Heap Leach Facility
E - Lamont Heap Leach Facility
F - Lamont Waste Rock Stockpile
G - Lamont Pit
- Project Area
Scale
1:24,000
Base Map: USGS Johannesburg and Red Mountain 7.5' Quadrangle Maps
DATE: 04-23-92
DRAWING NO.: 0225-2
NORTH
Randsburg
Johannesburg
(BM 3535)
Tailings Pond
Water Tank
Fiddler
Aqueduct
AQUEDUCT
Landing Strip
Landing Strips
TRONA ROAD
BM 3546
Substation
Gulch
KERN CO.
SAN BERNARDINO CO.
TELEPHONE
Yellow Aster Mine
Government Peak
Radio Facility
JEEP TRAIL
Water Tanks
Trenches
Mine
ROAD
Tailings Pond
T 29 S
T 30 S
A
B
C
D
E
F
G

Employment during production operations would reach approximately 60 people, with an estimated annual payroll of $1,410,000.00.

The Project is supported by extensive drill hole and assay data, metallurgical test data, and preliminary mine and processing engineering studies. The Reclamation Plan is a fair and accurate description of the anticipated closure and reclamation planning, practices and costs for the Project. As the Project commences and moves through the construction and production phases, changes and modifications may occur based on best engineering and management practices, regulatory direction, and permit stipulations.

An environmental analysis of the Project is required at both the state and federal levels. The Bureau of Land Management and Kern County have agreed to prepare a joint Environmental Impact Statement (EIS)/Environmental Impact Report (EIR) to meet the requirements of the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA).

1.3. Purpose and Use of the Plan

This document will be used by Rand Mining as a guide to the operation, closure and reclamation of the Project. By having a completed and approved Reclamation Plan prior to the beginning of the Project, a higher level of environmental and reclamation efficiency can be employed at the site. County, State and Federal agencies can use this plan as a checklist of the Project's closure and reclamation related requirements. Further, this document will serve as the basis for further revisions as the on-site trials produce useable data which can enhance the proposed Plan. It is anticipated the on-site trials will produce valuable refinements to the reclamation procedures. Insights to the ecology of the existing vegetation types could be used to improve the success evaluation, reclamation and monitoring procedures. Therefore, this plan will evolve as information is accumulated.

1.4. Goals and Objectives

The present land uses of the Project area are mining, wildlife habitat, sheep grazing and recreation. The post mining goals and objectives for reclamation of the Project area are to return the land to a similar land use, ensure public safety and to prevent unnecessary or undue degradation of the federal and private lands during operations and until reclamation is successful.

1.5. Operator Information

OPERATOR:	Rand Mining Company P.O. Box B Randsburg, California, 93554 (619) 374-2467
GENERAL MANAGER:	Mr. Steven S. Stillar

Rand Mining Company is a wholly-owned subsidiary of Glamis Gold Inc., with headquarters in Sparks, Nevada. The Baltic Mine will be managed throughout its life by Rand Mining Company which may perform some of its responsibilities by engaging personnel of affiliated Glamis Gold Ltd. companies.

1.6. Land Status and Claimant/Claims Information

The land status of the Project is a complex combination of private surface and minerals (patented mining claims), and Federal surface and minerals (unpatented mining claims). Rand presently controls all the patented and unpatented mining claims which comprise the Project area. Rand controls, by ownership, lease, purchase, or option agreements, all of the mineral and surface rights necessary for the Project.

2. ENVIRONMENTAL SETTING

Surface water drainage in the area trend to the southeast. Drainages in the northeastern portion of the Rand Mountains are ephemeral, and mainly fed by precipitation from winter storms. Groundwater is extremely deep in the project area. Groundwater has not been encountered during mineral exploration drilling that has penetrated depths to 500 feet below the ground surface.

The project area is located within the Creosote Bush Scrub vegetation community typical of the western Mojave desert. Common perennial species in this community include creosote bush, Mormon Tea, burro bush, and blackbush. Perennial vegetation cover is less than 25 percent in undisturbed areas. Soils within the project area are generally shallow, rocky sandy-loam paleosoils which formed under more moist conditions in the mid-Pleistocene. Average precipitation at the site is 5 to 6 inches per year, occurring as winter storm events, snowfall, and sporadic afternoon thunderstorm events during late summer.

A more detailed description of the environmental setting is contained in Chapter 3 of the Baltic Mine Project Draft EIS/EIR.

3. OPERATING PLAN

The operating plan is summarized in Chapter 2 of the Baltic Mine Project Draft EIS/EIR. If more detailed information is required, the reader should consult the Application for Conditional Use Permit on file with Kern County in Bakersfield, California; the Plan of Operation on file with the Bureau of Land Management in Ridgecrest, California: the Report of Waste Discharge on file with the California Regional Water Control Board in Victorville, California; and the Authority to Construct on file with the Kern County Air Pollution Control District in Bakersfield, California.

4. RECLAMATION PLAN

The Reclamation Plan addresses all surface disturbance created by Rand within the Baltic Mine Project area, as outlined in Table 1. Reclamation planning and implementation is anticipated to be an on-going program, conducted concurrent with mining operations. A major part of the Reclamation Plan will be initiated upon termination of operations and mine closure.

In general, the Reclamation Plan includes measures for the protection of wildlife, livestock and the public; reduction of erosion and mass failure potential; demolition of structures and detoxification of process components; regrading of selected cut and fill slopes; and where feasible, measures to allow for the resumption of pre-mining land uses.

Table 1: Proposed Surface Disturbance Acreage for the Baltic Mine Project

Item	Project Facility	Acres
Mining Operations Portion of the Proposed Action	Baltic Pit	38.7
	Lamont Extension Pit	17.8
	Leach Pad	70.7
	Waste Rock Storage	54.7
	Plant Site	4.2
	Haul and Exploration Roads	13.6
Total Proposed Surface Disturbance for the Baltic Mine Project		199.7
Existing Surface Disturbance Created by Rand in the Baltic Project Area	Existing Lamont Waste Storage Area	16.8
	Existing Lamont Pit	13.6
Total Existing Surface Disturbance Created by Rand in the Baltic Project Area		30.4
Total Surface Disturbance to be Reclaimed by Rand in the Baltic Project Area		230.1

4.1. Statutory and Regulatory Requirements

Reclamation of areas disturbed by the Project will comply with the Federal Land Policy and Management Act (FLPMA), the Surface Mining and Reclamation Act (SMARA) and State and County requirements in order to minimize water degradation, air pollution, damage to wildlife habitat, reduce erosion, prevent undue and unnecessary degradation and provide for public health and safety. The State of California will monitor compliance of the Reclamation Plan under Title 14, California

Code of Regulations, Section 3502. The Bureau of Land Management will administer the Reclamation Plan in accordance with the 43 CFR 3809 regulations and current policy.

4.2. Post-Mining Land Use

Present or pre-mining land use of the Baltic Project area includes mining, recreation (target practice and off-highway vehicle use), wildlife habitat, and to a lesser extent, cattle and sheep grazing.

Post-mining land use is expected to be similar. The expected short and long-term changes, alterations, and modifications in these land uses are discussed in depth in the EIS/EIR for the project. These land uses are entirely consistent with the California Desert Conservation Area (CDCA) Plan of 1980, as amended, and the Kern County General Plan.

4.3. Summary of Disturbance

Table 1 is a summary of the disturbance anticipated at the site. After the construction phase of the project is completed in year one, interim and concurrent reclamation will begin in areas where possible.

4.4. Reclamation Practices

The reclamation approach and procedures outlined in this section were developed for the site-specific conditions of the Project. The procedures are designed such that the mining-related disturbance areas are reclaimed to a productive use similar to the pre-mining land uses and the reclaimed areas are visually and functionally compatible to the surrounding topography.

The reclamation procedures proposed for the Baltic Project incorporate five basic components:

- Establishment of stable surface, topographic and drainage conditions that are compatible with the surrounding landscape and serve to control erosion.
- Establishment of soil conditions most conductive to establishment of a stable plant community through stripping, stockpiling and reapplication of suitable growth material.
- Revegetation of disturbed areas, using native plant species, where practical, adapted to site conditions in order to establish a long-term productive biotic community compatible with proposed post-mining land uses.
- Consideration of public safety through stabilization, removal, and/or fencing of structures or land forms that could constitute a public hazard.
- The outward regrading or reshaping of slopes be minimized to reduce further impacts to undisturbed wildlife habitat.

The general reclamation goal at the Project is to reclaim the site to a stable, functioning, landscape unit/ecosystem to allow for similar land uses as currently exist. Based on the existing site conditions, the Reclamation Plan proposes to eventually establish a Creosote Bush Scrub vegetation community typical of the western Mojave desert. Revegetation of disturbed areas can take considerable time under certain conditions or, in some areas, revegetation may not be possible.

Not all disturbed areas can be revegetated within a reasonable time period. Surface mines in arid climates are an example of such conditions. Steep walls and slopes are a residual of mining which cannot be revegetated but can be physically manipulated for stability and to provide habitat for raptor and passerine wildlife species.

The reclamation effort would encompass several levels of activity, which would be applied as needed for each specific type of surface disturbance. The following is an explanation of the reclamation activity levels to be applied in the reclamation plan:

<u>Level One</u>: No reclamation activity other than to protect the public, livestock and range wildlife. These activities would include perimeter fencing, sign posting, and the installation of road berms.

<u>Level Two</u>: Minimum reclamation activities, including some regrading and revegetation activities.

<u>Level Three</u>: Surface structure demolition with regrading and seeding using predominantly native species. Heaps and pond structures would be detoxified prior to regrading and revegetation activities.

The reclamation levels presented above are discussed in the following sections as they apply to specific surface disturbance areas and project components of Rand's proposed mining operations and exploration activities. Figure 3 shows the areas of the project which would be subject to the specific reclamation levels outlined above.

The following sections discuss the various aspects of reclamation in more detail. Figure 4 presents the post-reclamation contours for the project area.

4.4.1. Contouring/Shaping

The approximate post-reclamation contours of the Project area are shown on Figure 4. Slopes will be shaped for reclamation during the material placement or removal, except in the leach pad area. Depending on the type of material,

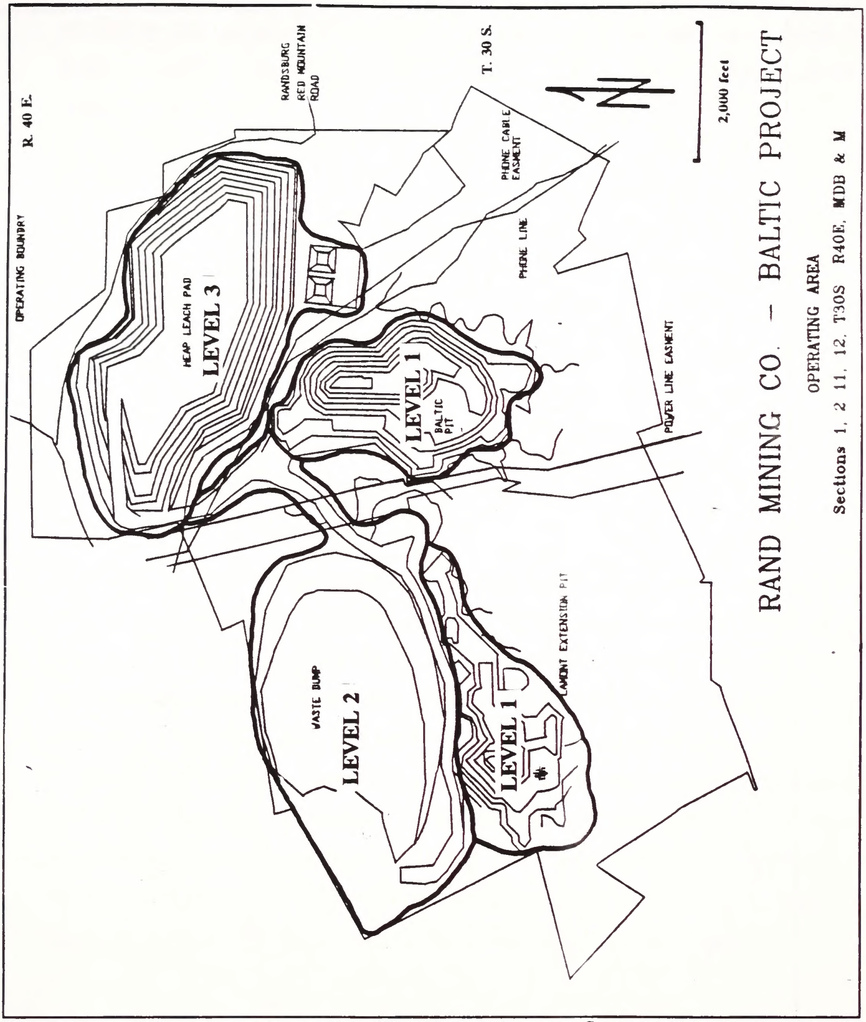


Figure 3: Map of the Areas That Would be Subject to Specific Reclamation Levels

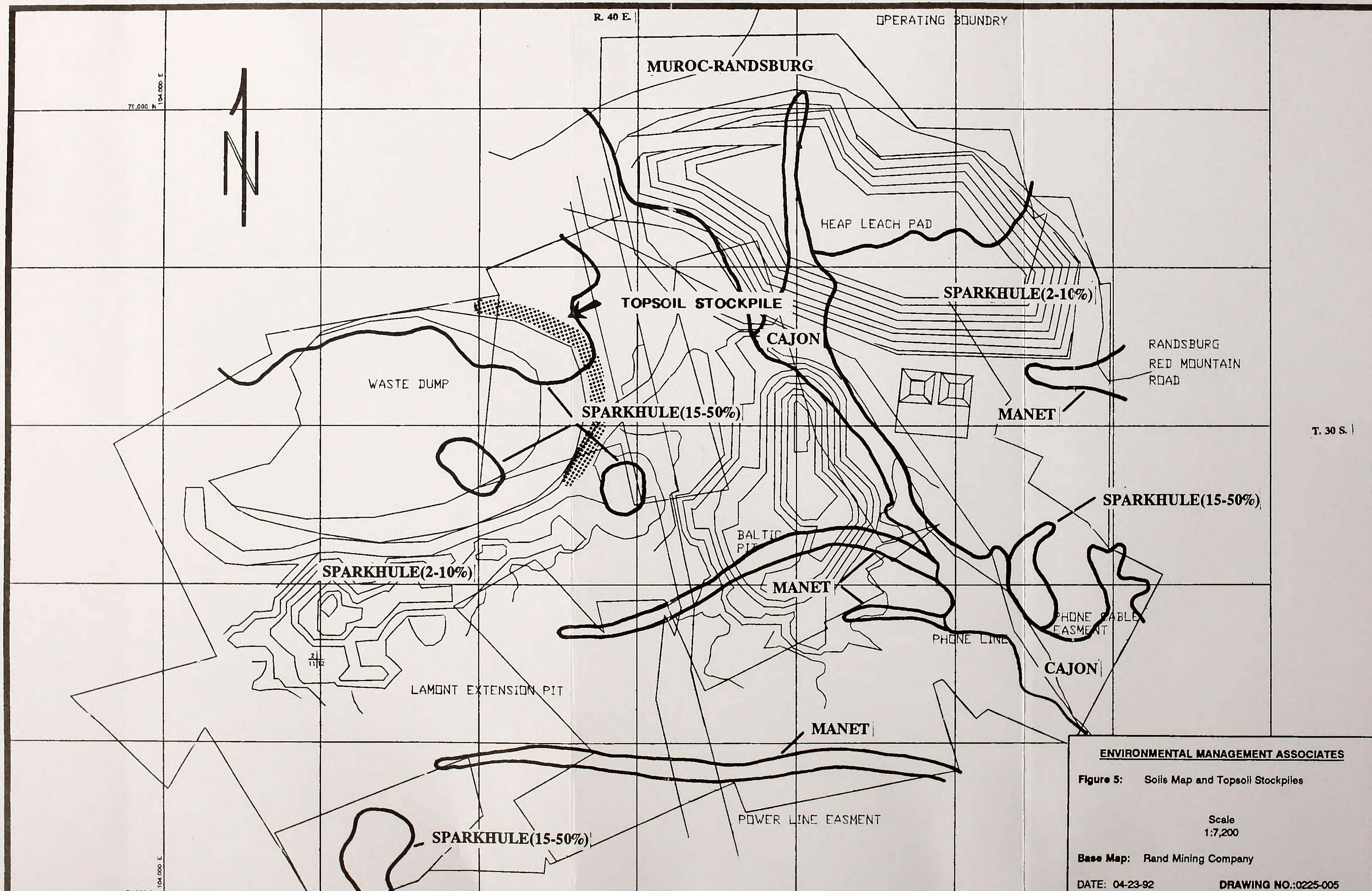
Figure 4: Post-Reclamation Contours of the Baltic Mine Project

erodibility, and the practical considerations of the mining process, overall slope grades will range from 1H:1V to near flat. After closure, the pit highwalls will be allowed to erode to the natural angle of repose.

Final grading of cuts and fills in unconsolidated material will create undulating land forms with overall slopes no greater than 2H:1V that are stable, do not allow for pooling or ponding, and blend with the surrounding undisturbed topography. Final grading will minimize erosion potential and additional surface disturbance and will facilitate the establishment of post-mining vegetation. Sharp edges will be rounded and straight lines will be altered to provide contours which are visually and functionally compatible with the surrounding terrain.

4.4.2. Soil Salvage and Stockpiling

Within the project area there are five (5) soil series (Figure 5). All five (5) series have a depth of at least 6 inches. The top approximately 6 inches of soil material from all soil series in the project area, except for the area of the Baltic pit, would be salvaged. In addition, the Manet and Cajon Series, which are associated with active drainages, have soil depths in excess of 60 inches. In construction areas where these soils are present, Rand would attempt to salvage as much of these soils as possible. Prior to construction, soil material would be removed and stockpiled for later use during reclamation activities. Assuming 6 inches of soil material is salvaged, approximately 130,000 cubic yards of topsoil would be stockpiled at the toe of the waste rock stockpile area (Figure 5).


R. 40 E.
OPERATING BOUNDRY
MUROC-RANDSBURG
HEAP LEACH PAD
TOPSOIL STOCKPILE
SPARKHULE(2-10%)
CAJON
RANDSBURG
RED MOUNTAIN
ROAD
WASTE DUMP
SPARKHULE(15-50%)
MANET
T. 30 S.
SPARKHULE(15-50%)
BALTIC
PIT
SPARKHULE(2-10%)
MANET
PHONE CABLE
EASMENT
PHONE LINE
CAJON
LAMONT EXTENSION PIT
MANET
POWER LINE EASMENT
SPARKHULE(15-50%)
72,000 N
104,000 E
ENVIRONMENTAL MANAGEMENT ASSOCIATES
Figure 5: Soils Map and Topsoil Stockpiles
Scale
1:7,200
Base Map: Rand Mining Company
DATE: 04-23-92
DRAWING NO.:0225-005

4.4.3. Growth Media Amendments

The native soils and waste rock materials within the Baltic project area have a general lack of fertility. This is largely due to a lack of the primary nutrients, nitrogen and phosphorous. A one-time slow-release fertilizer application of 75-100 pounds per acre of available nitrogen as N, 60-75 pounds per acre of available phosphorous as P_2O_5, and 80-100 pounds per acre of available potassium as K_2O, may be used as a part of reclamation activities to supplement soil fertility.

Concurrent with the soil salvage operations, Rand would transplant to the topsoil stockpile areas all non-articulated Joshua trees less than 4 feet in height which are located in areas to be disturbed. Rand would try to avoid the removal of Joshua trees that are articulated and/or greater than 4 feet in height during construction, operation and reclamation activities.

4.4.4. Seedbed Preparation

Seedbed preparation, seeding, and transplant efforts for areas to be revegetated (Level Two and Level Three areas) will take place after grading, stabilization and growth media placement and will be performed as follows:

- Compacted surfaces will be loosened and left in a rough conditions by ripping, followed by disking or other mechanical manipulation. Tillage with implements, such as an english harrow or disc, may be used as needed for all areas to be reclaimed that can safely be worked by surface equipment to create a friable surface with favorable bulk density.

- Soil amendments may be applied, and the surface disked, raked or treated to incorporate the amendments into the top four to six inches.

- The prepared surfaces will then be seeded using the mixtures and seeding rates as presented in Table 2. Seeding will either be by rangeland drill, broadcasting or hydraulic seeder depending on working area and steepness of slope.

- The use of mulch, which is defined here as any non-living organic material, can be placed or left on the soil surface for the purpose of erosion prevention or to protect plants from heat, cold, or drought. Mulch for soil cover may be applied, if necessary, and mechanically crimped or anchored with chemical tackifier, if appropriate. Rand may consider the use of mulch on the relatively harsh sites on the faces of the finished waste rock storage area (south-facing slopes).

- In selected areas Rand may utilize irrigation to enhance revegetation times to promote stabilization of the surface material. This procedure would likely be conducted in, but may not be limited to, the spring to simulate and supplement natural precipitation and would likely not continue into the summer. This process would not be conducted on a recurring basis.

4.4.5. Seeding/Planting

The rocky terrain and soil materials in the Project area may dictate broadcast seeding, although a range drill will be used in suitable flat terrain. An alternative to seeding for the revegetation activities would be to plant containerized juvenile creosote bushes at a rate of 75 percent of the density of creosote bushes in an adjacent undisturbed area. This technique may be used in areas where seeding may not be an acceptable alternative, or where seeding may not be practicable. In addition, the Joshua trees which were salvaged during the construction phase will be transplanted to the reclaimed areas.

4.4.6. Seeding Mixtures and Rates

The seed mixtures to be used on the site have been determined by seed availability, pre-mining vegetation and habitat types that exist in the area and known climatic and soil conditions of the Project area. The seed mixtures presented as part of this application are preliminary in nature and will be finalized based on site-specific reclamation studies conducted on areas undergoing concurrent reclamation and consultation with the BLM and Kern County. The seed mixtures will be either broadcast seeded or drilled. Final choice of plant species will be dependent on commercial availability of seed. Any substitutions to the seed mix will be approved by the BLM and Kern County. The proposed seed mixtures are presented in Table 2.

Table 2: Species for Use in Seed Mix for Final Reclamation of the Baltic Mine Project

Species		Application Rate[1] (lbs Pure Live Seed (PLS)/Acre)
Scientific Name	Common Name	
GRASSES:		
Oryzosis hymenoide	Indian Rice Grass	4
Stipa speciosa	Desert Neddlegrass	4
	GRASSES TOTAL:	8
SHRUBS:		
Ambrosia duomosa	Burrobush	4
Larrea tridentata	Creosote Bush	4
	SHRUBS TOTAL:	8
	TOTAL:	16

[1]Broadcast Rate shown; drilled seeding rate = half of broadcast rate

For broadcast applications, equipment such as a "cyclone" spreader would be used to distribute 16 pounds per acre of pure live seed, followed by dragging with a light chain or other means to provide some soil cover on the seed. When possible, a range drill would be used for more effective seeding. An application rate of eight (8) pounds of pure live seed per acre would be used with the range drill.

4.5. Schedule

When ore reserves are exhausted, mining would stop. Leaching would stop after uneconomic recovery rates are reached. Closure would commence after reclamation earthwork is completed. It is foreseeable that the heap leaching activities would remain active after mining activities have stopped, due to the length of time required to complete leach cycles. If this is the case, then open pit and some ancillary facility reclamation and closure activities would occur in advance of heap leach reclamation and closure.

Reclamation of the Baltic Mine Project would be initiated when individual process components are no longer required for mine operations or when facilities are decommissioned and site closure begins. Removal of facilities, rough grading and scarifying activities may occur at any time during the year.

Soil distribution and revegetation activities are limited as to the time of year during which they can be effectively implemented. Table 3 outlines the anticipated revegetation schedule on a monthly basis which would be followed to achieve the reclamation goals set forth above. Site conditions and/or yearly climatic variations may require that this schedule be modified to achieve revegetation success.

Table 3: Anticipated Revegetation Schedule

TECHNIQUES	MONTH J F M A M J A S O N D
Soil Distribution	/---------------------/
Seedbed Preparation	/-------------/
Seeding	/----------/
Note: Recontouring activity can occur year round.	

4.5.1. Concurrent Reclamation

Reclamation activities will begin with the stabilization and seeding of the growth media stockpiles during the construction phase of the mine, and leach pad complex. Areas no longer needed for mining activities will be available for concurrent reclamation. Concurrent reclamation will involve stabilization and seeding of new or upgraded access roads, cut and fill slopes, solution pond berms, waste rock dump benches and bare areas around buildings.

Exploration roads would be reclaimed concurrently with mining operations when it is determined that the roads are no longer needed for exploration or mining operations. All other facilities would be reclaimed after the mineral resource is depleted and the leach pad has been detoxified.

4.5.2. Post-Closure Reclamation

Closure and post-closure reclamation activities will commence when the ore body is exhausted and mining has ceased. It is estimated that this terminal phase of reclamation will take one to three years to complete following cessation of mining. Post-closure monitoring of vegetation success, erosion control procedures and water quality in the ponds is expected to account for an additional one to five years.

4.6. Facilities Closure/Dismantling

4.6.1. Growth Media Stockpiles

After growth media has been removed from the stockpiles for replacement on other sites, the stockpile surface will be loosened, if necessary to alleviate compaction and seeded with the appropriate seed mixture for the area as described in Section 4.4.6.

4.6.2. Pit Closure

During active mining, reclamation in and around the mines will be limited to controlling erosion of the haul roads. Upon final closure, the mines would be reclaimed under the level one guideline (see Section 4.4), leaving pit sidewalls in a stable condition, in accordance with Mine Safety and Health Administration regulations. A berm would be constructed across the haul roads to prevent vehicle access to the pits. Access to all portions of the open pits would be limited by a three-strand barbed wire and tortoise exclusion fence which would be sufficient to protect the public, as well as livestock and wildlife. Signs would be posted on the fence around the pits, and any other locations which could pose a threat to public safety, as required by regulation.

The pits will encompass 70.1 acres in final configuration, and, except for temporary accumulation of precipitation, should remain dry.

4.6.3. Waste Rock Stockpile

The waste rock stockpile will encompass 71.5 acres and will fill a small valley between the Lamont and Baltic pits. The waste rock storage area would be reclaimed under the level two guideline as a Class "C" waste (see Section 4.4). The waste rock storage area would be built with overall 2H:1V finished slopes. Waste material would be placed in successive lifts from the toe of the existing Lamont waste rock storage area down slope, forming a terraced finished slope. Final contours of the waste rock dump are shown on Figure 4. A cross-section of the waste rock stockpile is presented in Figure 6.

Upon final mine closure, the dump top will be crowned to prevent pooling, ponding, and erosion. Stockpiled growth media material will be distributed on the dump top and benches prior to seeding with the proposed seed mixtures.

4.6.4. Leach Pad Complex

Laboratory tests show that the spent ore material may be detoxified by washing in place with fresh water at the end of the leach pad life.

Spent ore which has been left on pads or which will be moved from a pad must first be rinsed until the following general requirements have been met:

- Weak Acid Dissociable (WAD) cyanide in effluent rinse water are less than 0.2 mg/l; and,
- Contaminants in any effluent from the processed ore which would result from percolating meteoric waters will not degrade surface or ground water.

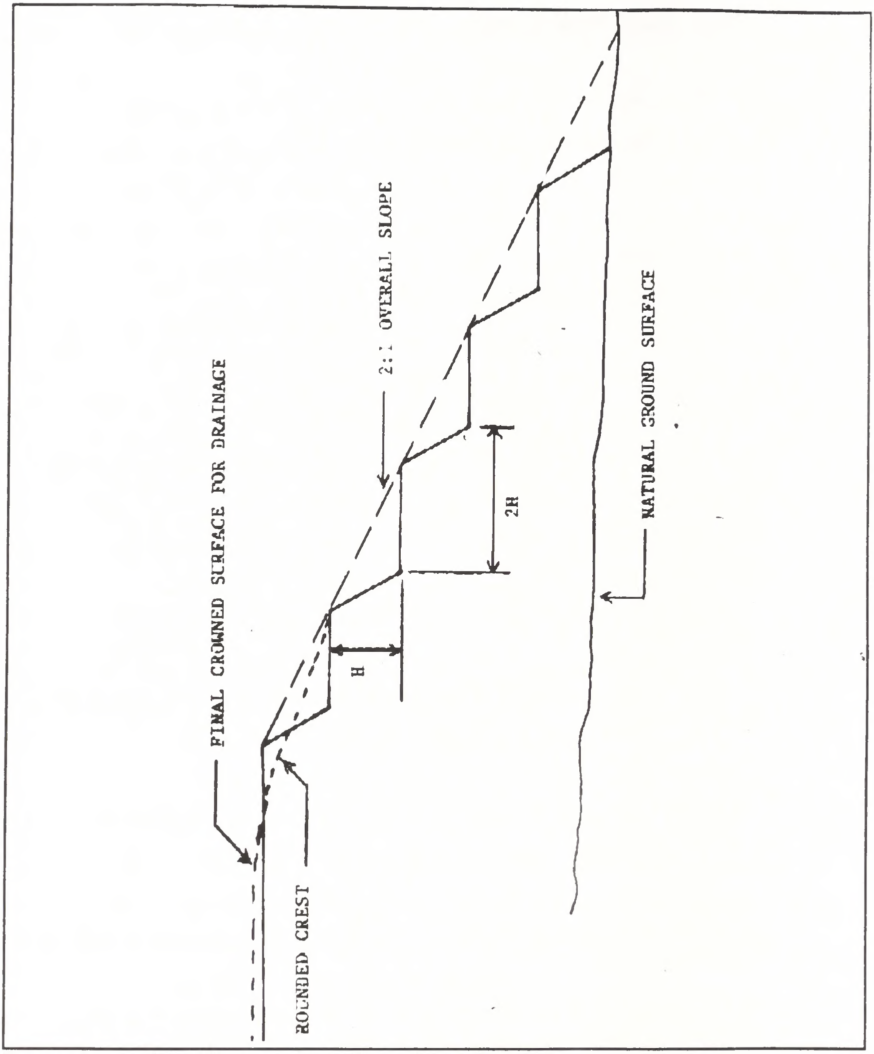


Figure 6: Cross-Section of the Waste Rock Stockpile

If the above requirements cannot be achieved, the operator can be granted a variance, if the operator can demonstrate that:

- The remaining solid material, when representatively sampled, does not contain levels of contaminants that are likely to become mobile and degrade the waters of the State under conditions that exist at the site; or
- The spent ore is stabilized in such a fashion as to inhibit meteoric waters from migrating through the material and transporting contaminants that have the potential to degrade water.

The CRWQCB, Lahontan Region requirements will take precedent over those listed in this document if there is a discrepancy. The ore on the heap leach pad would be detoxified, graded, and seeded in accordance with the level three guideline as a Class "C" waste (see Section 4.4).

Detoxification of the heap leach pile would be accomplished by rinsing to reduce cyanide levels to meet the anticipated requirements in the Waste Discharge Order, which must be issued by the CRWQCB before use of the leach facility can commence. Sampling and laboratory testing would be conducted to evaluate the detoxification process at the conclusion of heap rinsing.

After rinsing and detoxification is complete, the top of the heaps would be graded with a slight crown to reduce the amount of precipitation which would be retained on the heaps and percolate through them. The sides of the heap would be worked to a 2H:1V finished slope. Certain benches would remain. See Figure 4 for the post reclamation topography. A cross-section of the heap leach pile is shown in Figure 7.

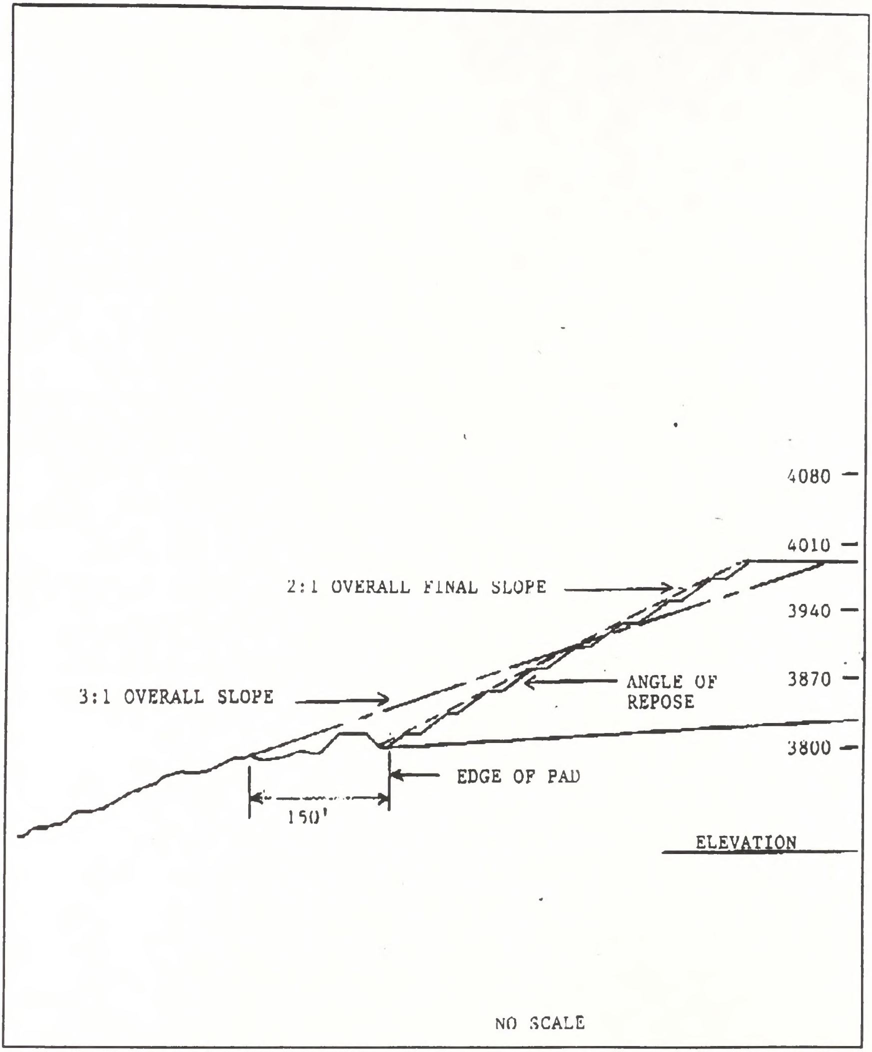


Figure 7: Cross-Section of the Heap Leach Pile

Once detoxification of the heaps has been completed, which would likely require 12 months, all process waters and rinse solutions would be drained to the ponds for detoxification and evaporation. A neutralizing agent may be added to the process waters and rinse solutions to reduce the cyanide level to meet CRWQCB standards. The waters would then be allowed to evaporate in place. Process water ponds would then be reclaimed under the level three guideline (see Section 4.4) All fencing would be removed and the synthetic liners would be disposed of in a manner acceptable to the CRWQCB. The pond areas would then be graded to blend with the surrounding topography. The final detoxification and reclamation of the pond would not occur until the detoxification of the heaps is complete, which could take several years beyond the completion of leaching.

4.6.5. Access Roads

The main haul road, all other links in the road network around the mine and all remaining exploration roads, would be graded, scarified and revegetated in conformance with the level two guideline (see Section 4.4).

4.6.6. Buildings and Ancillary Facilities

Buildings and ancillary facilities would be reclaimed under the level three guideline. All portable and salvageable structures would be removed and taken off site. Any permanent structures would be dismantled and removed off-site. All building foundations would be demolished and removed, or buried under at least one foot of clean fill material. All surplus materials, storage containers and trash consistent with Class III landfill regulations would be transported to a permitted landfill site. The remaining surplus waste products and all fuel oil and similar materials would be removed from the site and disposed of according to current state and federal regulations. Any soil material contaminated by regulated waste materials would be disposed of in accordance with state and federal requirements. Refuse would be disposed of in an approved sanitary landfill.

4.7. Monitoring and Reclamation Success Evaluation

By planting in the fall and utilizing the available soil moisture accumulated during winter, spring germination and growth would be encouraged. Reclamation has a good chance for success in years with average and above-average precipitation, especially if adequate moisture is available during April through June.

Following facility decommissioning, grading to desired slopes, distribution of topsoil/growth medium and seeding, the principal components of reclamation would be completed and the bonds related to those activities should be released. However, the stability of the graded components and the resumption of pre-mining land uses would largely depend on the establishment of vegetation. Performance of the following quantitative determinations of revegetation success will trigger final bond release.

4.7.1. Vegetation

Three (3) years following revegetation activities, a one-time site comparison would be made between revegetated communities and undisturbed native communities adjacent to the project area. The comparisons would involve measurements of total herbaceous ground cover. Since erosion considerations are of primary importance following disturbance, ground cover is a useful indicator of site restoration. A total of approximately eight (8) randomly located sites would be selected from the waste rock storage area and leach pad area, and two (2) undisturbed native vegetation sites adjacent to the project area.

To document the establishment of final revegetation success, the sites would be scientifically measured for vegetative cover. Measurements would be obtained by utilizing a standard 9.6 square foot circular plot as a representative sample area. All data would be logged on approved forms, and statistically analyzed. These data would form the basis for the determination of revegetation success and final bond release. The revegetation effort would be considered successful, and the final bond should be released, when the density of vegetation in the reclaimed area is equal to or greater than 25 percent of the density of vegetation in the undisturbed native communities and there are indications of primary succession.

In the event of failure, revegetation efforts would be repeated and site comparisons once more made. If revegetation was still unsuccessful, the BLM and Kern County would be consulted regarding remediation alternatives and revegetation measures that would be undertaken a final time.

4.7.2. Erosion

Techniques used to control the production of sediment action include the overall grading design and the revegetation plan discussed above. If excessive erosion and sedimentation are observed during the mining operations or exploration activities, then check-dams composed of hay bales, sand bags, silt fences, or other temporary techniques would be employed to minimize additional impacts.

4.7.3. Monitoring

At a minimum, an annual report summarizing the findings of the monitoring program will be submitted to the BLM and Kern County. The report will include the acreage disturbed and reclaimed to date, as well as the acreage to be disturbed and reclaimed.

4.8. Financial Assurances

4.8.1. Derivation of Unit Costs

Unit costs were the reclamation cost estimate were derived from three primary information sources: (1) Kern County suggested unit costs as of October, 1991; (2) historical reclamation cost data (Rand Mining); and, (3) costs presented to CRWQCB in the Report of Waste Discharge. Table 4.1 provides a summary of the derivation of unit costs for the various reclamation activities.

4.8.2. Calculation of Project Facilities Reclamation Costs

4.8.2.1. Roads

A total disturbance of 13.6 acres was estimated for all temporary access roads and haul roads. The reclamation costs for roads are presented in Table 4.2. The total estimated cost for reclaiming roads is $12,548.00.

4.8.2.2. Open Pits

Table 4.3 provides a break down of reclamation costs for the Baltic and Lamont Extension pits. Reclamation is limited to discouraging public access. The total cost for pit reclamation is $400.00.

4.8.2.3. Waste Rock Stockpile

Table 4.4 provides a breakdown of reclamation costs associated with the waste rock dump. Approximately 71.5 acres of disturbance will require reclamation. The total cost for reclaiming the waste dump is $65,971.00.

4.8.2.4. Heap Leach Pad

The reclamation cost for the heap leach facility as shown in Table 4.5 does not include the expense for heap leach detoxification. These figures are presented in Table 4.1. The cost for reclamation of 70.7 acres after detoxification is $67,265.00.

4.8.2.5. Lined Pond Facilities

The total cost for reclamation of the lined pond facility is $86,423.00 as presented in Table 4.1.

4.8.2.6. Growth Media Stockpile

The total cost for reclamation of the growth media stockpiles is $6,000.00 as presented in Table 4.6.

4.8.2.7. Buildings, Structures, Equipment, etc.

Reclamation earthworks and revegetation for the primary mine facilities are included in this division. The cost for dismantling and removal of buildings, structures, equipment, pipelines, utilities, fencing, etc., are considered equivalent, if not excess, to the salvage value of the facilities and equipment. The total cost for reclamation work associated with this division is $8,360.00 and is presented in Table 4.7.

4.8.2.8. Reclamation Cost Estimate

The summation of individual facility costs is equivalent to the subtotalof the Project reclamation cost (Table 4.8). Estimated mobilization and demobilization costs were also accounted for in the reclamation cost schedule. The total Project reclamation cost, which also includes heap leach facility decommissioning costs (see Table 4.1), plus mobilization is $781,702.00. The cost estimated for the bond represent the point of maximum disturbance and are sufficient to cover the costs to close and reclaim the site if it is closed at any time during operation. Bonding costs will be re-examined at the request of the operator an/or lead agency.

4.8.2.9. Establishment

Rand will allocate funds to post an irrevocable letter of credit with the BLM, Kern County and the State Geologist. A separate financial assurance will be posted with the CRWQCB to meet the requirements of that agency.

TABLE SHOWING THE UNIT COSTS AND THEIR SOURCES

UNIT COSTS		PUBLISHED COST DATA (1)	LAHONTAN RWQCB RECLAMATION BOND (2)	COST (3)
RECLAMATION ACTIVITY (All locations & facilities)	UNIT	UNIT	UNIT	UNIT
MOB/DMOB	LS	$2,000.0		
DETOXIFICATION/RINSING	LS		$355,320	
SAMPLING	LS		$23,300	
EVAPORATION	LS		$127,860	
CARBON DESTRUCTION	NC			
PROCESS POND RECLAMATION	LS		$86,423	
RECLAMATION EARTHWORKS				
Grading & Releveling	AC	$200.0		
Replace Topsoil	CY	$0.4		
Add Fencing	LF			$2.0
Berm Pit Entry	LS			$200.0
REVEGETATION				
Scarify Surfaces	AC	$200.0		
Broadcast Seed	AC	$200.0		
Hydroseeding/Mulching	AC	$900.0		
Replant Joshua Trees	EA			$100.0
SURFACE STRUCTURE DEMOLITION				
On-Site Concrete Disposal	LS			$5,000.0
Building & Structure Removal	NC			
Remove Fencing - Plantsite, Leach Pad, Roads, Dump	NC			
FINAL CLOSURE REPORTING	LS		$10,000	

NOTES:

1. Reference:

   Kern County Planning and Development Services Department
   Reclamation Bond Assurances
   Suggested Unit Prices
   October , 1991

2. Reference:

   Report of Waste Discharge; Baltic Project
   Closure Plan
   to Lahonton Regional Water Quality Control Board

3. Rand Mining Co.

Table 4.1: Unit Costs

LOCATION/FACILITY: ROADS				
RECLAMATION ACTIVITY	UNIT	UNIT COST	QUANTITY	TOTAL
RECLAMATION EARTHWORKS				
Grading & Releveling	AC	$200.00	13.6	$2,720
Replace Topsoil	CY	$0.40	10,970.7	$4,388
REVEGETATION				
Scarify Surfaces	AC	$200.00	13.6	$2,720
Broadcast Seed	AC	$200.00	13.6	$2,720
TOTAL - ROADS				$12,548

Table 4.2: Road Reclamation Costs

LOCATION/FACILITY: OPEN PITS				
RECLAMATION ACTIVITY	UNIT	UNIT COST	QUANTITY	TOTAL
REVEGETATION				
Add Fencing	LF	$2	100	$200
Berm Pit Entry	LS	$200	1	$200
TOTAL - OPEN PITS				$400

Table 4.3: Open Pits Reclamation Costs

LOCATION/FACILITY: WASTE ROCK DUMP				
RECLAMATION ACTIVITY	UNIT	UNIT COST	QUANTITY	TOTAL
RECLAMATION EARTHWORKS				
Grading & Releveling	AC	$200.00	71.5	$14,300
Replace Topsoil	CY	$0.40	57,676.7	$23,071
REVEGETATION				
Scarlfy Surfaces	AC	$200.00	71.5	$14,300
Broadcast Seed	AC	$200.00	71.5	$14,300
TOTAL - WASTE ROCK DUMP				$65,971

Table 4.4: Waste Rock Stockpile Reclamation Costs

LOCATION/FACILITY: HEAP LEACH PAD				
RECLAMATION ACTIVITY	UNIT	UNIT COST	QUANTITY	TOTAL
RECLAMATION EARTHWORKS				
Grading & Releveling	AC	$200.00	70.7	$14,140
Replace Topsoil	CY	$0.40	62,113.3	$24,845
REVEGETATION				
Scarify Surfaces	AC	$200.00	70.7	$14,140
Broadcast Seed	AC	$200.00	70.7	$14,140
TOTAL - HEAP LEACH PAD				$67,265

Table 4.5: Heap Leach Pad Reclamation Costs

LOCATION/FACILITY: TOPSOIL STOCKPILE				
RECLAMATION ACTIVITY	UNIT	UNIT COST	QUANTITY	TOTAL
REVEGETATION				
Scarify Surfaces	AC	$200.00	15	$3,000
Broadcast Seed	AC	$200.00	15	$3,000
TOTAL - TOPSOIL STOCKPILE				$6,000

Table 4.6: Topsoil Stockpile Reclamation Costs

LOCATION/FACILITY: BUILDINGS, STRUCTURES,ETC.				
RECLAMATION ACTIVITY	UNIT	UNIT COST	QUANTITY	TOTAL
RECLAMATION EARTHWORKS				
Grading & Releveling	AC	$200	4.2	$840
Replace topsoil	AC	$200	4.2	$840
REVEGETATION				
Scarify Surfaces	AC	$200	4.2	$840
Broadcast Seed	AC	$200	4.2	$840
DISMANTLING DEMOLITION & REMOVAL				
On-Site Concrete Disposal	LS	$5,000		$5,000
Buildings, Structures – Removal	NC			
Fencing, Utilities – Removal	NC			
TOTAL - BUILDINGS, STRUCTURES, ETC.				$8,360

Table 4.7: Buildings Reclamation Costs

THE 1992 RECLAMATION COST ESTIMATE SUMMARY

LOCATION/FACILITY	COSTS
TOTAL - OPEN PITS	$400
TOTAL - BUILDINGS, STRUCTURES	$8,360
TOTAL - TOPSOIL STOCKPILE	$6,000
TOTAL - HEAP LEACH PAD	$67,265
TOTAL - WASTE ROCK DUMP	$65,971
TOTAL - ROADS	$12,548
TOTAL - MOB/DEMOB	$2,000
CONTINGENCY (10%)	$16,254
TOTAL PROJECT	$178,799

Table 4.8: 1992 Reclamation Cost Estimate Summary

APPENDIX C

Wildlife Mitigation Measures for the Echo Bay Project Area

ENVIRONMENTAL ASSESSMENT
WILDLIFE RESOURCES
CANAM MINING PROJECT

1. Affected Environment. The proposed mining project is located in the eastern Rand Mountains. The terrain is composed of gently rolling hills and flats with a southeast exposure. Soils are shallow and contain small rocks. Vegetation consists of creosote bush, bursage, cheesebush, desert senna, paper-bag bush, squaw tea, and California buckwheat. Several species of annual plants also occur; desert dandelion, desert trumpet, cheatgrass, etc. All are common in this type of habitat in the region. Wildlife inhabiting the area includes numerous species of reptiles and mammals. Most mammals are rodents. For a more complete listing of the species of plants and animals on the site refer to the biological report prepared for the project proponent by McMains (1987).
Approximately 30 acres of public land will be used for the mine pit, waste dumps and haul road (see general project map). The minimum life of the project is expected to be 5-6 years, but could be longer if additional ore is discovered during the excavation of the pit.

Two species of wildlife occurring on the project site are of special concern. They are the desert tortoise and the Mohave ground squirrel.

Desert tortoise. The desert tortoise is a candidate for proposed listing under the federal Endangered Species Act, and is under consideration for listing as threatened by the California Fish and Game Commission. In 1985, the U.S. Fish and Wildlife Service, in response to a petition to list the desert tortoise as endangered under the Endangered Species Act, determined that listing of the desert tortoise throughout its range was warranted but precluded by higher priority listing actions [Federal Register, 50 (234): 49868-49870, 11/22/85]. The desert tortoise is a BLM sensitive species and is fully protected by State law.

Habitat in the project area on public land (map areas A,B,C) varies in condition and suitability for the desert tortoise. The proposed mine pit (map area C) has been previously disturbed by mining and vehicles. Some vegetation occurs on the site due to revegetation and there appears to be some areas of natural vegetation on small sites that escaped previous disturbances (see Photograph 1). No desert tortoises or tortoise burrows were found on the site of the mine pit. Tortoises may occasionally traverse the pit site because they occur in the area. Soils in the pit location are very shallow and revegetation potential is low (Photograph 2).

Habitat in the area of the proposed waste dumps and haul road is in a more natural condition (Photographs 3,4). One proposed pit (map area A) is in basically natural condition except for two dirt roads crossing the site. This area contains a wash (location of one of the roads), well vegetated wash benches and flats, and rolling hills that have shallow, rocky soil and lesser plant cover. During a field survey of the site on 9/4/87, an adult female tortoise (Photograph 5) and an actively used tortoise burrow (Photograph 6) were found (see detailed map of site A). Fragments of a tortoise egg shell were found in proximity to the burrow. A juvenile male desert tortoise was found near this proposed waste dump site on private land, approximately 500 feet north of the location where the adult female tortoise was observed (see detailed map of site A and Photograph 7). This sighting was on private land. See the attached report by McMains (1987) for additional sightings and information on the desert tortoise on the project area.

<u>Mohave ground squirrel.</u> The Mohave ground squirrel is listed as threatened by the California Fish and Game Commission, and is a candidate for proposed listing under the federal Endangered Species Act by the U.S. Fish and Wildlife Service. McMains (1987) concluded that the Mohave ground squirrel likely occurs on the project site based upon habitat characteristics and documented occurrences of this species throughout the western Mojave Desert. No trapping for this species was conducted and no individuals were observed on the site. No white-tailed antelope squirrels were seen on the area, either, indicating that the habitat may be somewhat unsuitable for either species. Trapping was not done because the proper time period for this technique to be successfully applied is in the spring and early summer.

This species may occur on public land in the project area in well vegetated areas adjacent to washes or on flats where soils are deeper. Habitat in this category on public land occurs on portions of the proposed waste dumps and totals approximately 6 acres in map sites A and B. Site A (waste dump) accounts for approximately 5 of the 6 acres.

2. <u>Environmental Consequences.</u> The proposed mining on public land will adversely affect the desert tortoise and possibly the Mohave ground squirrel. The desert tortoise occurs on and in the vicinity of the proposed haul road and waste dumps. It also occurs on private land to be used in the ore processing as well as on one of the two waste dumps. However, this assessment is for the public land affected by the project. The impact on public land will be the removal of 6-7 acres of relatively undisturbed habitat for the desert tortoise plus the direct loss of up to several tortoises by crushing or burying. Additional losses of individuals may occur over the life of the project due to crushing by vehicles on the haul road and any other areas

where vehicles will be operated. Vehicle use in the area will be heavy. Increased human presence is not expected to increase the overall loss of wildlife because the overall area or region has been affected by mining, vehicle use, grazing, off-road vehicles, etc. for decades.

3. Mitigation Measures (public lands only).

A. Undisturbed land (habitat) will not be used for waste dumps. Relocate waste dump (map site A) in order to save undisturbed habitat for the Mohave ground squirrel and desert tortoise. This will eliminate almost all of the impacts attributed to the direct loss of habitat.

B. Relocate the 80 foot-wide haul road to disturbed areas and utilize private lands to the maximum extent. The road location should be moved to the east if possible. If the waste dump at site A is relocated or confined to private land the haul road could be moved to the east and closer to the mine pit.

C. The fence around the project should be designed to prevent tortoises and other ground-dwelling wildlife from entering the area. The bottom of the fence should include a 1-inch wire mesh panel that is 2 feet high with 1 foot buried or laid horozontal and secured to the ground sufficiently to prevent animal movements into the working area.

D. Soil from the pit area should be saved and applied to the sites to be reclaimed at the termination of the project.

E. Vehicle speeds on dirt roads in the area should be a maximum of 25 mph to allow for wildlife escape and avoidance by vehicle operators.

F. Prior to any disturbance on public land a qualified biologist will be hired to capture and relocate all desert tortoises to adjacent areas free of disturbances. The BLM and Department of Fish and Game will approve the biologist to be selected as well as the procedures to be used and the relocation site. Monitoring the status of any transplanted tortoises may be required. The entire cost of this mitigation will be the responsibility of the mining applicant.

3. Residual Impacts. There will be minimal loss of habitat and wildlife resources if the mitigation measures are implemented. The habitat lost due to the mining pit is in poor condition and has been previously mined, and relocation of the waste dumps off of public lands in conjunction with appropriate fencing will eliminate a majority of the anticipated impacts on public land. The region has been mined intensively in the past and receives

road is in a more natural condition (Photographs 3,4). One proposed pit (map area A) is in basically natural condition except for two dirt roads crossing the site. This area contains a wash (location of one of the roads), well vegetated wash benches and flats, and rolling hills that have shallow, rocky soil and lesser plant cover. During a field survey of the site on 9/4/87, an adult female tortoise (Photograph 5) and an actively used tortoise burrow (Photograph 6) were found (see detailed map of site A). Fragments of a tortoise egg shell were found in proximity to the burrow. A juvenile male desert tortoise was found near this proposed waste dump site on private land, approximately 500 feet north of the location where the adult female tortoise was observed (see detailed map of site A and Photograph 7). This sighting was on private land. See the attached report by McMains (1987) for additional sightings and information on the desert tortoise on the project area.

Mohave ground squirrel. The Mohave ground squirrel is listed as threatened by the California Fish and Game Commission, and is a candidate for proposed listing under the federal Endangered Species Act by the U.S. Fish and Wildlife Service. McMains (1987) concluded that the Mohave ground squirrel likely occurs on the project site based upon habitat characteristics and documented occurrences of this species throughout the western Mojave Desert. No trapping for this species was conducted and no individuals were observed on the site. No white-tailed antelope squirrels were seen on the area, either, indicating that the habitat may be somewhat unsuitable for either species. Trapping was not done because the proper time period for this technique to be successfully applied is in the spring and early summer.

This species may occur on public land in the project area in well vegetated areas adjacent to washes or on flats where soils are deeper. Habitat in this category on public land occurs on portions of the proposed waste dumps and totals approximately 6 acres in map sites A and B. Site A (waste dump) accounts for approximately 5 of the 6 acres.

2. Environmental Consequences. The proposed mining on public land will adversely affect the desert tortoise and possibly the Mohave ground squirrel. The desert tortoise occurs on and in the vicinity of the proposed haul road and waste dumps. It also occurs on private land to be used in the ore processing as well as on one of the two waste dumps. However, this assessment is for the public land affected by the project. The impact on public land will be the removal of 6-7 acres of relatively undisturbed habitat for the desert tortoise plus the direct loss of up to several tortoises by crushing or burying. Additional losses of individuals may occur over the life of the project due to crushing by vehicles on the haul road and any other areas

where vehicles will be operated. Vehicle use in the area will be heavy. Increased human presence is not expected to increase the overall loss of wildlife because the overall area or region has been affected by mining, vehicle use, grazing, off-road vehicles, etc. for decades.

3. Mitigation Measures (public lands only).

A. Undisturbed land (habitat) will not be used for waste dumps. Relocate waste dump (map site A) in order to save undisturbed habitat for the Mohave ground squirrel and desert tortoise. This will eliminate almost all of the impacts attributed to the direct loss of habitat.

B. Relocate the 80 foot-wide haul road to disturbed areas and utilize private lands to the maximum extent. The road location should be moved to the east if possible. If the waste dump at site A is relocated or confined to private land the haul road could be moved to the east and closer to the mine pit.

C. The fence around the project should be designed to prevent tortoises and other ground-dwelling wildlife from entering the area. The bottom of the fence should include a 1-inch wire mesh panel that is 2 feet high with 1 foot buried or laid horozontal and secured to the ground sufficiently to prevent animal movements into the working area.

D. Soil from the pit area should be saved and applied to the sites to be reclaimed at the termination of the project.

E. Vehicle speeds on dirt roads in the area should be a maximum of 25 mph to allow for wildlife escape and avoidance by vehicle operators.

F. Prior to any disturbance on public land a qualified biologist will be hired to capture and relocate all desert tortoises to adjacent areas free of disturbances. The BLM and Department of Fish and Game will approve the biologist to be selected as well as the procedures to be used and the relocation site. Monitoring the status of any transplanted tortoises may be required. The entire cost of this mitigation will be the responsibility of the mining applicant.

3. Residual Impacts. There will be minimal loss of habitat and wildlife resources if the mitigation measures are implemented. The habitat lost due to the mining pit is in poor condition and has been previously mined, and relocation of the waste dumps off of public lands in conjunction with appropriate fencing will eliminate a majority of the anticipated impacts on public land. The region has been mined intensively in the past and receives

considerable use by recreationists (off-highway vehicle users, hunters, etc.). The wildlife resources of the region, therefore, have been subjected to long-term cumulative impacts, and the impacts will continue, but to a lesser degree, even if the mining project was not proposed.

4. Public Interest. Public interest in the conservation of the desert tortoise and threatened and endangered species is very high. The Desert Tortoise Council, Desert Tortoise Preserve Committee, Defenders of Wildlife and others are highly interested and active in wildlife conservation.

5. Groups/Individuals Contacted, References. This environmental assessment should be reviewed by the Department of Fish and Game, the Desert Tortoise Council and the Desert Tortoise Preserve Committee. The Department of Fish and Game will be involved in review of this document under the conference procedures for potential impacts to wildlife listed by the California Fish and Game Commission as threatened or endangered.

Ridgecrest Resource Area
112 East Dolphin Avenue
Ridgecrest, California 93555

3809(7)
CAMC-48444
(CA-065.28)

NOV 30 1987

Greg Lang
Echo Bay Mines
370, 17th St, Suite 4050
Denver, Colorado 80202

Dear Mr. Lang:

Your mining plan of operation submitted to this office and accepted as complete on August 20, 1987, is approved subject to the stipulations identified with this approval letter. The portion of the plan addressing a water line from Atolia (exhibit H) was dropped and will be considered under a future right-of-way application if needed.

The environmental analysis identified potential adverse impacts to the Mohave ground squirrel and desert tortoise in the area of the western waste rock dump (dump A) which will require compensation if the dump site cannot be relocated. Your attention is directed to the two options identified in stipulations 2 and 3. The following stipulations are incorporated into the approval of your plan of operation:

1. Prior to disturbance on public land a qualified biologist will be hired to capture and relocate all desert tortoise to adjacent areas free of disturbances. The BLM and the Department of Fish and Game will approved the biologist to be selected, as well as the procedures to be used and the relocation site. Monitoring the status of any transplanted tortoises, and periodic monitoring of the mine site will be required. A company representative, trained by the project biologist, may conduct the ongoing monitoring and any subsequent removal of the desert tortoise. A summary of the number of and location of desert tortoises removed from the project site will be supplied to the BLM on a semi-annual basis.

2. Undisturbed land (habitat) will not be used for waste dumps. Relocate waste dump (map site A, 8 acres) in order to avoid undisturbed habitat for the Mohave ground squirrel and desert tortoise. This will eliminate almost all of the impacts attributed to the direct loss of habitat.

[illegible] disturbed area to public or private [illegible] operator will compensate for the loss of [illegible] providing to the BLM either (a) a fee simple [illegible] private lands within the Desert Tortoise Natural Area, or donation to BLM of $13,200 which will be used by BLM to [illegible] lands within the Desert Tortoise Natural Area. (The $12,000 is based on an estimated per acres acquisition cost of $550.)

4. The fence around the project should be designed to prevent tortoises and other ground dwelling wildlife from entering the area. The bottom of the fence should include a 1-inch wire mesh panel that is 2 feet high with 1 foot buried or laid horizontal and secured to the ground sufficiently to prevent animal movements into the working area. This will eliminate the need for fencing of the haul road on public land and eliminate the need for tortoise "under crossings".

5. The top 6" of topsoil shall be stockpiled in previously disturbed areas for reapplication during reclamation.

6. All compacted areas, (including waste dumps) shall be ripped, reshaped to match, as nearly as possible, original contours and original topsoil reapplied to facilitate revegetation.

7. A permit must be obtained from the Lahonton Regional Water Quality Control Board and supplied to this office prior to the beginning of surface disturbing activities. Terms and conditions of such permit become a part of this approval.

8. A permit or waiver must be obtained from the Kern County Air Pollution Control Board and a copy supplied to this office prior to the beginning of surface disturbing activities. Terms and conditions of such permit or waiver become a part of this approval.

9. Dust control measures will be required near the overhead power lines.

10. The applicant operator will arrange for and relocated the wood poled power line to the satisfaction of the line owner.

11. The entire operating area must be fenced or signed to prevent off road vehicle use in the operating area.

Your cooperation has been excellent and we look forward to working with you in the future. Should any further questions or comments arise, please contact Peter Milne at the above address or telephone (619)375-7125.

Sincerely,

/S/RICHARD E. GODWIN

Acting Patricia E. McLean
Area Manager

cc: California Dept. of Fish & Game
Desert Tortoise Council
Marion Ely
Kern County Planning Dept.

PMilne:cg 11/27/87 Wang Lang Pe

bcc: CA-065.RO

Ridgecrest Resource Area
112 East Dolphin Avenue
Ridgecrest, California 93555

3809(7)
CAMC-48444
(CA-065.26)

DEC 4 1987

Greg Lang
Echo Bay Mines
370, 17th St., Suite 4000
Denver, Colorado 80202

Dear Mr. Lang:

This approval letter supersedes our decision letter of November 30, 1987, and incorporates agreed upon terms from the December 4, 1987 meeting with representatives from this office, yourself and Marion Ely.

Your mining plan of operation submitted to this office and accepted as complete on August 20, 1987, is approved subject to the stipulations identified with this approval letter. The portion of the plan addressing a water line from Atolia (exhibit H) was dropped and will be considered under a future right-of-way application if needed.

The environmental analysis identified potential adverse impacts to the Mohave ground squirrel and desert tortoise in the area of the western waste rock dump (dump A) which will require compensation if the dump site cannot be relocated. Your attention is directed to the two options identified in stipulation 2. The following stipulations are incorporated into the approval of your plan of operation:

1. Prior to disturbance on public land a qualified biologist will be hired to capture and relocate all desert tortoise to adjacent areas free of disturbances. The BLM and the Department of Fish and Game will approve the biologist to be selected, as well as the procedures to be used and the relocation site. Periodic monitoring of the mine site will be required. A company representative, trained by the project biologist, may conduct the ongoing monitoring and any subsequent removal of the desert tortoise. A monitoring report of the project site will be supplied to the BLM on a semi-annual basis.

2. The operator will compensate for the loss of the wildlife habitat due to the creation of a waste dump (8 acres) by providing to the BLM within three (3) years either: (a) a fee simple title to 24 acres of private lands within the Desert Tortoise Natural Area; or, (b) a donation to BLM of $13,200 which will be used by BLM to purchase lands within the Desert Tortoise Natural Area (The $13,200 is based on an estimated per acre acquisition cost of $550.); or, (c) jointly sponsor wildlife studies of the desert tortoise and/or the Mohave ground squirrel in the project vicinity. Such funding shall for (c) not exceed $15,000.

3. The fence around the public land portion of the project should be designed to prevent tortoises and other ground dwelling wildlife from entering the area. The bottom of the fence should include a 1-inch wire mesh panel that is 2 feet high with 1 foot buried or laid horizontal and secured to the ground sufficiently to prevent animal movements into the working area. This will eliminate the need for fencing of the haul road on public land and eliminate the need for tortoise "under crossings".

4. Where available the top 6" of topsoil shall be stockpiled in previously disturbed areas for reapplication during reclamation.

5. All compacted areas, (including waste dumps) shall be ripped, and where possible topsoil reapplied to facilitate revegetation.

6. A permit must be obtained from the Lahontan Regional Water Quality Control Board and supplied to this office . Terms and conditions of such permit become a part of this approval.

7. A permit or waiver must be obtained from the Kern County Air Pollution Control Board and a copy supplied to this office . Terms and conditions of such permit or waiver become a part of this approval.

8. The applicant operator will arrange for and relocate the wood poled power line to the satisfaction of the line owner.

We appreciate your decision to fence the entire operating area as this will facilitate safety concerns. Your cooperation has been excellent and we look forward to working with you in the future. Should any further questions or comments arise, please contact Peter Milne at the above address or telephone (619)375-7125.

Sincerely,

Patricia E. McLean
Area Manager

cc: California Dept. of Fish & Game
Desert Tortoise Council
Marion Ely
Kern County Planning Department

APPENDIX D

Biological Survey for the Echo Bay Project Area

BIOLOGICAL RESOURCES SURVEY
ECHO BAY MINING CO.
RANDSBURG PROJECT
RAND MOUNTAINS, CA

PREPARED FOR:

BUREAU OF LAND MANAGEMENT
RIDGECREST RESOURCE AREA
112 East Dolphin
RIDGECREST, CA 93555

KERN COUNTY
DEPT. OF PLANNING & DEVELOPMENT SERVICES
1356 NORRIS ROAD
BAKERSFIELD, CA 93308

PREPARED BY:

JOHN E. McMAINS
P.O. BOX 500
CRESTLINE, CA 92325

JULY, 1987

INTRODUCTION

This report has been prepared as a technical appendix for a mining application to be submitted to the Bureau of Land Management (BLM) and Kern County by the Echo Bay Mining Company. The Biological resources survey was conducted in accordance with the maps and information contained in the Final Environmental Impact Statement and Proposed Plan for the California Desert Conservation Area (BLM, 1980). Whereas the California Desert Conservation Area Plan provides a comprehensive description of the affected environment, the purpose of this study is to identify the biological resources of a specific site.

The biological resources of the study area are described from information primarily compiled through field reconnaissance, supplemented by existing documentation of biological resources within the study area vicinity (BLM, 1980, 1985). The 200 acre study area was surveyed on foot and by vehicle during mid July, 1987. Weather during the survey was clear with a slight breeze of 5-10 mph from the southwest. The temperature was unseasonably cool for this time of year - never exceeding ninety degrees.

The physical nature of the study area allowed for a complete examination of all the vegetation within its borders. Potential faunal use of the site was derived from survey results combined with documented habitat preferences of regional wildlife species that, whether or not recorded during the survey, are considered to include the study area within their range.

Habitat types and sensitive resources were recorded in the field using a 7.5 minute U.S.G.S. topographical map.

RESOURCES DESCRIPTION

REGIONAL OVERVIEW

The project site is located near the eastern border of Kern County, on the east face of the Rand Mountains, in the western Mojave Desert. This area is designated by the BLM as Mutiple-Use Class M (moderate) (BLM, 1980). The proposed project includes portions of Sections 1 and 12, Township 30 south, Range 40 east, Mount Diablo Base Line and Meridian, Johannesburg Quadrangle (Figure I). The biological resources of the area surveyed are characteristic of the hot and arid climate found in the Mojave Desert, with annual precipitation averaging only 6-8 inches per year. .

SITE CHARACTERIZATION

The Randsburg mining project is located in a region that has been significantly impacted by previous mining operations and off-road vehicle activity. A majority of the area proposed for development is characterized by flat to gently rolling alluvial terrain. Soils are gravelly to rocky over most of the area surveyed. Elevations at the site range from approximately 3,700 feet in the southeast portion to approximately 3,900 feet in the northwest portion. Two desert washes run southeast on the small valley floor.

VEGETATION

Vegetation in the study area consists of one major plant community - Creosote Bush Scrub. Perennial plant cover is estimated to be less than twenty-five percent in the portions of the site that have not been previously disturbed by mining and road construction activities. Grazing and off-road vehicle activity have caused moderate disturbance to annual plants, leading to a predominance of non-native "invader" species.

Twenty-five species representing fourteen families have been recorded within the study area. The low number of species observed is due to the homogeneus nature of the habitat and the time of year that the survey was conducted. A more through representation of the plant species present could only be obtained by conducting floral surveys earlier in the spring and after summer rains when more annual herbaceous species would be present. A list of plant species recorded within the study area is provided in Appendix I, and the distribution of the Creosote Bush Scrub community is shown in Figure II. The floral composition of the plant community on site is described below.

Creosote Bush Scrub

Common perennial species of this community include the creosote bush (*Larrea tridentata*), Mormon tea (*Ephedra nevadensis*), burro bush (*Ambrosia dumosa*), and blackbush (*Coleogyne ramosissima*). A few joshua trees (*Yucca brevifolia*) were observed on the higher slopes in the most western portion of the area surveyed. The most abundant annual species noted during the survey were fiddle neck (*Amsinkia intermedia*) and chia (*Salvia columbariae*). The desert washes that drain this area do not support riparian vegetation, although they are shown as "blue-line" streams on the U.S.G.S. Quadrangle.

WILDLIFE

The project site can be expected to support most of the wildlife species commonly found in creosote bush scrub. However, the habitat structure of this community is relatively low, and the numbers and diversity of wildlife species encountered were also low. The ephemeral streams that pass through the area do provide food, cover, dispersion corridors, and other special habitat requirements for small mammals, birds and reptiles. Many wildlife species expected to occur are not restricted to this plant community and may forage in other communities. Discussed below are those species that would most likely utilize the study area. A list of wildlife species observed on the site is presented in Appendix II.

No species of amphibians were observed during the present survey. Because of the lack of perennial water sources to support amphibians, they are not expected to be abundanat in the project area. Lizards expected to inhabit this site include the collard lizard (Crotaphytus collaris), zebra-tailed lizard (Callisaurus draconoides), and chuckawalla (Sauromalus obesus). Snakes potentially occuring in this area include the western shovel-nosed snake (Chionactis occipitalis), Mojave rattlesnake (Crotalus scutulatus), gopher snake (Pituiphis melanoleucus), and common kingsnake (Lampropeltis getulus).

Birds are the most readily observed vertebrates in this area, although the number of species recorded was relatively small. A common raven (Corvus corax) was present during the survey, and black-throated sparrows (Amphispiza bilineata) were common throughout the area surveyed. While no raptors were observed, the red-tailed hawk (Buteo jamaicensis), and the American kestrel (Falco sparverius) are likely to forage in this area. Two species of owls, the great horned owl (Bubo virginianus), and the common barn owl (Tyto alba), are also potential residents of the project area.

Mammals observed onsite were typical desert dwellers. Common species include the blacktail jackrabbit (Lepus californicus), desert cottontail (Sylvilagus auduboni), and the whitetail antelope ground squirrel (Ammospermophilus leucurus). Desert woodrat (Neotoma lepida) middens were frequently seen in rock piles, creosote bushs, or other vegetation. Several species of mice (Peromyscus spp.) and other common small mammals also are expected to be present. No Mojave ground squirrels (Citellus mohavensis) were observed during the survey, but they are likely to occur in this area (BLM, 1985). Coyote (Canis latrans) scats and tracks indicated at least one species of Canidae was present.

SENSITIVE BIOLOGICAL RESOURCES

This section discusses the species (commonly termed sensitive species) that are present or potentially present in the study area that have been afforded special recognition by Federal, State or local resource conservation agencies and organizations. This classification is primarily due to declining or limited population sizes resulting in most cases from habitat reduction. Sources used for the determination of sensitive biological resources are as follows: plants - U.S. Fish and Wildlife Service (FWS, 1985,1986), California Department of Fish and Game (CDFG, 1984), Bureau of Land Management (BLM, 1980), and California Native Plant Society (Smith and York, 1984); wildlife - FWS (1985,1986), BLM (1980, 1985), and CDFG (1983).

Special attention was given to the areas proposed for development and to areas potentially supporting sensitive species. No Federal or State listed rare, threatened or endangered plant species were observed. Three plant species listed as sensitive by the FWS and CNPS were considered potential inhabitants of this area (Sanders, pers. com., 1987). However, these species - *Chorizanthe spinosa*, *Eriophyllum mohavense*, and *Sclerocactus polycephalus* were not observed during the survey and have a low probability of occurring within the areas to be disturbed. One sensitive animal species listed by the BLM, FWS, and CDFG was observed on the project site. The status, habitat, and potential presence of sensitive animals in the study area are discussed below.

The Desert Tortoise is listed by the California Department of Fish and Game, the U.S. Fish and Wildlife Service, and the Bureau of Land Management as a sensitive species. The tortoise's decrease in numbers has been primarily due to human activity encroaching into their habitat, and to human maliciousness. This desert species requires firm ground for construction of burrows. Tortoises inhabit desert washes, rocky slopes, and alluvial fans. Six active tortoise burrows were recorded, and several burrows that may have once been tortoise burrows were observed (Figure III). Two tortoises (1 male and 1 female) were found in the area directly impacted by the proposed mining project (Figure III). Estimated ages of the tortoises are 12 to 15 years.

The Mojave Ground Squirrel is listed as rare by the California Department of Fish and Game and considered sensitive by the U.S. Fish and Wildlife Service and the Bureau of Land Management. Although this species was not observed during this survey, possibly due to the lateness of the season and/or the cool temperature, documented habitat preferences and other occurrences indicate that its presence is likely (BLM, 1985). However, according to the study by Arrdahl and Roush (BLM, 1985), their numbers and distribution are much greater than previously known, and it may be inappropriate to classify them as rare.

RECOMMENDED MITIGATION MEASURES

The following mitigation measures may be undertaken to reduce the level of adverse environmental impacts.

- Prior to any land disturbance, capture and relocate all desert tortoises within the project areas.

- Enclose the leach pad and all other toxic areas in a wire mesh screen similar to that being used on the Lamonte project immediately west of the proposed project.

- Construct a wildlife guzzler for fresh water in the southwestern portion of the project area.

- Develop and implement a comprehensive reclamation plan that will restore long-term productivity to the areas being disturbed and neutralize any toxic substances that may remain.

APPENDIX I

FLORAL COMPENDIUM[1]

ANGIOSPERMAE (DICOTYLEDONES)

ASTERACEAE - SUNFLOWER FAMILY

Ambrosia dumosa
Artemisia ludoviciana
Chrysothanmus nauseosus
Psathyrotes ramosissima

BORAGINACEAE - BORAGE FAMILY

Amsinckia intermedia
Pectocarya setosa
Plagiobothrys arizonicus

CACTACEAE - CACTUS FAMILY

Opuntia basilaris
Opuntia bigelovii

EUPHORBIACEAE - SPURGE FAMILY

Euphorbia albomarginata

GERANIACEAE - GERANIUM FAMILY

Erodium cicutarium

LAMIACEAE - MINT FAMILY

Salazaria mexicana
Salvia columbariae

MALVACEAE - MALLOW FAMILY

Sphaeralcea sp.

OLEACEAE

Menodora scabra

POLYGONACEAE - BUCKWHEAT FAMILY

Eriogonum deflexum
Eriogonum fasciculatum
Eriogonum inflatum
Eriogonum nudum
Eriogonum viridescens

ROSACEAE - ROSE FAMILY

Coleogyne ramosissima

SOLANACEAE - NIGHTSHADE FAMILY

Lycium andersonii

ZYGOPHYLLACEAE - CALTROP FAMILY

Larrea tridentata

ANGIOSPERMAE (MONOCOTYLEDONES)

AGAVACEAE - AGAVE FAMILY

Yucca brevifolia

POACEAE - GRASS FAMILY

Bromus rubens
Erioneuron pulchellum
Oryzopsis hymenoides

GYMNOSPERMAE

EPHEDRACEAE
Ephedra nevadensis

[1] This is not intended as an exhaustive listing of the vegetation occurring on the site; some annual herbs or very uncommon species may not have been detected by the field survey.

APPENDIX II

FAUNAL COMPENDIUM

REPTILES

IGUANIDAE - IGUANID LIZARDS	
Uta stansburiana	side-blotched lizard
TEIIDAE - WHIPTAIL LIZARDS	
Cnomidophorous tigris	whiptail lizard
TESTUDINIDAE - TORTOISES & BOX TURTLES	
Gopherus agassizi	desert tortoise

BIRDS

CORVIDAE - JAYS & CROWS	
Corvus corax	common raven
FRINGILLIDAE - GROSBEAKS, FINCHES & SPARROWS	
Amphispiza bilineata	black-throated sparrow
MIMIDAE - MOCKINGBIRDS & THRASHERS	
Toxostoma lecontei	Le conte's thrasher

MAMMALS

SCIURIDAE - SQUIRRELS	
ammospermophilus leucurus	antelope ground squirrel
CRICETIDAE - NEW WORLD RATS & MICE	
Neotoma lepida	desert woodrat

CANIDAE - WOLVES & FOXES

Canis latrans	coyote

LEPORIDAE - HARES & RABBITS

Sylvilagus audubonii	desert cottontail
Lepus californicus	black-tailed jack rabbit

REFERENCES

Bureau of Land Management (BLM). 1980. Final Environmental Impact Statement and Proposed Plan. Bureau of Land Management, Riverside, California.

Bureau of Land Management (BLM). 1985. "Distribution, Relative Density, Habitat Preference and Seasonal Activity Levels of the Mojave Ground Squirrel (*Spermophilus mohavensis*) and Antelope Ground Squirrel (*Ammospermophilus leucurus*) in the Western Mohave Desert, California". Bureau of Land Management, Ridgecrest, California. Unpublished report.

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Smith, J.P., Jr., and R. York. 1984. Inventory of Rare and Endangered Vascular Plants of California. Special Publication No. 1 (3rd Edition), California Native Plant Society.

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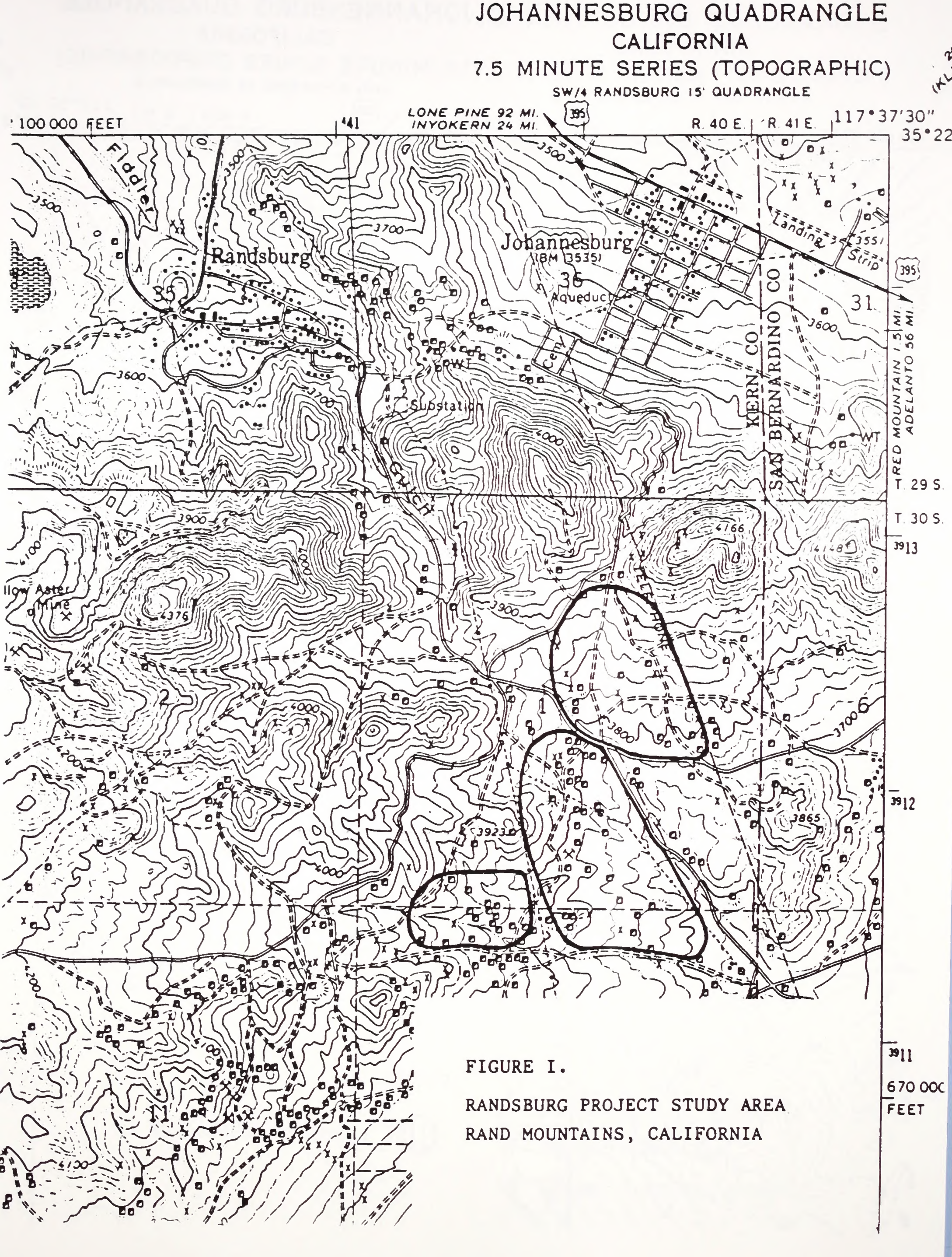


FIGURE I.

RANDSBURG PROJECT STUDY AREA

RAND MOUNTAINS, CALIFORNIA

FIGURE II.

CREOSOTE BUSH SCRUB

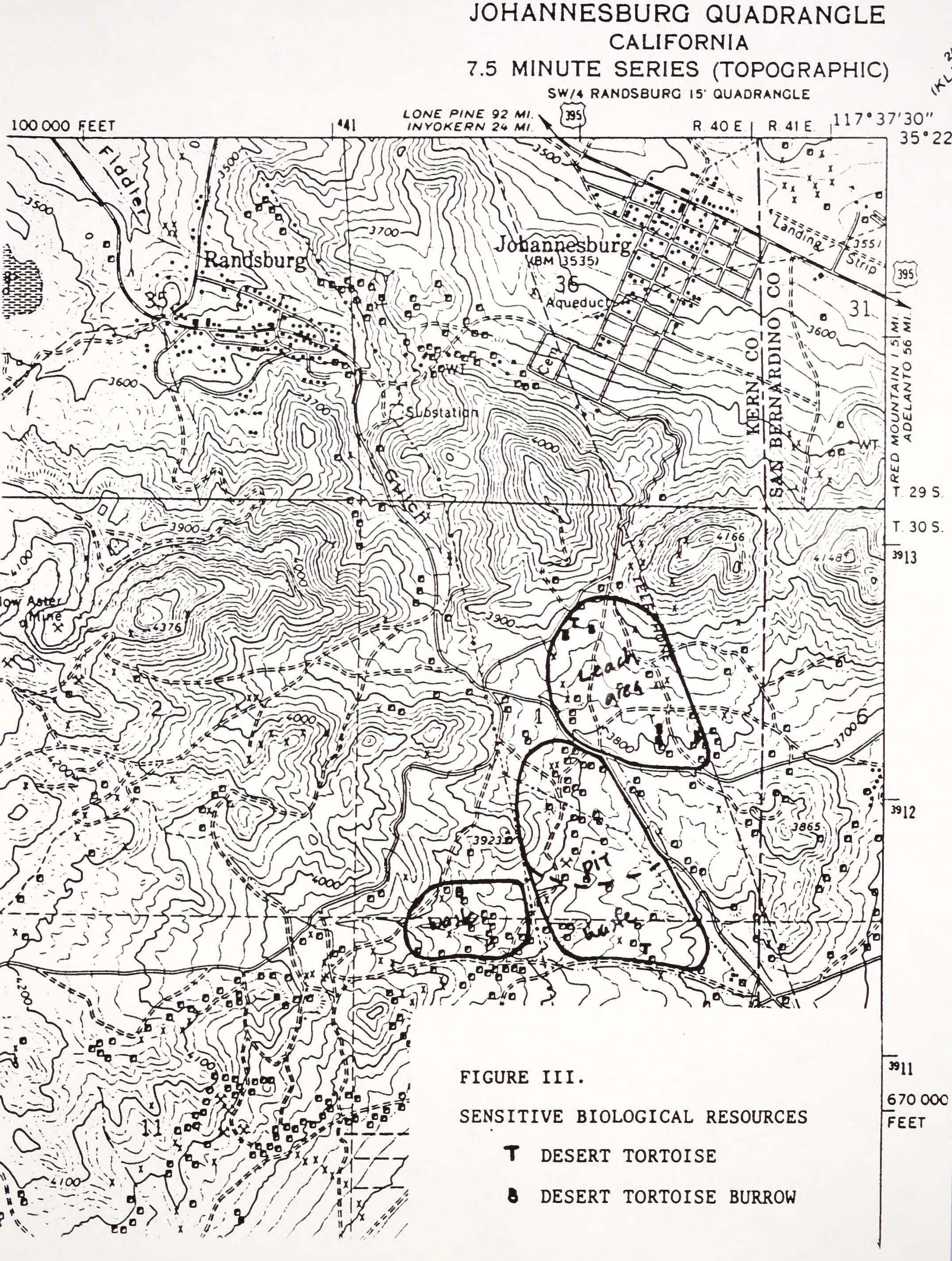


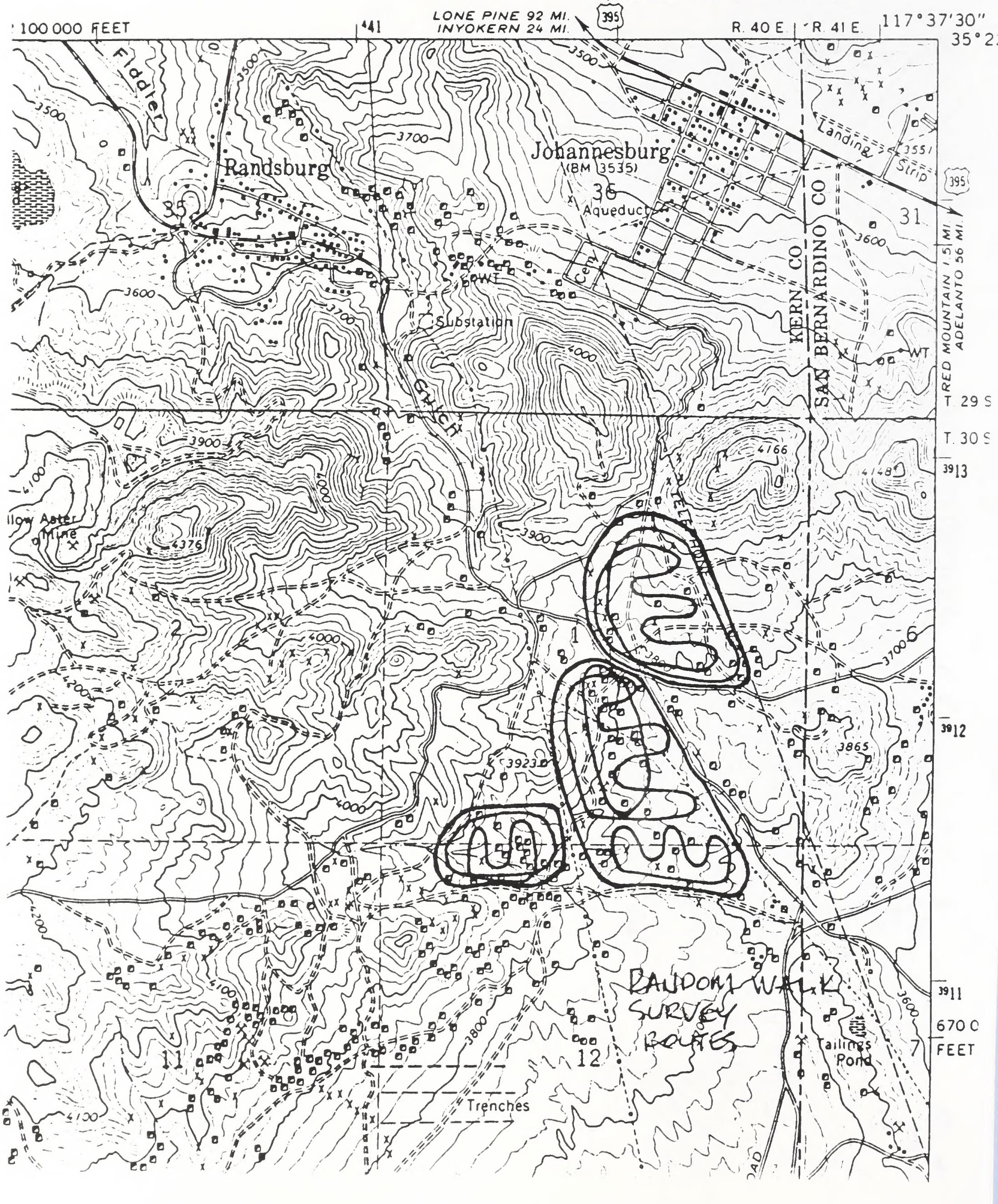
FIGURE III.

SENSITIVE BIOLOGICAL RESOURCES

T DESERT TORTOISE

B DESERT TORTOISE BURROW

JOHANNESBURG QUADRANGLE
CALIFORNIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
SW/4 RANDSBURG 15' QUADRANGLE



APPENDIX E

Biological Survey for the Baltic Mine Project Area

BIOLOGICAL ASSESSMENT
DESERT TORTOISE SURVEY OF
THE BALTIC MINE PROJECT
NEAR RANDSBURG, KERN COUNTY, CALIFORNIA

Prepared for:

Rand Mining Company
P.O. Box B
Randsburg, California 93554

by

Ted Rado
Wildlife Biologist
3144 Celest Drive
Riverside, California 92507

December 1990

SUMMARY

The Rand Mining Company has an active gold mine near the community of Randsburg in the north-central Mojave Desert. The company plans to expand its current operation by enlarging an existing pit, creating a new pit, creating overburden piles from these pits, and constructing and operating an ore processing site nearby with associated haul road. A total of 176.5 acres would be affected by these activities. The federally listed threatened desert tortoise [Gopherus (=Xerobates) agassizii] is known to occur in the project area.

A systematic inventory of the project area was undertaken between December 17-26, 1990. Surveys consisted of transects to locate desert tortoise and their sign. A total of one live desert tortoise, two carcasses, 29 burrows and pallets, and 9 scat were located during this survey. An estimated 3 or fewer live desert tortoises are currently present within the project area.

Because the species will be affected by proposed mining activities and the U.S. Bureau of Land Management is involved with the project as a Federal authorizing agency, formal consultation pursuant to Section 7 of the Endangered Species Act of 1973, as amended, should be initiated. A State permit pursuant to Section 2081 of the Fish and Game Code may also be required, since the desert tortoise is also listed as threatened by the State of California. The California Department of Fish and Game should be consulted regarding these permitting requirements.

Several measures to allow proposed mining activities to occur in a manner that minimizes adverse effects to the desert tortoise and its habitat have been recommended. These measures include conducting preactivity surveys to locate and protect tortoises and burrows, judicious removal of animals that will otherwise be harmed, maximizing use of previously disturbed areas for stockpiling of tailings and storage or equipment, and constructing a protective barrier fence around the ore processing pad. To facilitate project review and interchange of ideas, a joint agency meeting between the U.S. Bureau of Land Management, U.S. Fish and Wildlife Service, California Department of Fish and Game, and the Rand Mining Company is also strongly advised.

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Desert Tortoise and Sign Observed
Desert Tortoise Field Survey Form
Resumes of Biologists
Photographs of Project Site

INTRODUCTION

Project Outline

The Rand Mining Company plans on expanding its current Yellow Aster Mine gold mining operations within a 615-acre area near the desert community of Randsburg (Figure 1). Gold ore will be extracted by open pit mining. Ore will then be transported a short distance to a heap leach pad area where gold and silver will be obtained by washing a cyanide solution through the ore. Specifically, mining activities will include: (1) eastward expansion of the existing Lamont Pit to encompass an additional 14 acres; (2) creation of a new 44 acre mining pit (called the Baltic Pit) immediately east of the Lamont Pit; (3) creation of overburden piles from each pit, totalling 45 acres; and (4) construction and operation of a 70 acre heap leach pad and support facility covering 3.5 acres for ore processing. Exploratory test holes may also be bored in adjacent areas within this 615-acre site to determine extent of ore deposits. Access to both the Lamont Pit and Baltic Pit sites is via existing paved roads. The specific location of the ore processing site has not been determined but will be within that 615-acre area surveyed. Proposed mining activities include portions of Sections 1, 2, 11, and 12 of Township 30 South, Range 40 East, and Section 6 of Township 30 South, Range 40 East, Mount Diablo Baseline Meridian (Figure 2).

Mining will occur throughout the year. An anticipated 50-55 employees will be involved with the project. Mining activities will occur 24 hours per day. The company anticipates that sufficient gold-bearing ore is available to allow profitable operation of the mine for at least 10-15 years, depending upon market price.

The mining site is situated in the northern portion of the Rand Mountains in the north-central Mojave Desert. Topography consists of a series of gently undulating hills forming the "spine" of the Rand Mountains. These hilly areas form a series of ridges surrounding a east-facing small valley with several ephemeral drainages. Drainages within the mining site run principally west-to-east. Elevation ranges from 3700 to 3900 feet. Vegetation is characteristic of the central Mojave Desert. Dominant plant species include creosote bush (*Larrea tridentata*), burrobush (*Ambrosia dumosa*), blackbrush (*Coleogyne ramosissima*), Mormon tea (*Ephedra nevadensis*), California buckwheat (*Eriogonum fasiculatum*), cheesebush (*Hymenoclea salsola*), and ricegrass (*Oryzopsis hymenoides*). Conspicuous but less abundant plant species include Anderson thornbush (*Lycium andersonii*), Joshua trees (*Yucca brevifolia*), Mojave aster (*Machaeranthera tortifolia*), indigobush (*Psorothamnus* sp.), and cholla (*Opuntia echinocarpa*).

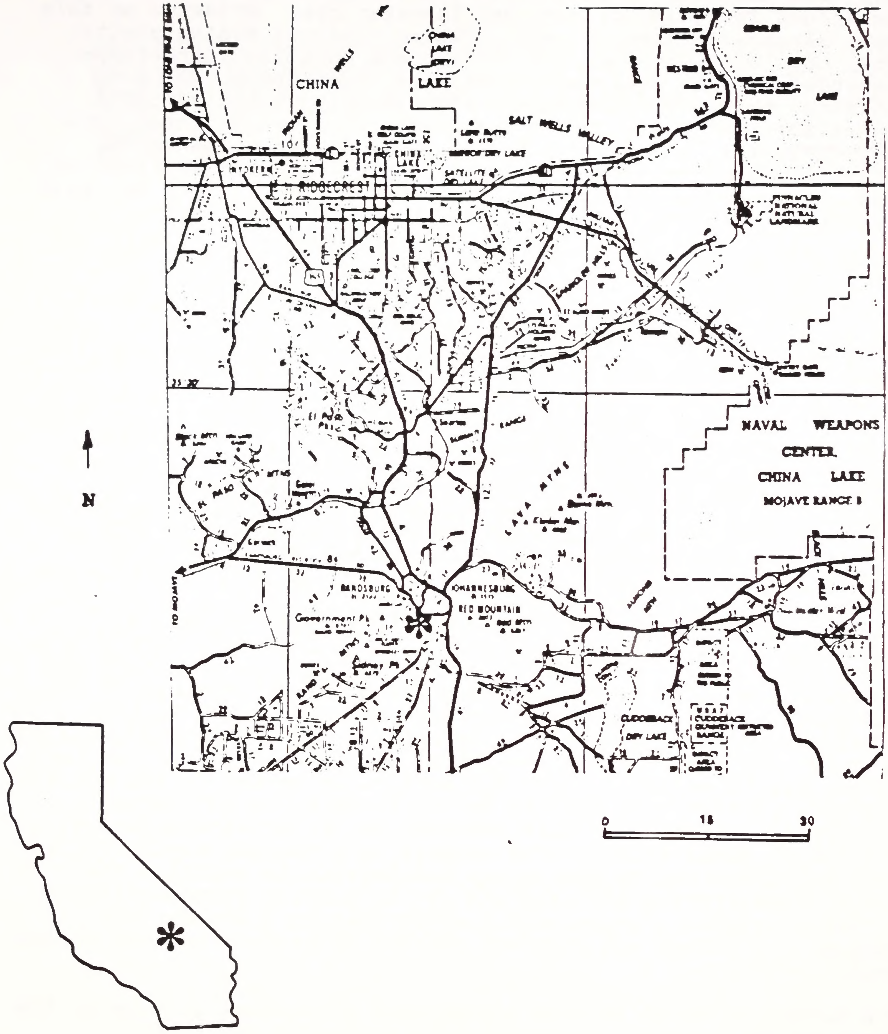

Figure 1. General location of project site.

This area has been subject to decades of prior intensive mining operations for gold, silver, and tungsten ore. Evidence of this prior mining is abundant, and includes numerous mining shafts, pits, spoils piles, roads, trenches, and building foundations. Discarded rusting equipment, cans, and other refuse are also scattered throughout the area. Additionally, a 500 kilovolt transmission line and maintained right-of-way road bisects the project site. Other activities resulting in disturbance to native habitats on the project site include heavy sheep grazing, construction of paved and maintained unpaved roads, and off-road driving by recreation vehicles.

Purpose of Survey

The project site is within the geographic range of the State and federally listed threatened desert tortoise [Gopherus (=Xerobates) agassizii]. The species has been recorded from the immediate project area during prior surveys (McMains 1987, Brown 1988). The Federal Endangered Species Act of 1973 (P.L. 97-304), as amended in 1982, prohibits the "take" (e.g., killing, harming, or harassment) of a listed species without special exemption. Section 7 of the Act also directs Federal agencies to use their full authority to ensure conservation of endangered or threatened species. Specifically, Federal agencies are required to "consult" with the U.S. Fish and Wildlife Service on any action of that agency that may negatively affect a listed species. These consultation procedures authorize discussions to occur between the agencies to develop mitigation measures which will minimize the effects of the action on the species in question.

The U.S. Bureau of Land Management, as a Federal agency responsible for reviewing proposed mining actions, will be required to initiate consultation with the U.S. Fish and Wildlife Service pursuant to Section 7 of the Act. The intent of current survey was threefold: (1) to systematically inventory the entire 615-acre project area for the desert tortoise to determine potential for affecting this species; (2) to provide a Biological Assessment summarizing survey results in a concise report format that could be used by the Bureau and Service to expedite the formal consultation process; and (3) to provide recommendations to facilitate any future mining activities in a manner that reduces the direct and indirect effects of project actions to the desert tortoise.

The desert tortoise is also listed as a threatened species by the State of California. As such, it is protected under the California Endangered Species Act of 1984 (Fish and Game Code 2050-2098). The California Department of Fish and Game may require that the Rand Mining Company obtain a State permit to "take" this species pursuant to Section 2081 of the Fish and Game Code. Information provided in this report should additionally

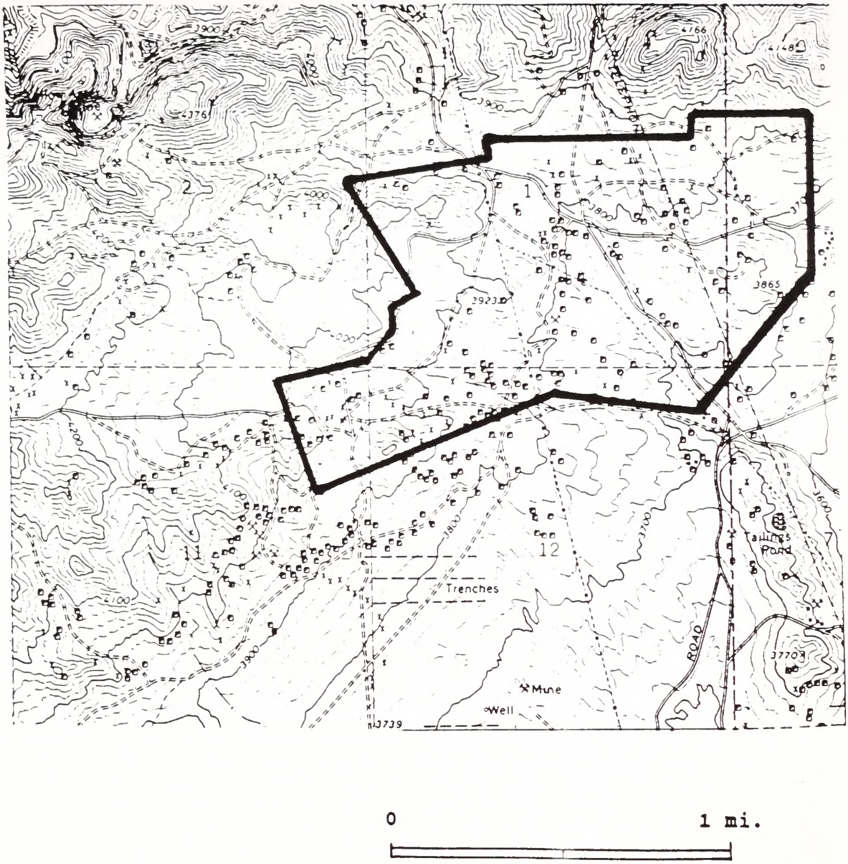

Figure 2. Project Area.

serve to supplement this State permitting process.

Species Account

The desert tortoise was State listed as a threatened species on June 22, 1989 [California Code of Regulations, Section 670.5(b)(4) of Title 14], and federally listed as endangered under the emergency provisions of the Federal Endangered Species Act on August 4, 1989 (54 Federal Register 32326-32331). This latter listing was changed to threatened on April 2, 1990 (55 Federal Register 12178-12191). Reasons for listing included habitat loss and fragmentation and population declines as a result of disease, predation, and Man-induced factors.

The desert tortoise is widely distributed over portions of the Mojave, Sonoran, and Colorado deserts of the western United States and northwestern Mexico. Habitats occupied include plains and valleys in the Mojave Desert, bajadas and low mountain slopes in the Sonoran Desert, and thorn scrub forest in Mexico. Dominant vegetation includes creosote bush, burrobush, Joshua trees, ocotillo, palo verde, and several species of saltbush (Woodberry and Hardy 1948; Schwartzmann and Ohmart 1977; Berry 1975, 1984).

The desert tortoise is a highly adapted, adept digger. Burrows are constructed to avoid harsh temperatures and to avoid predators. Burrows used by tortoises include a shallow "pallet" that is used regularly during seasonal activity periods, and a deeper, more extensive burrow that is used during periods of inactivity (Woodbury and Hardy 1948; Berry 1975). Burrows may be constructed almost anywhere, including under boulders, canopies of shrubs, wash embankments, or in the open (Woodbury and Hardy 1948, Berry 1972, Burge 1976, Coombs 1977).

The species is herbivorous. Tortoises eat a variety of annual flowers, perennial grasses, a few half shrubs, and flowers of perennial shrubs. Desert tortoises also rely heavily on intermittent rainfall to re-hydrate, and will emerge in numbers immediately following the onset of spring and summer rains to drink (Medica et al. 1982).

Desert tortoises are mature at approximately 15-20 years of age (Woodbury and Hardy 1948). One to two clutches of 2-14 eggs are laid during the spring or early summer in or near the females burrow (Miller 1955; Turner et al. 1987). Eggs hatch in about 105-135 days (Coombs 1974). Individual animals may live for over 100 years (Woodbury and Hardy 1948).

Based on an extensive database compiled from over 2000 strip-transects and 30 study plots in California, desert tortoises are distributed over approximately 40,200 square miles. The majority of these lands contain tortoise densities of 0-20 animals per square mile (Berry and Nicholson 1984).

Desert tortoise populations have declined in recent years as a consequence of several factors. Man-induced activities, including urbanization, highway construction, livestock grazing, motorized recreation, utility and pipeline corridors, mineral exploration and development, and energy development, have contributed to habitat loss and degradation (Berry 1984). Populations have also suffered major declines as a result of disease outbreaks and excessive predation by ravens, a major predator of juvenile tortoises (BLM et al. 1989).

Tortoise densities within the general area of the mining site are highly variable. Based on transects undertaken for the Bureau of land management Desert Planning Program in the 1970's, densities in the proposed Lamont Pit expansion area and proposed Baltic Pit are between 0-20 per square mile. Tortoise densities immediately to the south of this area are significantly higher. Prior Bureau transect data indicate densities ranging between 50-100 per square mile. Tortoise densities have substantially declined since original transect data was obtained as a consequence of a respiratory disease outbreak in this portion of the Mojave Desert.

More recently, specific inventories for this species have documented desert tortoises and sign in and immediately adjacent to the project site. Brown (1988) conducting a 75-acre survey in the northwest quarter of Section 2 (about 1 mile northwest of the current survey area), observed a large male tortoise, 16 burrows, and fresh scat. McMains (1987) conducting a survey that included the proposed Lamont Pit expansion area and the Baltic Pit site in the current survey area, observed two subadult tortoises and six tortoise burrows.

Proposed mining operations are not within any area determined to be highly sensitive for the species by either the Bureau of Land Management or California Department of Fish and Game. The latter agency has not identified the project site as being within "crucial habitat" for this species (Desert Tortoise Council 1990). By Bureau definition, the project area lies entirely within "Class III" desert tortoise habitat (BLM Instruction Memorandum CDD-89-51).

SURVEY METHODOLOGY

The entire project 615-acre project area was surveyed for the desert tortoise. Surveys were conducted between December 17-26, 1990. Surveys consisted of a series of 30-foot-wide transects across the project site. Transects were walked in an east-west direction. Direction of travel selected was determined by the presence of several north-south trending paved roads and powerlines which served as excellent points of reference during surveys.

Desert tortoises observed and tortoise sign (e.g., skeletal remains, burrows, pallets, tracks, scat, and drinkers) were recorded during the survey and locations mapped. Survey methodology is consistent with that developed and recommended by the U.S. Fish and Wildlife Service. Survey information was recorded on the standardized "Desert Tortoise Survey Form" developed by the U.S. Fish and Wildlife Service (Appendix A).

A "buffer" zone around the project site was not surveyed. This was determined to be unnecessary due to the confirmed presence of the desert tortoise throughout the project area during this survey and the high probability of encountering additional tortoises and sign during any buffer survey. A prior survey of an adjacent area has already confirmed the presence of the desert tortoise immediately off-site (Brown 1988). The U.S. Fish and Wildlife Service concurred with this decision to forego a buffer survey (Ray Bransfield, USFWS, pers. comm.).

Four biologists participated in this survey. Each biologist has conducted prior inventories for desert tortoises in the central Mojave Desert. Resumes of each biologist are provided in Appendix B of this report.

RESULTS

A total of one live desert tortoise was observed during this 615-acre survey. Additionally, a total of two carcasses, 29 burrows/pallets, and 9 scat were observed. Tortoises and sign, while also present within the 615-acre mining area that will contain the Lamont Pit extension and the Baltic Pit, occur in low numbers. Tortoise data are summarized in Table 1 and shown on Figure 3. Individual data are provided in Appendix A.

DISCUSSION

Desert tortoises and sign are low in number and "patchily" distributed in the 615-acre mining parcel. The long-term management value of this area for the species appears to be poor for several reasons: (1) low densities of animals; (2) proximity to two desert communities; (3) degraded and fragmented habitat as a consequence of prior and current intensive mining activities throughout the area, livestock grazing, off-road recreational vehicle use, several paved and maintained unpaved roads, and a 500 kilovolt transmission line with maintained service road; and (4) a "quilted" pattern of interspersed private and public lands. The U.S. Bureau of Land Management and California Department of Fish and Game have recognized the reduced value of the immediate area for the desert tortoise and have assigned a lower value (i.e., Class III and "non-crucial" habitat status) for management than surrounding lands.

Table 1. Desert Tortoises and Sign Observed During Surveys of the Mining Area.

Sign	# Observations
Live Tortoises	1
Tortoise Carcasses	2
Burrows	10
Pallets	19
Scat	9
Total Adjusted Sign*	33
Probable Additional Tortoises On-site**	2

**Burrows with fresh scat and smoothed entrance ramps, indicating animal inside.

POTENTIAL PROJECT EFFECTS

Proposed mining activities will result in the long-term alteration of about 176.5 acres of desert tortoise habitats. Extant habitats will be disturbed from removal of overburden and underlying ore, creation of overburden piles and construction and operation of the heap leach site.

Desert tortoises may be subject to direct and indirect effects associated with mine operation. Direct mortality may occur from operation and parking of vehicles and equipment, vehicle traffic to and from the mining site by employees, entrapment in holes and trenches, and through habitat loss related to mining. A lower potential exists for injury or mortality associated with increased predation risk by ravens, that may be "attracted" to the site due to increased food availability (i.e., refuse), or from accidental exposure to cyanide solution used to extract gold from ore deposits. Some desert tortoises may escape direct injury, but become displaced into adjacent unmodified areas a result of increased noise, habitat alteration, and human activity. The potential for the "take" of this species will extend over the operational life of the mining project (10-15 years).

Desert tortoises may also be subject to injury or harassment during implementation of mitigation measures, including excavation of any pallets or burrows that will be unavoidably lost during project actions and construction of protective fencing around the perimeter of the heap leach pad.

ATTACHED FOLD-OUT MAP

Figure 3. Locations of desert tortoises and sign observed during current survey.

The numbers of individual desert tortoises that may be subject to "take" is difficult to quantify. Based on the results of this current survey, desert tortoises are low in number and sparsely distributed over the entire 615-acre area that includes both mining pits (Figure 3). An estimated 3 or fewer desert tortoises are currently in this area. Habitats within all portions of the mining site have been subject to prior disturbance as a consequence of prior mining operations during past decades.

The potential for the inadvertent harm of this species can be significantly reduced through implementation of measures specified below in the "Recommendations" section.

RECOMMENDATIONS

(1) Prior to undertaking any project actions, the Rand Mining Company should contact the U.S. Bureau of Land Management, Ridgecrest Resource Area Office, to discuss the timing of initiating formal consultation pursuant to Section 7 of the Endangered Species Act. The Bureau, as a Federal agency involved as an "authorizing" agency for this project, is required to consult with the U.S. Fish and Wildlife Service, since the desert tortoise will likely be affected by proposed project actions. The Biological Opinion subsequently issued to the Bureau from the Service, can legally take up to 135 days from receipt of request by the Bureau. A section of the Opinion will establish a lawful limit of "take" for this species and set forth Terms and Conditions under which take may be permitted during mining activities. The Service may also require additional measures to protect the desert tortoise during planned project actions. The appropriate agency contact is:

Mr. Lee Delany
U.S. Bureau of Land management
Ridgecrest Resource Area Office
300 South Richmond Road
Ridgecrest, California 93555
(619) 375-7125

(2) Prior to undertaking any project actions, the Rand Mining Company should also contact the California Department of Fish and Game (CDFG) to determine if a 2081 permit will be required. This appears to be likely given the additional documented occurrence of the State listed threatened Mohave ground squirrel (Spermophilus mohavensis) within 3 miles of the project site. An agency contact is:

Mr. Frank Hoover
California Department of Fish and Game
Chino Fisheries Base

Route 5, Bird Farm Road
Chino, California 91710
(714) 597-8235

(3) The following mitigation measures are recommended for future site development:

(a) During construction, stockpiling of equipment and vehicles should maximize those portions of the project site that will be subject to permanent disturbance, or to areas previously subject to impact as a result of prior human use. Temporary or inadvertent disturbance to remaining portions of the area can be minimized by: staking, "flagging", or otherwise clearly marking the boundaries of the mining areas; notifying employees of the specific areas, boundaries of the areas, and the need to avoid disturbance to remaining areas; and posting signs or erecting temporary fencing at access points to limit access to authorized vehicles and equipment only.

(b) Existing routes of travel already present throughout the project site should be used during mining activities to the maximum extent practical in order to minimize any disturbance to tortoise habitats not slated for development. Speed limits on unposted access roads leading to and from the mining site and leach pad area should not exceed 25 miles per hour. Project-related work should be confined to designated routes.

(c) Tortoises commonly seek shade during the hot portions of the day. Employees should be cautioned to check under equipment and vehicles prior to moving such equipment.

(d) Trash and food items should be promptly contained and regularly removed from the mining site to reduce attractiveness to opportunistic predators such as ravens that regularly prey on juvenile tortoises.

(e) Mining activities should prevent increased erosion patterns and modification of down-slope habitat composition. Washes provide seasonally productive sources of annual plants upon which tortoises forage, embankments that are favored for burrow construction, and serve as dispersal corridors for animals.

(f) Within 30 days prior to any buildout on the site as a consequence of mine expansion activities, the area that will be subject to temporary or permanent disturbance should be re-surveyed for desert tortoises and their sign. Locations of desert tortoise burrows should be prominently "flagged" to prevent inadvertent destruction by vehicles and equipment where such sites can be protected through simple avoidance. As an added precaution, a "buffer" zone of 50 feet in radius around all such sites should be established.

(g) If desert tortoises and/or burrows and pallets are encountered during a preconstruction survey that will be unavoidably destroyed by planned construction actions, representatives from the BLM, CDFG, and USFWS should be contacted to review procedures for handling of animals. Subject to their agency approval, the following procedures may be appropriate:

1. Excavation of the burrow under the supervision of a qualified biologist.

2. Capture of any tortoises in the burrow or pallet by the biologist, using disposable gloves for each animal to prevent inadvertent transmittal of a respiratory disease between animals. Rehydration of any captured animals may also be required, using procedures acceptable to the U.S. Fish and Wildlife Service and California Department of Fish and Game.

3. Segregation of the individual tortoises captured to prevent disease transmittal.

4. Release of the captured animal(s) within a 100 yard radius of the point of capture into an empty burrow or pallet or under the shade of a bush (during the Spring and early summer), or immediate transfer of the captured animal(s) to the California Department of Fish and Game for research purposes or for adoption (during the remainder of the year).

These actions will require a permit from the U.S. Fish and Wildlife Service and California Department of Fish and Game prior to implementation. The Rand Mining Company should contact both agencies regarding permitting requirements.

(h) Domestic dogs should either be restrained or prohibited from the project site. These can be significant causes of tortoise mortality.

(i) During exploratory activities, including temporary excavation of trenches or holes, escape ramps consisting of loose earth deposited in the test hole or trench should be placed to facilitate the escape of any wildlife species that may inadvertently become entrapped. Such trenches or holes should also be inspected for entrapped wildlife prior to onset of construction and immediately prior to the end of each working day. A final inspection should also be made immediately before filling these holes or trenches. Any animals discovered should either be allowed to escape before activities resume or carefully removed from the pit or trench and allowed to escape unimpeded.

(j) The outer limits of all construction/mining zones should be clearly staked and flagged to minimize inadvertent straying of vehicles and equipment into surrounding areas.

(k) In order to minimize any exposure risk to desert tortoises, a specially designed fence should be constructed around that portion of the leach pad site that will contain the leach pad. Fence design should be acceptable to the U.S. Fish and Wildlife Service, California Department of Fish and Game, and Bureau of Land Management. The following design suggestions are provided for review at this time:

1. the fence should be minimally 3 feet in height above ground level;

2. fence design should have either 3-strand barbed wire or hogwire (the latter is recommended);

3. the bottommost 1.5 feet of fence should have 1/2 inch mesh hardware cloth or other suitable material affixed;

4. the hardware cloth should be affixed to this fence at intervals not to exceed one foot using hog rings or other clamping devices;

5. the uppermost portion of the hardware cloth should not extend more than two inches above the lowermost wire strand if barbed wire is used;

6. this mesh should be buried to a depth of 1 foot below ground level; <u>OR</u>

   the bottom 1 foot should be bent at a right angle towards the outside of the fence, and covered with gravel and rocks to prevent animals from burrowing under the fence;

7. T-posts or other suitable anchoring posts should be placed at appropriate intervals (usually 10-16 feet spacing);

8. treated "peeler" posts or other suitable anchoring posts should be spaced at appropriate intervals to ensure fence stability;

9. the protective fence should be regularly inspected and repaired; and

10. a gate should be installed across the compound entrance that provides sufficient minimal ground clearance to deter ingress by desert tortoises.

(l) Toxic materials contained on the project site should be stored and used in a manner that prevents harm to desert tortoises and other wildlife species.

(m) Stockpiling of ore and tailings should maximize use of previously disturbed areas.

(n) Prior to onset of mining activities, all employees should be notified of the occurrence of the desert tortoise in the project area, measures being implemented for the protection of this species and its habitats during mining activities, and means by which individual employees can facilitate this process. The notification should also include:

1. a clear understanding that the species is protected and should not be moved or harmed if encountered and that handling or moving of animals is authorized only by designated individuals through permits issued by the USFWS and CDFG;

2. sightings of desert tortoises or their burrows should be reported to the mine foreman; and

3. failure to abide by conditions imposed by Federal and State agencies for the desert tortoise could result in suspension of any necessary permits allowing mining activities to continue.

Appropriate means to provide this information include a formal employee "briefing", where applicable handouts and other materials can be presented and mitigation measures for the project reviewed.

(p) The Rand Mining Company should designate a specific individual that will serve as a "contact" representative between the company and regulatory and reviewing agencies associated with desert tortoise mitigation and compliance procedures. Written notification of this individual should be provided to the BLM, USFWS, and CDFG.

(4) Proposed mining activities will result in the loss of desert tortoise habitats and the possible "take" (e.g., killing, harming, or harassing) of individual animals. Compensation for this habitat loss may be required from the BLM, CDFG, and USFWS. A joint agency/company meeting is recommended early in the project planning process. The meeting agenda should include:

(a) a review of results of this current survey;

(b) an overview of planned mining project actions;

(c) a discussion of planned on-site mitigation measures for the desert tortoise;

(d) a discussion of compensation requirements and offsetting ratios;

(e) need for State 2081 permitting; and

(f) timeframes for completion of necessary regulatory compliance procedures by each agency.

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APPENDIX

Appendix A: Desert Tortoise Survey Form
Desert Tortoise Field Data

Appendix B: Resumes

Appendix C: Photographs

APPENDIX A

Desert Tortoises and Sign Observed During Transect Surveys*

No.	Type of Observation	H-W-L (mm.)	Stake #	Other Comments
1	Pallet	69/114/132	TR16	fair condition**
2	Pallet	152/292/419	TR17	fair condition
3	Pallet	114/279/279	TR18	fair condition
4	Pallet	127/254/254	TR19	good/2 scat
5	Pallet	127/229/279	TR20	fair condition
6	Burrow	152/279/610	TR21	good/1 scat
7	female carapace (240 mm. MCL)/predator chew marks/dead >1 yr.			
8	Pallet	165/241/419	TR22	fair condition
9	Pallet	114/267/406	TR23	fair condition
10	Pallet	178/305/559	TR24	fair condition
11	Pallet	76/229/305	TR25	poor condition
12	Pallet	127/305/305	SI1	fair condition
13	Burrow	51/101/356	SI2	poor condition
14	1 Class II scat			
15	Pallet	76/229/305	TR26	poor condition
16	Burrow	140/343/1778	TR10	good condition
17	Collapsed Pallet	---	---	poor condition
18	Collapsed Pallet	---	---	poor condition
19	Burrow	63/203/914	TR11	good/1 scat
20	Pallet	215/279/470	TR12	poor condition
21	Burrow	140/178/736	TR13	poor condition
22	Old plastron bone fragments/adult animal/dead >10 years			
23	1 Class II scat			
24	Pallet	165/229/330	TW1	fair condition
25	1 Class II scat			
26	Pallet	89/229/356	TR1	good/1 scat
27	Pallet	179/356/610	TR2	good condition
28	Collapsed Pallet	---	---	poor condition
29	Burrow	76/165/558	TR3	good/2 scat
30	Burrow	165/330/?	TR4	1 tortoise/3 scat
31	Burrow	127/279/1660	TW2	fair condition
32	Collapsed Burrow	---	---	poor condition
33	Pallet	177/330/610	TR5	good condition

*Numbers in the left column coincide with numbers in Figure 3.
**Definitions are as follows:
"good condition" = opening unobstructed, ramp level, no rocks, soil, or litter accumulation at entrance.
"fair condition" = opening showing partial soil collapse at entrance, windblown sticks or litter may obstruct opening, entrance ramp not smooth.
"poor condition" = opening largely or completely collapsed, entrance ramp entirely absent or almost obscured.

U.S. Fish and Wildlife Service

Desert Tortoise Field Survey Form

DESERT TORTOISE SURVEY FORM
FOR DISTRIBUTION/ABUNDANCE AND PRECONSTRUCTION SURVEYS

Section I: PROJECT AND TRANSECT LOCATION

Project Name: Yellow Aster Mine

Transect No.: 615 Acre Parcel

Site Name: Rand Mining Site
Topo. Quad Name: 7.5'
Topo. Quad Scale: Johannesburg
State: California
County: Kern

Transect Location:
T 30S, R 40E, Sec. 1, 11, 12
¼ Sec. NA, ¼ ¼ Sec. NA
UTM Zone: NA
Northing: NA
Easting: NA

Section II: GENERAL SITE DESCRIPTION

Land Form: Northern Portion of Rand Mountains / hilly country with small valleys

Aspect: West-to-East Trending Slope

Slope (%) - maximum: 50%
minimum: 2%

Elevation (ft.) - maximum: 3900
minimum: 3700

Soils: Gravel-based soils with rock outcrops and interspersed sandy washes

Vegetation - perennials: creosote bush, burrobush, blackbrush, Joshua trees, cheesebush
annuals: None - drought conditions

Habitat Condition Class - Project area: 3
Adjacent area: 3

Adjacent Land Use: Mining Haul-out area, communities of Randsburg + Johannesburg nearby

Section III: SPECIFIC TRANSECT INFORMATION

Survey Date: December 18-26, 1990

Survey Participant(s):
Ted Rado
Diane Mitchell
Sue Icenogle
Tim Wade

Transect Width: 30 feet
Length: 615 acre parcel

Wind Speed (class): 0-40 MPH
Cloud Cover (class): 0-40%
Humidity (%): 10-70%
Rainfall (in.): Light Precipitation on one day only

Time (start): NA

Time (finish): NA

Air Temperature (°C):
1.5 m above ground: 11-65°F
1 cm above ground: NA
surface: NA

Air Temperature (°C): -
1.5 m above ground: -
1 cm above ground: -
surface: -

DESERT TORTOISE SURVEY FORM
FOR DISTRIBUTION/ABUNDANCE AND PRECONSTRUCTION SURVEYS

Project Name: Rand Mining Site

Transect No.: 615 Lone Pond

Date: December 18-26, 1990

Section IV: TORTOISE SIGN

<u>Sign Type</u>: live tortoise, carcass, bone, burrow, pallet, scat (determine class), egg shell fragments, tracks (include location, width, sex), drinking sites, courtship rings, indication of a fight, <u>Neotoma</u> middens, etc. Indicate which individual sign have been combined for one adjusted sign.

Sign No.

1. Burrow 69H-114W-122L fair condition
2. Pallet 152H-279W-419L fair condition
3. Pallet 114H-279W-279L fair condition
4. Pallet 127H-254W-25L Good condition - 2 scat
5. Pallet 127H-229W-610L good condition - 1 scat
6. Pallet 127H-229W-279L fair condition
7. Pallet 165H-[illegible]W-41[illegible]L fair condition
8. Pallet 114H 267W-406L fair condition
9. Pallet 178H-305W-559L fair condition
10. Pallet 76H-229W-205L Poor condition
11. Pallet 1[illegible]H-305W-305L fair condition
12. Burrow 51H-101W-356L Poor condition
13. Pallet 76H-559W-305L Poor condition
14. Burrow 140H-343W-1778L Good condition
15. Collapsed pallet - Poor condition
16. Collapsed pallet - Poor condition
17. Burrow 63H-203W-914L Good condition - 1 scat
18. Pallet 215H-279W-470L Poor condition
19. Burrow 140H-178W-736L - Poor condition
20.

Section V: LIVE TORTOISE AND CARCASS INFORMATION

Sign No.	Location	Sex	Est. Size	Live Tortoise Activity	Live Tortoise Condition	URDS	Carcass Aging Class
1	mine site	♀	240 mm	carcass w/ predator chew marks			
2	mine site	unknown	unknown	plastron bone fragments			
3	mine site	unknown	260 mm	in burrow	good	unknown	

DESERT TORTOISE SURVEY FORM
FOR DISTRIBUTION/ABUNDANCE AND PRECONSTRUCTION SURVEYS

Project Name: Rand Mining Site Transect No.: 615 Acre Site
Date: December 18-26, 1990

Section VI: BURROW AND PALLET INFORMATION

Sign No.	Location	Condition	Length	Width	Height	Soil Cover at Entry	Other Sign
21	1 class II scat						
22	1 class II scat						
23	Pallet 165H - 229W - 330L fair condition						
24	1 Class II Scat						
25	Pallet 89H - 229W - 356L Good condition - 1 scat						
26	Pallet 179H - 356W - 610L Good condition						
27	Collapsed Pallet Poor condition						
28	Burrow 76H - 165W - 558L Good condition - 2 scat						
29	Burrow 165H - 320W - ? Good condition - 3 scat						
30	Burrow 127H - 279W - 1660L fair condition						
31	Collapsed burrow Poor condition						
32	Pallet 177H - 330W - 610L Good Condition						

Section VI: Neotoma MIDDENS INFORMATION

Sign No.	Contents of Midden (number of tortoise bones, size of bones, eggshells, etc.)
	No tortoise sign observed

Section VII: SURVEY SUMMARY

Total Numbers of Tortoise Sign Observed

Live Tortoises	Carcasses	Burrows	Pallets	Scat	Egg Shell Fragments

Tracks	Drinking Sites	Courtship Rings	Other	Neotoma Middens	Total Adjusted Sign

DESERT TORTOISE SURVEY FORM
FOR DISTRIBUTION/ABUNDANCE AND PRECONSTRUCTION SURVEYS

Project Name: Rand Mining Site

Transect No.: 615 Acre Parcel
Date: Decemb. 18-26, 1990

Section VI: BURROW AND PALLET INFORMATION

Sign No.	Location	Condition	Length	Width	Height	Soil Cover at Entry	Other Sign
33	Pallet	76H - 241W - 228L Poor condition					
34	Pallet	177H - 305W - 229L Fair condition					
35	Pallet	114H - 367W - 330L Fair condition					
36	Pallet	[illegible]H - 305W - 405L Fair condition					
37	Burrow	179H - 254W - 160L - Fair Condition					

Section VI: <u>Neotoma</u> MIDDENS INFORMATION

Sign No.	Contents of Midden (number of tortoise bones, size of bones, eggshells, etc.)
	none

Section VII: SURVEY SUMMARY

<u>Total Numbers of Tortoise Sign Observed</u>

Live Tortoises	Carcasses	Burrows	Pallets	Scat	Egg Shell Fragments
1	2	10	19	9	0

Tracks	Drinking Sites	Courtship Rings	Other	<u>Neotoma</u> Middens	Total Adjusted Sign
0	0	0	0	0	33

DESERT TORTOISE SURVEY FORM
FOR DISTRIBUTION/ABUNDANCE AND PRECONSTRUCTION SURVEYS

Project Name: Rand Mining Site

Transect No.: 615 Acre Parcel
Date: 12/18-26-1990

Section VII: COMMENTS - about the transect in general or specifics about individual tortoises or sign

Tortoise sign relatively low and widely scattered over parcel. Majority of burrows and pallets show no recent sign of use. An estimated 5 or fewer live tortoises are present on the site.

APPENDIX B

Resumes of Biologists Conducting Field Surveys

RESUME

Theodore A. Rado

Date of Birth: January 10, 1952

Current Address: 3144 Celeste Drive
Riverside, California 92507

Telephone Number: 714/369-8510

Education: San Jose State University

B.A. Zoology - December 1974
M.A. Biology - August 1977

Master's Thesis focus: rodent population ecology in the Painted Desert of Utah

Experience:

1989-current Independent consulting biologist. Work has included field surveys, report preparation, and preparation of Habitat Conservation Plans and related documents. Projects have included oilfield cleanup, reservoir enhancement, wind energy development, mining, urban development, and prison construction. Species include the desert tortoise, San Joaquin kit fox, blunt-nosed leopard lizard, Tipton kangaroo rat, and Mohave ground squirrel.

1989-MAR 1990 Wildlife Biologist, U.S. Bureau of Land Management, Riverside, California. I was employed as a wildlife biologist with the Bureau, where I worked exclusively on the desert tortoise. Work included preparation of an EIS addressing regional control of ravens, assisting Area Offices with various projects affecting desert tortoises, and development of mitigation measures for the species.

1984-1988 Wildlife Biologist, U.S. Fish and Wildlife Service, Endangered Species Office, Sacramento, California. Work included negotiating with project proponents for mitigation and compensation and development of conservation plans for regional Section 10(a) permit applications. Species included the San Francisco garter snake, Coachella Valley fringe-toed lizard, desert tortoise, San Joaquin kit fox, flat-tailed horned lizard, and many others.

1981-1984	Wildlife Biologist, U.S. Bureau of Land Management, Barstow, California. Position involving development and implementation of management plans for wildlife and sensitive habitats, and review of many projects affecting desert wildlife. Species that I worked with included the desert tortoise, Amargosa vole, Barstow wooly sunflower, and Mojave fishhook cactus.
1980-1981	Wildlife Biologist, U.S. Bureau of Land Management, Sacramento, California. Employed as an endangered species specialist for the Resources Division of the State Office. Duties included assisting both District and Field Offices state-wide for compliance with the Endangered Species Act. Assisted in project-specific inventories for sensitive species, contract preparation and review, and management plan preparation.
1979-1980	Wildlife Biologist, U.S. Bureau of Land Management, Riverside, California. Employed as a member of the Desert Planning Staff developing a comprehensive management plan for 12 million acres of Federal lands in the California deserts.
1975-1978	Seasonal Park Ranger, National Park Service. Conducted faunal inventories of Hovenweep National Monument (Utah-Colorado) and Fossil Butte National Monument (Wyoming). Work included systematic live-trapping of small mammals.

Professional Organizations:

American Society of Mammologists
Herpetologist's League
Society for the Study of Amphibians and Reptiles
Desert Tortoise Council

Partial List of Publications:

Rado, T.A. and P.G. Rowlands. 1981. A range extension and low elevational record for the Arizona ridgenose rattlesnake, <u>Crotalus willardi willardi</u>. Herp. Review. 1981:15-16.

Laudenslayer, W.F., K.B. Buckingham, and T.A. Rado. In Press. Mammals of the California Desert. In: J. Latting (ed.) California Native Plant Society Special Publication No. 5, Berkeley, California.

Berry, K.H., T.A. Rado, and P.D. Mack. In Press. Vegetation, soils, and hydrology data base for certain research needs for land use management of the California Desert Conservation Area. In: J. Latting (ed.) California Native Plant Society Special Publication No. 5, Berkeley, CA.

Rado, T.A. In Press. 1989. The proposed raven reduction program for 1989 - a coordinated management effort. In: The Desert Tortoise Council: Proceedings of the 1989 Symposium.

Rado, T.A. In Press. An overview of mitigation actions employed for selected endangered species in the San Joaquin Valley. In: D. Williams (ed.) Endangered and sensitive species of the San Joaquin Valley, California: a conference on their biology, management and conservation.

Partial List of Projects Completed As a Consultant:

1990 **Fort Cady Mines**, Newberry Springs, California
Linear transect surveys for the desert tortoise.

1990 **NL Hector Mines**, Newberry Springs, California
Linear surveys for the desert tortoise and rare plants.

1990 **City of Barstow Landfill**, Barstow, California
Linear transects for the desert tortoise.

1990 **City of Victorville**, Victorville, California
Linear transects of landfill for the desert tortoise.

1990 **City of Lenwood Landfill**, Lenwood, California
Linear transects for the desert tortoise.

1990 **Sitting Bull Developments**, Victorville, California
Linear transects for the desert tortoise.

1990 **SeaWest Wind Energy Project**, Mojave, California
Tortoise and small mammal surveys.

1990 **PG&E Line 300 Reinforcement**, Barstow, California
Tortoise survey of pipeline right-of-way

1990 **PG&E Line 300 Reinforcement**, Bakersfield, California
San Joaquin kit fox and blunt-nosed leopard lizard survey of pipeline right-of-way segment

1990 **DaCin Development**, Beaumont, California
Sensitive species survey and mitigation plan for proposed 450-acre land sale.

1990 **Lake Success Reservoir Enhancement**, Tulare County
Survey for San Joaquin kit fox and other listed species at reservoir site and associated Water District lands.

1990 **Lake Kaweah Reservoir Enhancement**, Tulare County
Survey for San Joaquin kit fox, blunt-nosed leopard lizard, and other listed species at reservoir site and associated Water District lands.

1990 **Carl Jones Construction Company**, Apple Valley, CA
Development of a Habitat Conservation Plan for a permit from the U.S. Fish and Wildlife Service to allow development on tortoise habitat.

1990 **Salinas River Cogeneration Project**, Monterey County
Endangered species survey of plant site and adjacent steam field service area.

1990 **Sargent Canyon Cogeneration Project**, Monterey County
Endangered species survey of plant site and adjacent steam field service area.

1990 **SoCal Gas 235 Pipeline Project**, Victorville, California
Mohave ground squirrel records search of proposed pipeline corridor, extending from Newberry to Silver Lakes area.

1990 **Texaco Refinery Sumps Cleanup**, Bakersfield, California
Survey of section of refinery for San Joaquin kit fox and other listed species.

1990 **Rancho Clarita Development**, Ventura County, California
Wildlife survey of proposed development north of Los Angeles

1990 **McMillan Canyon Road Realignment**, San Luis Obispo County
Endangered species survey of proposed highway realignment near the community of Shandon.

1990 **Gartner Subdivision**, Bakersfield, California
Endangered species survey of proposed commercial subdivision in north Bakersfield area.

1990 **Shandon Properties**, San Luis Obispo County, California
Endangered species survey of three parcels proposed for subdivision.

1990 **DeGennaro Development**, Riverside, California
Preparation of Streambed Alteration Agreement for proposed development in Riverside affecting riparian stream.

1990 **Coalinga Cogeneration Project**, Fresno County, California
Endangered species surveys and preparation of both State and Federal permits allowing for future development in endangered species habitat.

1990 **Rubidoux Sports Complex**, Riverside County, California
Wildlife and plant surveys and preparation of Streambed Alteration Agreement for proposed sports development.

1990 **George Dube Subdivision**, Phelan, California
Desert tortoise survey.

1990 **Woodridge Development**, Kern County, California
Wildlife and plant survey of proposed 2,000-unit subdivision.

1990 **Silver Lakes Development**, San Bernardino County
Desert tortoise survey.

1990 **Cushenberry Grade Sand and Gravel Quarry**, Lucerne Valley, California
Desert tortoise survey.

1990 **Excel Mineral Minesite and Millsite**, Kern County, California
Survey for San Joaquin kit foxes and other listed species.

1990 **Unocal Cleanup-Section 32G**, Kern County, California
Endangered species survey, including San Joaquin kit fox, blunt-nosed leopard lizard, and giant kangaroo rat.

1990 **Apple Valley Subdivision**, Apple Valley, California
Desert tortoise survey

1990 **Ridgecrest Golf Course**, Ridgecrest, California
Preparation of a Habitat Conservation Plan and related documents for the City addressing future development in desert tortoise habitat.

1990 **Buttonwillow Race Circuit Course**, Kern County, California
Surveys for tipton kangaroo rats and other endangered species.

1989 **Chevron Industrial Complex**, Bakersfield, California
San Joaquin kit fox survey.

1989 **China Grade Landfill**, Bakersfield, California
Endangered species survey of proposed expansion of City landfill.

1989 **Triam Development**, Tehachapi, California
Wildlife and plant survey, focusing on sensitive species.

1989 **Salcido Construction Company Subdivision**, Tehachapi, California
Wildlife and plant survey, focusing on sensitive species.

1989 **Nishikawa Subdivision**, Tehachapi, California
Wildlife and plant survey, focusing on sensitive species.

1989 **Unocal Cleanup, NPR-2**, Kern County, California
Endangered species survey for San Joaquin kit fox, blunt-nosed leopard lizard, San joaquin antelope squirrel, and giant kangaroo rat.

TIMOTHY J. WADE

EDUCATION

- B.A., Biology/Psychology, Claremont McKenna College, Claremont 1989

PROFESSIONAL EXPERIENCE

- Biologist/Environmental Analyst for the Lilburn Corporation. Conducts field investigations and prepared technical documentation for Biological and Environmental issues.

- Trained as a Desert Tortoise surveyor under John F. Wear of the Lilburn Corporation.

- Biological Assessment for the Anden Group in Santa Clarita, California.

- Biological Assessment and rare plant survey for Gifford Hill at the Partin Limestone Mine in the San Bernardino Mountains.

- Desert Tortoise and rare plant surveys for Fort Cady Mine, near Hector, California.

- Desert Tortoise and rare plant surveys for NL Industries, at their Hectorite Mine, near Hector, California.

- Desert Tortoise surveys for the County of San Bernardino Solid Waste Department at landfills located in Barstow and Victorville.

- Desert Tortoise and rare plant surveys for Texaco Syngas Coolwater site, near Barstow, California, conducted for Tom Dodson & Associates.

- Desert Tortoise survey and general Biological Assessment for Molycorp Mine in Mountain Pass, California.

- Biologist/Environmental Analyst for URS Consultants. Prepared biological surveys, environmental impact reports, environmental assessments and assisted in obtaining stream crossing permits from federal and state agencies.

- Ecology teacher for the Clemmie Gill School of Science and Conservation. Prepared lessons and instruction in ecology, biology and conservation for sixth grade students.

- Biological research assistant. Assisted Dr. Paulette Bierzychudek in ecological studies regarding the costs and benefits of sexual reproduction in annual plants at Rocky Mountain Biological Laboratory in Gothic, Colorado.

- Conducted field research on the coastal cactus wren as a senior thesis project. Studied the distribution, habitat and nesting sites of the coastal cactus wren, a species of limited distribution.

- Laboratory instructor. Assisted in the instruction of a general biology laboratory course for the Joint Science Department of the Claremont Colleges.

- Bernard Field Station Intern. Duties included native habitat restoration, gardening, collection of organisms and removal of non-native species.

- Science tutor. Independently tutored high school math and chemistry students. Tutor of biology and chemistry for the Office of Black Student Affairs.

PROFESSIONAL AFFILIATIONS

- National Audubon Society

DIANE L. MITCHELL

1732 Country Club Dr.
Bakersfield, CA 93306
(805) 872-7746

EDUCATION:

1967	B.A. (Chemistry), General Honors, University of Chicago.
1968	One year of postgraduate work in chemistry at California Institute of Technology, Pasadena, California.
1969	California certification as a secondary school instructor (through Mount Saint Mary's College, Los Angeles).
1973 & 1974	Two summers of field courses in plant ecology, plant taxonomy, mycology, and ornithology at the University of Montana Biological Field Station, Flathead Lake, Montana.
1976	M.S. (Biology), California State University, Los Angeles.
1981	Ph.D. (Plant Ecology), Department of Botany and Plant Pathology, Oregon State University, Corvallis.

EXPERIENCE:

1976 - 1981 Graduate Research Assistant, Oregon State University.
Dissertation: Salt Marsh Reestablishment Following Dike Breaching in the Salmon River Estuary, Oregon.

Research involved the restoration of a salt marsh in the Salmon River estuary (part of the Cascade Head Scenic-Research Area, or CHSRA), Lincoln County, Oregon, and included: (1) an experimental dike breaching with a two year follow-up of changes that occurred in the vegetation and soils of the previously diked marsh, now exposed to tidal flooding, and (2) design and set-up of permanent plots and photopoints for long-term monitoring of vegetation change.

The project was funded by the United States Forest Service and included working with the Citizens' Advisory Council of the CHSRA, as will as with personnel of the Siuslaw National Forest which manages the CHSRA. Supervising the research was Dr. Jerry F. Franklin, Chief Plant Ecologist, Pacific Northwest Forest and Range Experiment Station, and Professor of Botany and Forest Science, Oregon State University.

1981 to 1984 Scientific Specialist I, EG&G Energy Measurements, Inc., Santa Barbara Operations, Goleta, California.

Major responsibility was the development and implementation of a habitat restoration plan for the Department of Energy's (DOE) Naval Petroleum Reserve No. 1 (Elk Hills). The disturbed habitat to be revegetated to native species included that of two federally-listed endangered species, the San Joaquin kit fox (Vulpes macrotis mutica) and the blunt-nosed leopard lizard (Crotaphytus (=Gambelia) silus). Work consisted of on-site harvesting of seed, expansion of seed crops on nearby farmland, testing the efficacy of both innovative and conventional equipment for site preparation and seeding, designing and monitoring growth of various species seeded in field plots, and soils characterization. Elk Hills' ecological characteristics, its operation as an oilfield, and state-of-the-art techniques in arid land restoration were considered in the development of the restoration plan.

An additional responsibility was to serve as ecological liaison between EG&G's Remote Sensing Laboratory (Las Vegas) data acquisitions personnel and DOE's Savannah River Plant (SRP) management and scientific personnel. Duties included providing ground truth of plant communities, evaluating SRP's ecological monitoring needs in light of EG&G's remote sensing capabilities, and evaluating the importance of vegetation phonology to the data acquisition schedule.

1985 to present.	Founder, Co-Owner, and Operator of J & M Land Restoration, Shafter, California.

Responsibilities include (1) consulting: environmental assessment, rare plant surveys, solving erosion control and wildland revegetation problems; (2) revegetation work: cleanup and regrading of land, seedbed preparation, seeding and seedling planting, and mulching; and (3) seed production and on-site native seed collection.

Work to-date has included consulting and revegetation projects with major oil companies in the San Joaquin Valley, Southern California wind energy producers, and government agencies, including the Bureau of Land Management, the U.S. Forest Service, and the U.S. Park Service.

OTHER PROFESSIONAL EXPERIENCE:

1966	National Science Foundation Undergraduate Research Participant in chemistry at the University of Chicago.
1969-1973	Secondary School Mathematics Teacher (inner-city programs for underachieving students), Los Angeles Unified School District.
1970 & 1971 (summers)	Participant in Sierra Club, Wilderness Classification Study Committee (field studies examining the wilderness potential of various areas in Montana and Idaho).
1975	Part-time field assistant to Dr. James Henrickson of California State University, Los Angeles, and Independent Environmental Consultants. Duties consisted of field mapping of vegetation in the Antelope Valley, Los Angeles County, California, for a transmission line right-of-way project for the Los Angeles Department of Water and Power.
1975-1976	Laboratory Instructor in General Botany and General Zoology, California State University, Los Angeles.
1977	Laboratory Instructor in Plant Physiology and Plant Taxonomy,

Oregon State University.

1977	Graduate student member of the Curriculum Committee and the Graduate Studies Committee of the Department of Botany and Plant Pathology, Oregon State University.
1978-1981	Member, Management Committee for The Nature Conservancy's Cox Island Preserve, a coastal salt marsh near Florence, Oregon.
1980	Convener for the session "Productivity of Pacific Coast Salt Marshes," Pacific Estuarine Research Society Semi-annual Meeting, March 20-22, Coos Bay, Oregon.
1980	Assist Dr. Jerry Franklin in design and establishment of Mt. St. Helens riparian zone permanent plots (vegetation). Sept. 13-21.
1983	Participant in California Native Plant Society rare plant searches for Atriplex tularensis. Summer.
1984-1986	Officer, Kern County Chapter of the California Native Plant Society.
1986	Rapporteur, Wetland Creation/Restoration Session of "Wetland Functions, Rehabilitation, and Creation in the Pacific Northwest" Conference, April 30 - May 2, Port Townsend, Washington.

AWARDS

1967	Phi Beta Kappa, University of Chicago.
1967	Merck Award (presented to the outstanding chemistry student in the department), University of Chicago.
1979	Best Student Paper, Pacific Estuarine Research Society Semiannual Meeting, April 26-28, Port Angeles, Washington.
1979-1980	Lenore Bayley Memorial Fellowship, Oregon State University. Presented annually to a graduate student who has shown outstanding academic achievement as well as outstanding potential for professional success.
1980	Best Student Paper, Pacific Estuarine Research Society Semiannual Meeting, March 20-22, Coos Bay, Oregon.

PROFESSIONAL PRESENTATIONS:

1978-1980	Annual Progress reports to the Citizens' Advisory Council of the Cascade Head Scenic-Research Area on the Salmon River salt marsh restoration project.
1979	Contributions of estuarine marshes. American Fisheries Society, Oregon Chapter Annual Meeting, February 1, Corvallis, Oregon.
1979	Reestablishment of salt marsh ecosystems following dike removal. Northwest Scientific Association Annual Meeting, March 29-31,

Bellingham, Washington.

1979 Salt marsh reestablishment following dike removal in the Salmon River estuary. Pacific Estuarine Research Society Semiannual Meeting, April 26-28, Port Angeles, Washington.

1980 An update of the Salmon River salt marsh restoration project. Pacific Estuarine Research Society Semiannual Meeting, March 20-22, Coos Bay, Oregon.

1980 Estuarine wetland restoration--case study of Salmon River estuary. American Water Resources Association, Washington Section Spring Conference on Pacific Northwest Estuaries--Study and Management, May 6, Vancouver, Washington.

1980 The effects of diking and dike removal on an Oregon coastal salt marsh. Ecological Society of America Annual Meeting, August 4-8, Tucson, Arizona.

1986 Salmon River salt marsh restoration, a case study. "Wetland Functions, Rehabilitation, and Creation in the Pacific Northwest" Conference, April 30-May 2, Port Townsend, Washington.

PUBLICATIONS:

1967 Yang, N.C., R. Loeschen, and D. Mitchell. On the mechanism of the Paterno-Buchi reaction. J. Am. Chem. Soc. 89:5465-5466.

1979 (Aug) Mitchell, D. Salt marsh restoration: a real life example. Oregon Lands--Newsletter of the Department of Land Conservation and Development 2(8): 6.

1982 Mitchell, D.L. An update of the status of rare plants on the Nevada Test Site, Nye County, Nevada. Unpublished manuscript. EG&G, Goleta, CA.

1983 Mitchell, D.L. Evaluation of habitat restoration needs at Yucca Mountain, Nevada Test Site, Nye County, Nevada. EG&G Report No. EGG 10282-2030. Santa Barbara Operations, Goleta, CA.

1985 O'Farrell, T.P., and D.L. Mitchell. 1984. A habitat restoration plan for the Elk Hills Naval Petroleum Reserve. EG&G Report No. EGG 10282. Santa Barbara Operations, Goleta, Ca.

MEMBERSHIPS

California Native Plant Society

The Nature Conservancy

Northwest Scientific Association

SELECTED RELEVANT COURSEWORK (one quarter unless otherwise indicated in parentheses)

1.	BIOLOGY	General Biology (2), Microbiology, Seminar Biological Concepts, Cell Biology, General Genetics, Molecular Genetics.
2.	BOTANY	Plant Anatomy, Plant Physiology (2), Plant Taxonomy, Agrostology, Mycology (2), Phycology.
3.	ECOLOGY	General Ecology, Advanced Plant Ecology (4), Fire Ecology, Chaparral Ecology, Community Structure and Analysis.
4.	ZOOLOGY	Biology of Animals, Natural History of Animals, General Entomology, Field Ornithology.
5.	SOILS, GEOLOGY	General Geology, General Soils, Soil Morphology and Survey, Survey, Soil Chemistry, Soil Physics, Plant-Water Relations.
6.	MATHEMATICS	Calculus (3), Advanced Calculus, Differential Equations, Linear Algebra, Statistical Methods (3).
7.	PHYSICAL SCIENCES	General Chemistry (3), Quantitative Chemical Analysis, Qualitative Chemical Analysis, Inorganic Chemistry, Organic Chemistry (3), Physical Chemistry (3), General Physics (3), Classical Physics (3), Quantum Mechanics (3), Mathematical Physics.

April 1989

ADDENDUM TO CURRICULUM VITAE FOR DIANE L. MITCHELL

1985 to present. Partial listing of J & M Land restoration, Inc., projects.

A. Native Plant Revegetation and Erosion Control Projects

1. Texaco Trading and Transportation, Inc. Reseed pipeline, Buena Vista Valley. 1989.

2. Gilbert Industrial Corp. Native vegetation planting, seeding, and irrigation installation, Kern river cogeneration plant at China Grade Loop. 1988-89.

3. Valley Waste Disposal Co. Soils analysis of sumps and evaluation of restoration potential of site. 1988.

4. Taft High School. Football field turf restoration. 1988.

5. Shell Oil, South Belridge. 21-acre restoration of valley grassland/saltbush scrub vegetation (planning, implementation, and monitoring). 1987-88.

6. Antelope Diversion Channel, Tehachapi. Seeding and mulching for erosion control. Fall 1987.

7. Southern California Edison. Implementation of meadow restoration plan, Balsam Meadows, Shaver Lake, Calif. 1987-88.

8. Tenneco, Placerita Canyon Cogeneration Facility. Development of native plant landscape plan and implementation (planting and irrigation installation). 1987-88.

9. Allensworth State Park. Tree planting, paving. Spring 1987.

10. Arbutus Corporation. Reseeding and mulching of disturbed sites at the Tehachapi wind park. 1985-86.

11. Renewable Energy Ventures, Inc. Revegetation Plan, San Gorgonio Pass Wind Park. 1986.

12. Seawest Wind Park (near Mojave, Calif). Erosion control plan. 1986.

13. Shell Oil. Various native plant revegetation projects in the Mt. Poso area (1985-86) and Fellows area (1986).

14. Union Oil Co. Various reseeding projects on BLM lease land in the western San Joaquin Valley. 1985-86.

15. Yosemite National Park, Wawona Wastewater Treatment Plant. Erosion control hydroseeding. FAll 1986.

B. General Vegetation and Rare Plant Surveys.

1. Kern River sensitive plant surveys and vegetation mapping. City of Bakersfield. Subcontractor to Jones and Stokes. 1987-88.

2. Cady Mountains, San Bernardino County, Calif. Biological assessment of 18-sq mi area in the Mojave Desert. Spring 1988.

3. Wildwood Canyon Park, Burbank, Calif. Evaluate riparian enhancement potential in park, 1988.

4. Hot Springs Valley, Lake Isabella, botanical assessment. 1988.

5. Shirley Meadows mariposa lily survey, Alta Sierra. 1988.

6. Atriplex tualrensis surveys for the California Natural Diversity Data Base. Bakersfield area. 1985 and 1987.

7. Celeron Pipeline Co. Belridge to Maricopa, Calif. 1987.

8. Centennial Capital. East side of Bakersfield (housing development project). Spring 1987.

9. Cogeneration project surveys in the Belridge and Midway-Sunset areas. Subcontractor to Dames & Moore. Spring 1986.

10. Excel Mineral Co. site, Temblor Range near Taft, Calif. Endangered species survey. Spring 1987.

11. Botanical assessment of proposed housing site near Stockdale Highway and Nord Rd. Luque and Associates, Inc. Spring 1986.

12. Mt. Poso cogeneration facility botanical assessment. MacPherson Oil Co. Spring 1986.

13. Botanical assessment of cogeneration site near Hwy 65 and Poso Creek, Kern County, Calif. Ogle Petroleum Co. Spring 1986.

14. Bakersfield cactus survey. Rio Bravo Hydroelectric Project (mouth of Kern River Canyon). Summer 1986.

15. Botanical assessment of various sites in west side San Joaquin Valley (Taft and Fellows areas). 1986 and 1987.

SUSAN M. ICENOGLE SCHULTZ
2727 Owens Peak Street
Inyokern, California 93527
(619) 377-5806

EDUCATION

B.S. ZOOLOGY 1985 - with distinction
University of Wisconsin - Madison

PROFESSIONAL EXPERIENCE

Independent Consulting Biologist

SUBCONTRACTOR (1/90 - Present)
- conduct biological assessments with emphasis on desert tortoise
- construction monitoring

Mining Projects
- Channel & Basin Rock & Gravel
- Brookline Mining
- Fort Cady
- NL/Rheox
- Aztec Sand & Gravel
- NYBO Engineering

Pipeline Projects
- So-Cal Pipeline
- Colorado River Pipeline
- Kern River Pipeline
- WyCal Pipeline

Land Development Projects
- Barter
- Mesquite Land Transfer
- Dongary Investments Ltd.
- Sea West Wind Energy
- San Bernardino County Landfills
- Texaco
- Honda Test Track (trained to handle tortoises by Dr. Peter Woodman)
- Helt Engineering
- Paragon Homes

Construction Monitoring
- Mesquite Airport Project
- CalTrans Highway 58 Expansion

Horizon Research, Inc., Ridgecrest, CA

BIOLOGIST (10/89 - 4/90)
- conducted biological assessments with emphasis on desert tortoise
- prepared environmental reports
- staked mining claims

California Department of Fish and Game, Kernvillve, CA

FISH AND WILDLIFE/BIOLOGICAL SEASONAL AID (5/86 - 9/86)
- responsible for care, rearing and relocation of hatchery trout
- collected aquatic substrate and macro-invertebrate samples
- completed taxonomic identification of aquatic macro-invertebrates
- made live collections of native golden trout

University of Wisconsin - Trout Lake Station, Boulder Junction, WI

FIELD AND LABORATORY TECHNICIAN (5/84 - 8/84, 6/85 - 12/85)
- collected zooplankton, phytoplankton, physical and chemical data on eight Wisconsin lakes
- performed data entry, chlorophyll, pH and conductivity analyses
- prepared chemical reagents and handled biohazardous materials

REFERENCES FURNISHED UPON REQUEST

Appendix C

Photographs of Project Site

Central portion of 615-acre mining area, looking southeast.

Proposed Baltic Pit site, looking east (T.30S.R.40E.S.1).

APPENDIX F

Geologic Time Scale

TIME UNITS OF THE GEOLOGIC TIME SCALE
(Numbers are absolute dates in millions of years before the present)

Eon	*Era*	*Period*		*Epoch*	
Phanerozoic Eon (*Phaneros* = "evident"; *Zoon* = "life")	Cenozoic Era	Quaternary		Recent or Holocene	
				Pleistocene	2
		Tertiary	Neogene	Pliocene	5
				Miocene	23
			Paleogene	Oligocene	37
				Eocene	55
				Paleocene	65
	Mesozoic Era	Cretaceous			140
		Jurassic			195
		Triassic			230
	Paleozoic Era	Permian			280
		Carboniferous	Pennsylvanian		310
			Mississippian		345
		Devonian			400
		Silurian			435
		Ordovician			500
		Cambrian			600
Precambrian or Cryptozoic Eon	Proterozoic			Cryptozoic Comprises About 87% of the Geologic Time Scale	2600
	Archean				3800
	No Record				

Origin of Earth About 4.6 Billion Years Ago

Source: Levin, 1978

APPENDIX G

Visual Contrast Rating Sheets

Form 8400-4
(September 1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date: 11-10-91

District: CALIFORNIA DESERT

Resource Area: RIDGECREST

Activity (program): SURFACE MINING

SECTION A. PROJECT INFORMATION

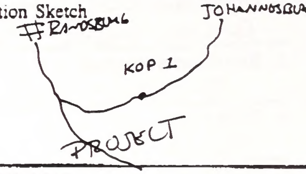
1. Project Name: BALTIC MINE PROJECT

2. Key Observation Point: RANDSBURG LOOP ROAD

3. VRM Class: PROBABLE IV

4. Location
Township: 30S
Range: 40E
Section: 1

5. Location Sketch



SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	FOREGROUND: SMOOTH, ROUNDED BACKGROUND: ROLLING, MODERATE, MINOR GEOMETRIC	COARSE, SHORT	LINEAR, GEOMETRIC
LINE	WEAK UNDULATING, HORIZONTAL	DIFFUSE, SOFT	ANGULAR, HORIZONTAL
COLOR	FOREGROUND: GREY, TAN BACKGROUND: BROWN	TAN, GREEN, OLIVE, BROWN	GREY, WHITE
TEXTURE	SMOOTH	FOREGROUND: COARSE, MEDIUM BACKGROUND: MEDIUM, MEDIUM	SUBTLE PATCHY, DIRECTIONAL

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	SOLID SMOOTH	—	—
LINE	CRURVING	—	—
COLOR	CONTRAST, GRAY, RED, BROWN GREEN	—	—
TEXTURE	SMOOTH, CONTRAST	—	—

SECTION D. CONTRAST RATING ☒ SHORT TERM ☒ LONG TERM

1.

DEGREE OF CONTRAST	LAND/WATER BODY (1) Strong	LAND/WATER BODY (1) Moderate	LAND/WATER BODY (1) Weak	LAND/WATER BODY (1) None	VEGETATION (2) Strong	VEGETATION (2) Moderate	VEGETATION (2) Weak	VEGETATION (2) None	STRUCTURES (3) Strong	STRUCTURES (3) Moderate	STRUCTURES (3) Weak	STRUCTURES (3) None
ELEMENTS: Form			✓				✓					
Line		✓					✓					
Color			✓				✓					
Texture			✓				✓					

2. Does project design meet visual resource management objectives? ☒ Yes ☐ No (Explain on reverse side)

3. Additional mitigating measures recommended ☐ Yes ☒ No (Explain on reverse side)

Evaluator's Names | Date

Form 8400-4
(September 1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

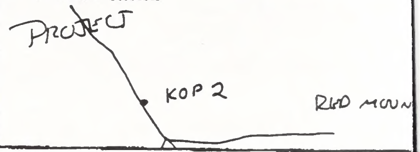
Date	11-10-91
District	CALIFORNIA DESERT
Resource Area	RIDGECREST
Activity (program)	SURFACE MINING

SECTION A. PROJECT INFORMATION

1. Project Name: BALTIC MINE PROJECT
2. Key Observation Point: BUTTE AVENUE
3. VRM Class: PROBABLE IV

4. Location
Township 30S
Range 40E
Section 1

5. Location Sketch



SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	FOREGROUND: MODERATE, ROLLING LINEAR, CONTRASTING BACKGROUND: ROLLING	SPARSE, SHORT	LINEAR, GEOMETRIC
LINE	HORIZONTAL	BROKEN	ANGULAR HORIZONTAL
COLOR	FORGROUND: TAN, GREY BACKGROUND: BROWN	OLIVE, BROWN, GREEN	GREY, WHITE, BROWN
TEXTURE	CONTRASTY	FOREGROUND: MEDIUM, MEDIUM BACKGROUND: MEDIUM, DENSE	PATCHY, DIRECTIONAL

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	SOLID, ANGULAR	—	—
LINE	HORIZONTAL, ANGULAR	—	—
COLOR	CONTRASTY TAN, GREY, BROWN, RED	—	—
TEXTURE	SMOOTH, UNIFORM, CONTRASTY	—	—

SECTION D. CONTRAST RATING ☒ SHORT TERM ☒ LONG TERM

1. DEGREE OF CONTRAST

ELEMENTS	Land/Water Body (1) Strong	Land/Water Body (1) Moderate	Land/Water Body (1) Weak	Land/Water Body (1) None	Vegetation (2) Strong	Vegetation (2) Moderate	Vegetation (2) Weak	Vegetation (2) None	Structures (3) Strong	Structures (3) Moderate	Structures (3) Weak	Structures (3) None
Form			✓				✓					
Line		✓					✓					
Color			✓				✓					
Texture			✓				✓					

2. Does project design meet visual resource management objectives? ☒ Yes ☐ No (Explain on reverse side)

3. Additional mitigating measures recommended ☐ Yes ☒ No (Explain on reverse side)

Evaluator's Names | Date

Form 8400-4
(September 1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date 11-10-91

District CALIFORNIA DESERT

Resource Area RIDGECREST

Activity (program)

SECTION A. PROJECT INFORMATION

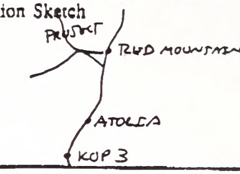
1. Project Name
BALTIC MINE PROJECT

2. Key Observation Point
US HIGHWAY 395 SOUTH OF ATOLIA

3. VRM Class
PROBABLE IV

4. Location
Township 30S
Range 40E
Section 1

5. Location Sketch



SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	FOREGROUND: FLAT BACKGROUND: ROLLING	MEDIUM, SHORT	LINEAR
LINE	FLOWING	SOFT	HORIZONTAL
COLOR	FOREGROUND: TAN BACKGROUND: BROWN	OLIVE	BROWN
TEXTURE	SMOOTH	FOREGROUND: MEDIUM, MEDIUM BACKGROUND: MEDIUM, DENSE	DIRECTIONAL

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	LINEAR, WEAK	—	—
LINE	HORIZONTAL	—	—
COLOR	TAN		—
TEXTURE	SMOOTH, DIRECTIONAL	—	—

SECTION D. CONTRAST RATING ☒ SHORT TERM ☒ LONG TERM

1. DEGREE OF CONTRAST

ELEMENTS	LAND/WATER BODY (1) Strong	Moderate	Weak	None	VEGETATION (2) Strong	Moderate	Weak	None	STRUCTURES (3) Strong	Moderate	Weak	None
Form			✓				✓					
Line			✓					✓				
Color			✓				✓					
Texture			✓				✓					

2. Does project design meet visual resource management objectives? ☒ Yes ☐ No (Explain on reverse side)

3. Additional mitigating measures recommended ☐ Yes ☒ No (Explain on reverse side)

Evaluator's Names | Date

APPENDIX H

Notice of Preparation of an Environmental Impact Report
and Distribution List

NOTICE OF PREPARATION

TO: ADDRESSEES (See Next Page)

FROM: Kern County Department of
Planning and Development Services
2700 "M" Street, Suite 100
Bakersfield, CA 93301
(805) 861-2615

SUBJECT: NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT

The Department of Planning and Development Services will be the Lead Agency and will prepare the Environmental Impact Report (EIR) for the project identified below. We need to know the views of your agency as to the scope and content of the environmental information which is germane to your agency's statutory responsibilities in connection with the proposed project. Your agency will need to use the EIR prepared by our agency when considering your permit or other approval for the project.

The project description and location and the probable environmental effects are contained in the attached materials. A copy of the Initial Study is attached.

Due to the time limits mandated by State law, your response must be sent at the earliest possible date but not later than 30 days after receipt of this notice.

Please send your response to William L. Larsen at the Kern County Department of Planning and Development Services, 2700 "M" Street, Suite 100, Bakersfield, CA 93301. We will need the name of the contact person in your agency.

PROJECT TITLE: Conditional Use Permit (CUP) Case No. 7, Map No. 136 (Rand Mining Company; 39-91)

PROJECT LOCATION: Randsburg, Kern County

PROJECT DESCRIPTION: This project proposes to extract gold and silver from waste rock and ore at an old gold mine site via the cyanide heap leach process. An almost identical application was previously processed on the same property, for which a Negative Declaration was prepared; however, that project was withdrawn prior to action by the Board of Zoning Adjustment. Hence, a new conditional use permit (CUP) is being requested by the new mineral rights owner. The original application called for the mining of 18 million tons of ore and waste from two pits. The current project proposes to mine about 22 million tons of ore and waste also from two pits. The ratio of ore to waste would change such that a majority of material mined now would be ore, rather than waste, and would, therefore, be placed on lined pads. Under this new project, the multiple waste dumps would be consolidated into one dump, which would be located in the northwest corner of the property. Placement of the dump in this location would allow for less disturbance in areas where live desert tortoise or sign of tortoise has been identified. The project also proposes a slightly enlarged leach pad. Finally, all water for the project would be obtained from the applicant's existing water supply system for the Yellow Aster Mine, thus eliminating the need for drilling groundwater wells and construction of a 3 1/2 miles water line.

PROJECT APPLICANT, IF ANY: Rand Mining Company

Date: May 9, 1991

Signature: BILL LARSON

Title: Senior Planner

Phone: (805) 861-2615

PFW:sju

Attachments

cc: Environmental Status Board
Rand Mining Company, Applicant

ADDRESSEES:

COUNTY DEPARTMENTS

Kern County Public Works Department
Kern County Public Works Department/Roads
Kern County Environmental Health Services Department
Kern County Fire Department
Kern County Planning and Development Services
Attention Floodplain Management
Kern County Sheriff's Department/Crime Prevention
Kern County Air Pollution Control District
Kern County Parks and Recreation Department
Air Pollution Control District/Clif Calderwood
Kern County Museum
County Clerk

STATE, FEDERAL, AND OTHER PUBLIC AGENCIES

Kern County Water Agency
State Clearinghouse
Department of Conservation
Department of Fish and Game
Department of Fish and Game/Consoli
California Regional Water Quality Control Board/Lahontan
CalTrans/District 9
Public Utilities Commission
U.S. Fish and Wildlife Service/Ventura
Soil Conservation Service
Department of Agriculture/Soil Conservation Service/Tehachapi
Environmental Protection Agency
Department of Water Resources
Office of Historic Preservation
Air Resources Board
Department of Health Services
East Kern Resource Conservation District
County of San Bernardino
Sierra Sands School District
Rand Community Water District
Southern California Edison/Ridgecrest
Desert Tortoise Preservation Committee/Long Beach

APPENDIX I

Public Comments to the Notice of Preparation of an Environmental Impact Report

June 11, 1991

30/40

William L. Larsen
Land Division Unit
Kern County Planning & Development Services
2700 M Street, Suite 100
Bakersfield, California 93301

Re: Ground water comments on: Conditional Use Permit Case No. 7, Map No. 136. Located in Sections 1, 2, 11 & 12, T30S/R40E, MDB&M; Randsburg, Kern County.
Request Received: May 14, 1991
Review Date: June 14, 1991

Dear Mr. Larsen:

We have reviewed the above-referenced project with respect to the Kern County Water Agency's interests. The Agency has no comments at this time.

If you have any questions regarding this matter, please contact Tom Haslebacher or Ken Turner of the Agency Staff.

Sincerely,

Darrell K. Sorenson
Special Projects & Data Manager

/kr

Mailing Address:
P.O. Box 58
Bakersfield, CA 93302-0058
Phone: 805/393-6200
Fax: 805/395-1713

CAROLA RUPERT ENRIQUEZ
Director

DAVID R. McCAULEY
Assistant Director

KERN COUNTY MUSEUM

3801 Chester Avenue
Bakersfield, California 93301
(805) 861-2132

May 15, 1991

Mr. William L. Larsen
Planning and Development Services Department
2700 "M" Street, Suite 100
Bakersfield, CA 93301

Subject: Conditional Use Permit (CUP) Case No. 7, Map No. 136
(Rand Mining Company; 39-91)

Dear Mr. Larsen:

I have reviewed the Draft EIR for the project described above and believe the cultural resources have been well documented and that the project poses no threat to the compromised historical materials identified.

Very truly yours,

Carola Rupert Enriquez

CRE:wjb

Carola Rupert Enriquez
Director

Office Memorandum * KERN COUNTY

Date: May 15, 1991

To: Bill Larsen

From: Floodplain Management Section Phone: 861-2615
Barry Nienke BN

Subject: File #39-91 CUP #7, Map #136

Our Section has reviewed the attached subject documents and have the following comments:

1. From the information supplied with the Notice of Public Hearing, we have no comments or recommendations regarding the above project.

THE
DESERT TORTOISE COUNCIL

P.O. Box 1738
47-900 Portola Avenue
Palm Desert, CA 92261

June 3, 1991

William L. Larsen
Kern County Department of Planning and Development Services
2700 M Street, Suite 100
Bakersfield, CA 93301

Re: CUP Case No. 7, Map No. 136 (Rand Mining Co.; 39-91)

Dear Mr. Larsen:

Thank you for the opportunity to review and comment on the Notice of Preparation of a Draft EIR for the proposed open pit, heap leach mining operation near Randsburg, California. The Desert Tortoise Council is pleased your department has determined that an EIR is required for the proposed project as opposed to a negative declaration.

The Desert Tortoise Council has reviewed the description of the proposed project and offers the following comments and recommendations for use in preparing the draft EIR:

1. Page 9, Attachment E. The existing mine water supply in Fremont Valley should be described in detail because most, if not all, of Fremont Valley is very significant habitat for the desert tortoise. Vehicular access from the mine area to the well field will have an adverse impact on the desert tortoise, in addition to road maintenance, etc. The power source for the well pumps should be identified. Although the water source is described as existing, the continued use may have an impact on the desert tortoise and its habitat that should be addressed in the EIR.

2. Page 9, Attachment E. The anticipated routes between the mine operation and the residential areas where the 60 employees will be residing should be identified. This is important in determining the secondary impacts to the desert tortoise due to increases in vehicular traffic on roads within important tortoise habitat.

3. Pages 9-10, Attachment E. Traffic accessing and departing the mine site for equipment and supply delivery should be identified for the life of the mine. Again, this is important in determining the potential impact to the desert tortoise by vehicle kills on major and minor roads in the area that are within valuable tortoise habitat.

4. **Pages 10-11, Attachment E**. We believe mitigation identified in the document is too limited to adequately reduce impacts to the desert tortoise and its habitat. Project Mitigation (Section 4) only states that the area of the mine operations would be fenced to preclude the entry of tortoises from surrounding habitat.

The EIR section on mitigation should include actions to compensate for the loss of tortoise habitat, the effect of increased vehicle use on desert tortoise mortality, and any impacts (ongoing or new) associated with operation of the water well field in Fremont Valley.

5. **Biological Assessment**. The biological assessment prepared for the project by Mr. Ted Rado is well prepared and should be followed in developing the EIR and mitigation/compensation for the project. It is likely that there are more desert tortoises occurring on the project site than reported because the survey was conducted in December when the desert tortoise is typically in hibernation. This would be especially true for hatchling and juvenile tortoises that are more difficult to detect than adults.

We wish to underscore the importance of maintaining close coordination with the Department of Fish and Game and U.S. Fish and Wildlife Service in the development of the EIR.

6. **General Comments**. Due to the recent listing of the desert tortoise as a threatened species by both the U.S. Fish and Wildlife Service and the California Fish and Game Commission, it is important to realize that traditional mitigation employed prior to the listing will not be sufficient by itself to assure compliance with the endangered species laws and regulations nor adequately protect the species from project-associated impacts. In addition, the EIR should address the cumulative impacts to the desert tortoise and its habitat in the western Mojave Desert.

Please continue to keep the Desert Tortoise Council involved in the EIR process for this project. We appreciate the opportunity to review and comment on this proposed project. If we can be of further assistance please do not hesitate to contact us.

Sincerely,

Mike Giusti

Mike Giusti,
Co-Chairman

DEPARTMENT OF FOOD AND AGRICULTURE

1220 N Street
Sacramento, CA 95814

June 4, 1991

Mr. Peter Whitehead
Kern County Planning and Development Services
2700 "M" Street
Bakersfield, California 93301

Dear Mr. Whitehead,

Thank you for the opportunity to comment on the forthcoming Draft Environmental Impact Report (DEIR) for the CUP #7, Map #36 (SCH# 91052039). This project involves seeking a Conditional Use Permit for mining and a mineral processing facility on 180 acres of land.

The California Department of Food and Agriculture (CDFA) would appreciate a discussion of the following issues in the DEIR:

1. A complete description of the planning area. This should include current and planned land use designations, the number of acres in agricultural production, soil classifications and acreages, and cropping history.

2. Whether any land under a Williamson Act contract or in an Agricultural preserve is part of, or near to the planning area. How will development affect these designations?

3. The possible mitigation measures to ensure that agricultural land is not prematurely or unnecessarily converted to non-agricultural uses. These measures can include use of the Williamson Act, deed disclosures, a Right-to-Farm Ordinance, phased development, clustered development, transfer of development rights, and requiring infill development of vacant land prior to urban expansion.

4. The interface conflicts which can arise from adjacent agricultural and urban uses. Problems can arise due to noise, dust, chemical usage, trespassing, and traffic conflicts. Include any buffering measures (ie. buffers, setbacks, berms, fencing, etc.) proposed for the development.

5. The pressure this project could create to convert surrounding agricultural land to non-agricultural uses. Does this project have the potential to be precedent setting?

6. Whether development of the area will create patterns of discontiguous growth. If so, is development necessary at this time?

7. Given the projected need for residential and urban development, what is the cumulative impact to agriculture from

this and other projects in the region?

Since the above issues are not necessarily comprehensive, the lead agency should also request comments from concerned local agencies. These agencies can include the agricultural commissioner's office, the USDA Soil Conservation Service office, and the county Farm Bureau Federation office.

The CDFA supports the right of local agencies to develop and implement land-use policy in its area of influence. However, the CDFA also wants to assure that agricultural land is not prematurely and irreversibly lost due to development which is not accurately assessed for environmental impact.

Sincerely,

Mary McNally

Mary McNally
Graduate Student Assistant
Agricultural Resources Branch
(916) 322-5227

cc: Mr. Peter Whitehead
Office of Planning and Research
Kern County Agricultural Commissioner

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION
VICTORVILLE BRANCH OFFICE
15428 CIVIC DRIVE, SUITE 100
VICTORVILLE, CA 92392-2359
(619) 241-6583
FAX No. (619) 241-7308

June 3, 1991

Peter Whitehead
Kern County Planning
2700 "M" Street
Bakersfield, CA 93301

Dear Mr. Whitehead:

COMMENTS ON NOTICE OF PREPARATION (NOP) OF A DRAFT ENVIRONMENTAL IMPACT REPORT (DEIR) FOR THE RAND MINING BALTIC MINE, RANDSBURG, KERN COUNTY

Regional Board staff have discussed the following items with the proponent which are necessary for a report of waste discharge and they may be included in the DEIR:

1. The project life for heap leach mines is relatively short; therefore, closure elements should be incorporated into the design. Section 2574, Chapter 15, requires a closure plan that incorporates the relevant provisions of a reclamation plan in accordance with the Surface Mining and Reclamation Act of 1975 as amended. Both plans should be prepared with the other in mind.

2. Essential elements of a mine waste management strategy to prevent pollution should be identified as required in Section 13263.1 of the California Water Code.

3. Bench scale and pilot tests of representative ore that will be under leach should be performed for acid generating potential, ability to neutralize the cyanide, and leachable heavy metals.

4. Information related to the occurrence of ground water and its depth and flow direction if present should be included.

5. Section 2595, Chapter 15, Cal. Code of Regs. (Chapter 15) requires, among other things, background water quality data fo a period of one year if ground water is present.

6. The design must include the ability of the heap to withstand the maximum credible earthquake.

7. Section 2540, Chapter 15, specifies prescriptive standards for waste containment. Section 2510 allows engineered alternatives if certain demonstrations are made. An analysis of alternative systems should be made according to this criteria.

If you have any questions, please contact me or Ken Carter at this office.

Sincerely,

Jehiel W. Cass

Jehiel Cass
WRC Engineer

rp#3/WHITEHD

cc: Office of Planning and Research

STATE OF CALIFORNIA PETE WILSON, Gove

GOVERNOR'S OFFICE OF PLANNING AND RESEARCH
1400 TENTH STREET
SACRAMENTO, CA 95814

DATE: May 13, 1991

TO: Reviewing Agency

RE: KERN COUNTY PLANNING & DEVELOPMENT SERVICES's NOP for
CUP #7, MAP #136
SCH # 91052039

Attached for your comment is the KERN COUNTY PLANNING & DEVELOPMENT Notice of Preparation of a draft Environmental Impact Report (EIR) for t CUP #7, MAP #136.

Responsible agencies must transmit their concerns and comments on t scope and content of the EIR, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of this notice. We encourage commenting agencies to respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

PETER F. WHITEHEAD
KERN COUNTY PLANNING & DEVELOPMENT SERVICES
2700 "M" STREET
BAKERSFIELD, CA 93301

with a copy to the Office of Planning and Research. Please refer to th SCH number noted above in all correspondence concerning this project.

If you have any questions about the review process, call Russell Colliau at (916) 445-0613.

Sincerely,

David C. Nunenkamp
Deputy Director, Permit Assistance

Attachments

cc: Lead Agency

IOP Distribution List

= sent by lead agency
= sent by SCH

Resources Agency

[ ] Karen Cogle
Dept. of Boating & Waterways
1629 S Street
Sacramento, CA 95814
916/445-6281

[ ] Gary L. Holloway
California Coastal Commission
631 Howard Street, 4th Floor
San Francisco, CA 94105
415/543-8555

[ ] Reed Holderman
State Coastal Conservancy
1330 Broadway, Suite 1100
Oakland, CA 94612
415/464-1015

[X] Dennis O'Bryant
Dept. of Conservation
1416 Ninth Street, Room 1326-2
Sacramento, CA 95814
916/322-5873

(X) Div. of Mines and Geology

( ) Div. of Oil and Gas

( ) Land Resources Protect. Unit

[ ] Douglas Wickizer
Dept. of Forestry
1416 Ninth Street, Room 1516-2
Sacramento, CA 95814
916/322-0128

[X] Hans Kreutzberg
Office of Historic Preservation
P.O. Box 942896
Sacramento, CA 94296-0001
916/322-9621

[X] Mike Doyle
Dept. of Parks and Recreation
P.O. Box 942896
Sacramento, CA 94296-0001
916/324-6421

[X] Anne Lucas Bronson
Reclamation Board
1416 Ninth Street Room 706
Sacramento, CA 95814
916/322-3743

[ ] Nancy Wakeman
S.F. Bay Conservation & Dev't. Comm.
30 Van Ness Avenue, Room 2011
San Francisco, CA 94102
415/557-3686

[X] Nadell Gayou
Dept. of Water Resources
1416 Ninth Street, Room 215-4
Sacramento, CA 95814
916/445-7416

Fish and Game - *Regional Offices*

[ ] Gary Stacey, Regional Manager
Department of Fish and Game
601 Locust
Redding, CA 96001
916/225-2300 (8-442)

[ ] Jim Messersmith, Regional Manager
Department of Fish & Game
1701 Nimbus Road, Suite A
Rancho Cordova, CA 95670
916/355-0922 (8-438)

[ ] B. Hunter, Regional Manager
Department of Fish and Game
P.O. Box 47
Yountville, CA 94599
707/944-5518

[X] G. Nokes, Regional Manager
Department of Fish and Game
1234 East Shaw Avenue
Fresno, CA 93710
209/222-3761 (8-421)

[ ] Fred A. Worthley, Jr., Reg. Manager
Department of Fish and Game
330 Golden Shore, Suite 50
Long Beach, CA 90802
213/590-5113 (8-635)

Independent Commissions

[ ] John R. Nuffer
California Energy Commission
1516 Ninth Street, MS-15
Sacramento, CA 95814
916/323-9180

[X] William A. Johnson
Native American Heritage Comm.
915 Capitol Mall, Room 288
Sacramento, CA 95814
916/322-7791

[X] George Hersh
Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102
415/557-1375 (8-597)

[X] Betty Eubanks
State Lands Commission
1807 - 13th Street
Sacramento, CA 95814
916/322-2795

Business, Transportation, & Housing

[ ] Sandy Hesnard
Caltrans - Division of Aeronautics
P.O. Box 942874
Sacramento, CA 94274-0001
916/324-1833

[ ] Sgt. Jim Weddell
California Highway Patrol
Long Range Planning Section
Planning and Analysis Division
2555 First Avenue
Sacramento, CA 95818
916/445-1981

[ ] Ron Helgeson
Caltrans - Planning
P.O. Box 942874
Sacramento, CA 94274-0001

Department of Transportation *District Contacts*

[ ] Jo Sanford
Caltrans, District 1
1656 Union Street
Eureka, CA 95501
707/445-6671 (8-538)

[ ] Michelle Gallagher
Caltrans, District 2
1657 Riverside Drive
Redding, CA 96001
916/225-3259 (8-442)

[ ] Brian J. Smith
Caltrans, District 3
703 B Street
Marysville, CA 95901
916/741-4277 (8-457)

[ ] Wade Green
Caltrans, District 4
P.O. Box 7310
San Francisco, CA 94120
415/557-9162 (8-597)

[ ] Jerry Laumer
Caltrans, District 5
P.O. Box 8114
San Luis Obispo, CA 93403-8114
805/549-3161 (8-629)

[ ] Leven Fairchild
Caltrans, District 6
P.O. Box 12616
Fresno, CA 93778
209/276-5989 (8-422)

[ ] Gary McSweeney
Caltrans, District 7
120 South Spring Street
Los Angeles, CA 90012
213/620-2376 (8-640)

[ ] Harvey Sawyer
Caltrans, District 8
247 West Third Street
San Bernardino, CA 92403
714/383-4808 (8-670)

[X] Andy Zellmon
Caltrans, District 9
500 South Main Street
Bishop, CA 93514
619/872-0693 (8-627)

[ ] Al Johnson
Caltrans, District 10
P.O. Box 2048
Stockton, CA 95201
209/948-3838 (8-423)

[ ] Jim Cheshire
Caltrans, District 11
P.O. Box 85406
2829 Juan Street
San Diego, CA 92138-5406
619/237-6755 (8-631)

[ ] Chuck Flinon
Caltrans, District 12
2501 Pullman St.
Santa Ana, CA 92705
714/724-2061 (8-655)

Food and Agriculture

[X] Vashek Cervinka
Dept. of Food and Agriculture
1220 N Street, Room 104
Sacramento, CA 95814
916/322-5227

Health & Welfare

[X] Quy Tu
Dept. of Health
714 P Street, Room 1253
Sacramento, CA 95814
916/323-6111

[ ] IHSISCD: ____________

State and Consumer Services

[ ] Robert Sleppy
Dept. of General Services
400 P Street, Suite 3460
Sacramento, CA 95814
916/324-0214

Environmental Affairs

[X] Bob Fletcher
Air Resources Board
1102 Q Street
Sacramento, CA 95814
916/322-8267

[X] Jeannie Blakeslee
Calif. Waste Management Board
1020 Ninth Street, Room 300
Sacramento, CA 95814
916/327-0454

State Water Resources Control Board

[ ] Allen Patton
State Water Resources Control Board
Division of Loans & Grants
P.O. Box 944212
Sacramento, CA 94244-2120
916/739-4414

[ ] Dave Bechtner
State Water Resources Control Board
Delta Unit
P.O. Box 2000
Sacramento, CA 95810
916/322-9870

[ ] Ed Anton
State Water Resources Control Board
Division of Water Quality
P.O. Box 100
Sacramento, CA 95801
916/445-9552

[ ] Mike Falkenstein
State Water Resources Control Board
Division of Water Rights
901 P Street
Sacramento, CA 95814
916/324-5636

[X] AFCIWAQMD: ____________ Kehl

Regional Water Quality Control Board

[ ] NORTH COAST REGION (1)
1440 Guerneville Rd.
Santa Rosa, CA 95401
707/576-2220 (8-590)

[ ] SAN FRANCISCO BAY REGION (2)
1111 Jackson Street, Room 6000
Oakland, CA 94607
415/464-1255 (8-561)

[ ] CENTRAL COAST REGION (3)
1102 A Laurel Lane
San Luis Obispo, CA 93401
805/549-3147 (8-629)

[ ] LOS ANGELES REGION (4)
101 Centre Plaza Drive
Monterey Park, CA 91754
213/266-4460 (8-640)

[ ] CENTRAL VALLEY REGION (5)
3443 Routier Road, Suite A
Sacramento, CA 95827-3098
916/361-5600

( ) Fresno Branch Office
3614 East Ashlan Avenue
Fresno, CA 93726
209/445-5116 (8-421)

( ) Redding Branch Office
100 East Cypress Avenue
Redding, CA 96002
916/224-4845 (ATSS 441)

[ ] LAHONTAN REGION (6)
2092 Lake Tahoe Boulevard
P.O. Box 9428
South Lake Tahoe, CA 95731
916/544-3481

(X) Victorville Branch Office
15428 Civic Drive, Suite 100
Victorville, CA 92392-2359
619/241-6583

[ ] COLORADO RIVER BASIN REGION (7)
73-271 Highway 111, Suite 21
Palm Desert, CA 92260
619/346-7491

[ ] SANTA ANA REGION (8)
6809 Indiana Avenue, Suite 200
Riverside, CA 92506
714/782-4130 (8-632)

[ ] SAN DIEGO REGION (9)
9771 Clairemont Mesa Blvd., Suite B
San Diego, CA 92124-1331
619/265-5114 (8-636)

[ ] OTHER: ____________

[ ] OTHER: ____________

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY PETE WILSON, Governor

DEPARTMENT OF TRANSPORTATION
500 SOUTH MAIN STREET
BISHOP, CA 93514
(619 872-0693

May 31, 1991

File: Ker-395-R1.152
SCH #91052039

County of Kern
Planning Department
2700 "M" Street
Suite 100
Bakersfield, California 93301

Attention: Mr. Peter Whitehead

NOP of a Draft Environmental Impact Report
CUP #7, Map #136 (Rand Mining Company; 39-91) SCH #91052039

We have reviewed the above referenced document and have no comments.

Sincerely,

ANDREW J. ZEILMAN
Transportation Planning
Branch B

LATE RESPONSE

STATE OF CALIFORNIA—THE RESOURCES AGENCY

PETE WILSON, Governor

DEPARTMENT OF FISH AND GAME
REGION 4
1234 East Shaw Avenue
Fresno, CA 93710
(209) 222-3761

June 28, 1991

Mr. Peter F. Whitehead
Kern County Planning & development
Services
2700 "M" Street
Bakersfield, California 93301

Dear Mr. Whitehead:

SCH # 91052039, Notice of Preparation (NOP) of a draft Environmental Impact Report (EIR) for Conditional Use Permit (CUP) Case No. 7, Map No. 136 Rand Mining Company; 39-91)

The Department of Fish and Game has reviewed Kern County's NOP for a draft EIR, regarding CUP, Case No. 7, Map No. 136 (Rand Mining Company; 39-91), located in Randsberg, Kern County. The project proposes to extract gold and silver from waste rock and ore at an old gold mine site via the cyanide heap leach process.

The project is planned in an area which now provides essential habitat for the State-listed Threatened Mojave ground squirrel and the State-listed Threatened, Federally-listed Endangered Desert tortoise. As such, CEQA Guidelines require either (1) the project to be designed or conditioned such that neither the range nor abundance of these listed species are reduced or (2) a mandatory "Finding of Significance" be made by the Lead Agency, followed by preparation of an Environmental Impact Report.

If "take of any of the state-listed species or their habitat could potentially occur, the Department of Fish and Game will need to issue a permit, pursuant to Fish and Game Code Section 2081. Department biologists are available to assist in the development of mitigation proposals, to facilitate issuance of said permit. To begin this process, a biological survey will need to be conducted to evaluate the presence of these or other sensitive wildlife or plant species. Surveys must be conducted on the project area and all lands that will have project associated impacts. Surveys need to be performed by a qualified biologist and according to Department approved methodologies. Surveys must be performed under the appropriate seasonal and temperature regimes. A copy of the completed report must be furnished to the Department for review.

Due to the presence of Federally-listed threatened or endangered species, and the likelihood that the project will result in direct "take" of those species, we recommend that the sponsors and/or Lead Agency initiate consultation with the U.S. Fish and Wildlife Service. A Section 10 permit will be required by that agency, pursuant to the Federal Endangered Species

If you have any questions or wish to discuss these comments, please contact John Beam, Associate Wildlife Biologist, at 1234 E. Shaw Avenue, Fresno, CA 93710, or (209) 222-3761, ATSS 421-5819.

Sincerely,

for Dale F. Mitchell
George D. Nokes
Regional Manager

cc: U.S. Fish and Wildlife Service
Ecological Enhancement
Ventura, California
Attn: Ray Bransfield

STATE OF CALIFORNIA—THE RESOURCES AGENCY
PETE WILSON, Governor

DEPARTMENT OF CONSERVATION
DIVISION OF ADMINISTRATIVE SERVICES
DIVISION OF MINES AND GEOLOGY
DIVISION OF OIL AND GAS
DIVISION OF RECYCLING

1416 Ninth Street
SACRAMENTO, CA 95814
TDD (916) 324-2555
(916) 454-2555

(916) 445-8733

June 12, 1991

Late
6/12

Mr. Peter Whitehead
Kern County Planning and
 Development Services
2700 'M' Street
Bakersfield, CA 93301

Dear Mr. Whitehead:

Subject: Rand Mining, Baltic Mine; CUP #7, Map #136; SCH# **91052039**

The Mine Reclamation Program staff of the Department of Conservation's Division of Mines and Geology (DMG) has reviewed the Notice of Preparation (NOP) for Rand Mining's Baltic Mine. Mine Reclamation Program files were also reviewed. The following comments prepared by James Pompy, Gail Newton, and Kit Custis are offered to assist in your review of this project.

The Surface Mining and Reclamation Act of 1975 (SMARA) and the State Mining and Geology Board regulations for the surface mining and reclamation practice (California Code of Regulations (CCR) [formerly California Administrative Code (CAC)] Title 14, Chapter 8, Article 1, Section 3500 et seq.) require that specific items be addressed or included in reclamation plans. The information submitted for this project does not adequately address the issues required for a reclamation plan.

1. In accordance with SMARA Section 2772(e) and 2774(b), more detailed maps of the site will be needed. These maps will facilitate in the annual inspections and should clearly depict all aspects of the operation including areas of pre-project disturbance, access roads, locations that will be stripped for topsoil, topsoil stockpiles, pits, leach pads, overburden stockpiles, reclamation phases, as well as the locations of the habitat types impacted and those to be reestablished.

2. CCR Section 3503(c) requires that all reasonable measures be taken to protect the habitat of fish and wildlife. In addition the impacts expected to desert tortoise, potential impacts to big-eared bat (Plecotus townsendii) and Le Conte's thrasher (Toxostom lecontei), both Department of

Fish and Game species of special concern, should be addressed. In particular, the NOP states that 40 acres of old pre-existing hazards in the form of open shafts, etc., will be eradicated. Open shafts provide habitat to a number of wildlife species, including two subspecies of big-eared bats. If found on the project site, reclamation measures should address protection or rehabilitation measures for these species of special concern.

3. CCR Section 3503(f) addresses resoiling. The plan does not give an estimate of the amount of surface fines that will be available for reclamation and revegetation of the site. The quantity of available topsoil will determine, to a large extent, the outcome of the revegetation program. The reclamation plan should include an estimate of available topsoil (or surface fines), the location for soil stockpiles, the configuration of the stockpiles (specifically, the depth), and the methods to be used to manage and maintain the viability of the stockpiles. Rock and/or straw mulches can be used to protect the stockpile from wind erosion and reseeding of the stockpile would help to maintain viable soil micro-organism populations.

4. CCR Section 3503(g) require that appropriate methods be used for revegetation of a site. Any seed to be used on this site should either be collected from the vicinity of the mine site of obtained from a commercial source that collected the seed from the same geographic area. This condition on seed collection will assure the best results. Many of the species included in the revegetation program occur over broad geographical ranges, such as from California to Utah. However, those plants of a given species (for example creosote bush) that were grown in Utah, an area with significant summer rain, would not be as closely adapted to this California site as the local strain of creosote. If Utah creosote was planted at the Baltic Mine, vigor and survivorship would likely be lowered. Better results would be obtained if all plant materials were collected from on-site.

This flowering season has been the best in five years for the Mojave Desert. The seed set from this year should be plentiful. I suggest that the seed collecting program begin immediately. Seed can remain viable for years if dried and stored appropriately, which is generally seven percent seed moisture, in an air tight container, at a constant forty degrees fahrenheit.

The plan proposes to rely heavily on direct (broadcast) seeding of the site. Nursery-grown divisions of the bunchgrasses (using local plant materials), such as galleta, squirreltail, needlegrass (porcupine grass), and Indian ricegrass, have resulted in better survival and coverage than direct seeding of these species. Trials testing the difference between the mortality of direct seeded plants versus containerized stock should be installed immediately to determine appropriate revegetation methods for this site. The experimental design should be part of the proposed reclamation plan.

The success of the revegetation plan would be greatly enhanced by the nurse crop effect that joshua tree and species of cacti would have on the project. The species can be transplanted to a nursery area and held until reclamation begins. If handled correctly, survivorship should be high. Transplanting of joshua trees is limited by their mass. Large and multi-branched specimens cannot be excavated, transported and replaced without damage to the plant. Only unbranched or narrowly branched specimens that are between three and ten feet tall should be marked for transplantation. These should also have their north side marked and should be excavated with a tree spade, or bare rooted. All species of cacti listed in the 1988 Biological Survey should be used for transplanting. A minimum number or density of joshua trees and cacti for reclamation of this site should be specified in the plan and based on the current densities found in undisturbed locations.

The plan also states that revegetation will aid in erosion control. In an arid setting, vegetation is often sparse under natural conditions. Add to that fact the slow growth rate of the native species, and the statement that revegetation will control wind erosion on the reclaimed landform is not accurate. Other measures, such as rock mulching, duff mulching, or straw punching, will have to be employed to control erosion and to protect the seedlings from wind damage.

5. CCR Section 3502(b)(3) requires that a reclamation plan discuss the stability of final slopes. The reclamation plan states that the final slopes will have a slope of 2 horizontal to 1 vertical. However, there is no indication whether this is the final angle of the intermediate slopes or the overall slope. No discussion is given of the width and vertical spacing of benches in these slopes. The reclamation plan also states that the mine pits will have benches every 20 feet, but does not discuss the overall slope or stability of the open mine pit walls.

Therefore, the reclamation plan should be modified to include a discussion of the stability of slopes of the waste piles, heap leach pads, and the open mine pits. This discussion should include engineering drawings which accurately show the final slope configuration, the spacing and width of benches, the methods for controlling runoff.

The monitoring plan should contain specific requirements for determining the final stability of the slopes including the open pit mine walls. This monitoring should include geotechnical inspections and engineering stability analyses, as necessary.

6. CCR Section 3503 requires that surface mining operations minimize water and wind erosion, prevent siltation and convey surface runoff to natural drainage courses. Section 2772(h)(2) of SMARA requires that the reclamation plan describe how rehabilitation affects streambed channels and streambanks so as to minimize erosion and sedimentation. CCR Section 3503(a)(2) also requires that topsoil stockpiles should be managed to minimize the potential for wind and water erosion. CCR 3503(a)(3) requires that erosion control facilities shall be constructed and maintained where necessary to control erosion. The reclamation plan for the Baltic Project states that the project activities will not increase runoff and normal surface flows are expected to be small. This conclusion contradicts the photographic documentation in our SMARA files for the adjacent Yellow Aster mine which has historically yielded a significant volume of silt that has eroded from the mine site and buried the adjacent washes. The historic high sediment erosion at the Yellow Aster mine indicates that the soils in the project area are susceptible to erosion.

   Therefore, the reclamation plan should be modified to include a discussion of the methods to minimize erosion at the project site and identify the location and methods of stabilization of the soil stockpiles, waste piles and heap leach pads.

7. SMARA Section 2772(g) requires that the reclamation plan describe the proposed and potential uses of the land after reclamation. The environmental assessment documents indicate that the project will utilize approximately 300,000 gallons of water per day for approximately [illegible] years. This water will be taken from the ground water aquifers of the Fremont Valley located approximately 1/2 mile to the west of the project site. The environmental documents also state that the recharge to the ground water in Fremont Valley is thought to be approximately 200 acre-feet per year. Although specific data on the quantity and quality of ground

waters in Fremont are not known. The proposed volume of ground water to be used by the Baltic Project exceeds the volume of ground water recharge in Fremont Valley and may cause the aquifers to be overdrafted. This overdraft of the ground water aquifers may cause an impact to the vegetation and wildlife habitat of Fremont Valley, and may impact long range uses of the land following reclamation.

Therefore, the Environmental Impact Report and the reclamation plan should discuss the potential impacts from pumping the ground water, including short- and long-term impacts to vegetation and wildlife. If necessary, methods of mitigation and specific monitoring requirements should be proposed.

8. A site-specific monitoring plan, as required by SMARA Section 2773(a), is imperative for the success of this project. Monitoring for the revegetation program includes both undisturbed areas (controls) and areas that will be revegetated (treatments). However, monitoring should not be left to a "one-time comparison between two and five years following revegetation activities." In addition, the proposed sample sizes of two (control) and eight (treatment), are much too low; and the performance standard of 50 percent is overly optimistic.

For this operation, we suggest the performance standard include a combination of cover and species-richness of perennial species, with the standards being expressed as a percentage of that parameter as measured on the control sites. Appropriate standards for cover and species-richness are 10 years after implementation of revegetation treatments are 30 percent and 15 percent of control values, respectively. In other words, if the cover of perennial species on the control area is 80 percent, then the standard for the treatment area would be 30 percent of 80 percent, or 24 percent.

Annual monitoring should continue for ten years following implementation, rather than "between two and five." Revegetation of arid lands proceeds very slowly; determination of the outcome of revegetation in less than ten years would not be prudent. The sampling methods should be adequate to statistically evaluate the revegetation program, and will need to be expanded greatly beyond that proposed in the document.

9. In order to assure that the financial assurance is appropriate for the site, a detailed cost estimate should be submitted by the operator and reviewed by the concerned

agencies, including BLM, the County, and the State (DMG), prior to plan approval as required by SMARA Section 2773.1.

If I can be of further assistance, please feel free to call me at (916) 322-5873.

Sincerely,

Barbara Procussi

for Dennis J. O'Bryant
Environmental Program Coordinator

Enclosure

cc: Office of Planning and Research

APPENDIX J

Bureau of Land Management Memorandum on the Comments from the Public Scoping Meeting

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
RIDGECREST RESOURCE AREA
300 S. RICHMOND ROAD
RIDGECREST, CALIFORNIA 93555
Telephone (619) 375-7125

IN REPLY REFER TO:
3809
CAMC 48444
(CA-065.52)

Memorandum

AUG 28 1991

To: Area Manager (CA-065)

From: Area Geologist

Subject: Rand Mining Company, Open House and BLM Public Scoping Meeting of August 17, 1991.

On August 17, 1991, a combined open house and public scoping meeting was sponsored by Rand Mining Company and our office. The purpose of these events were to; 1) introduce the general public to operating heap leach project (Yellow Aster); 2) show the site of the proposed Baltic project and; 3) gather public comment and identify issues associated with the Baltic project.

The open house portion of the day was sponsored by Rand Mining Company. Rand Mining estimates that 150 to 200 people toured the facilities. Stops included the pit, tops of the heap, processing facilities, ponds and the Baltic Project Area. The event was primarily attended by groups of families from Randsburg and Ridgecrest. The open house was self-guided with Rand Mining Company personnel stationed at stops. The tour began at 10:00 a.m. and ended at 12:00 p.m.

The public scoping workshop began at 1:00 p.m. and ended at 4:00 p.m. The meeting was held at the Johannesburg Community Center. Based on the sign-up sheet, and a quick head count at the beginning of the meeting, approximately 55 people were in attendance. Of the 55, one-third of the group had attended the open house/mine tour earlier in the day.

In addition to the general audience, myself, Dwight Carey (EMA), Steve Stillar (Rand Mining), Ted Naylor (Rand Mining), and reporters from the Daily Independent and Desert News Review were present. After introductions, a quick poll was given in order to determine the "bent" of the audience. Results of the poll are presented in Attachment A.

The remainder of the meeting was divided into three segments. The first segment explained the NEPA/CEQA process, the levels of environmental documentation and the purpose of public involvement. The second segment presented the Baltic Project. The third segment was an issue identification and resolution workshop.

Although a number of issued were briefly discussed, the seminar was centered around the following issues, which are listed in priority order.

1. Road realignment and closure - Topics of concern centered around convenience, public safety and resistance to change. Most of the individuals expressing displeasure were residents of either "Dogpatch", Randsburg, or Johannesburg. The issues raised were not unfounded and a serious analysis of the proposal, effects and alternatives is warranted.

2. Noise - Again, the residents that lived closest to the project expressed concern about the noise sources appeared to emanate from blasting, back-up warning signals, heavy equipment and personnel stereo equipment.

3. Dust/Blasting - The impacts from dust and blasting appear to be related. Most air borne dust is a result of blasting. All other areas will be treated as in the Yellow Aster project area. Another concern with blasting was the apparent lack of communication between Rand Mining and the local community regarding the frequency and timing of the blasts.

4. Water - Water was discussed in the context of two issues. The first is the contamination of local water by cyanide during, and after the operation is closed. The second water issue revolved around supply, effects of pumping on local neighbors and post-closure use of water supplies developed by Rand Mining.

Surprisingly, the wildlife issues associated with the desert tortoise and Mojave ground squirrel were mentioned but not discussed in even minor detail. This appears to be a non-issue with the persons in attendance. Similarly, the potential conflicts with range and recreation were not even mentioned as issues. In general, the tone of the meeting was positive, and supportive. Most of the people believed that the Baltic operation could be conducted with a minimum of personal impacts if the identified issues were addressed and investigated.

I am confident that this project is non-controversial in the grand scheme of things and the continued preparation of an EA/EIR is the prudent level of environmental analysis.

Peter G. Miller

Enclosures

cc: Ted Naylor, Rand Mining
Dwight Carey, EMA
Bill Larson, Kern County
CA-060

BALTIC PUBLIC MEETING POLL

1) Rate the importance of mining to the local community. (Scale of 1-5 with 1 the lowest)

Results:

1	2	3	4	5	Total # Responses
1	5	5	2	19	32
3%	15%	15%	6%	60%	% of total

2) Date the importance of mining to the nation. (Scale of 1-5 with 1 the lowest)

Results:

1	2	3	4	5	Total # Responses
1	2	9	5	15	32
3%	6%	20%	15%	49%	% of total

3) List as may uses for gold as you can think of. (Most common mentioned)

Jewelry
Window glazing
Dental
Electronics
Investment
Plating
Paint pigment
Monetary

4) Rate the importance of environmental issues to the local community. (Scale of 1-5 with 1 the lowest).

Results:

1	2	3	4	5	Total # Responses
5	4	2	5	15	31
16%	13%	6%	16%	48%	% of total

5) Rate the importance of environmental issues to the nation/globe. (Scale of 1-5 with 1 the lowest).

1	2	3	4	5	Total # Responses
3	2	2	4	17	28
11%	14%	14%	14%	60%	% of total

Complete the following statements:

6) Mining ______ be conducted without harming the environment.

Results:

Cannot	Can	Total # Responses
10	21	31
32%	68%	% of responses

7) Mining is ______ important than the environment.

Results:

More	Same	Less	Total # Responses
3	10	17	30
10%	33%	57%	% of total

8) If mining causes ______ environmental damage, it should be allowed to continue.

Results:

No	Same	Minimum	Minor	Little	A lot	Repairable
9	7	3	2	4	1	1

9) Under what circumstances should mining never be allowed to occur?

None	Severe	Strip Mining	Hazardous to Health
2	1	2	4

Narrow Roads	Under no circumstances
1	1

9) (Con't)

Irrevocable Damage	Hurts Life	Significant Damage
6	4	6

Too near homes
2

10) Should mining companies pay for environmental damage?

Yes	Some	No	Total # Responses
25	4	2	31
81%	13%	6%	% of total

11) If you answered yes to question 10, what are ways that a company can pay?

Bonding	
Community Center	% profit
Road Repair	Reclamation
Research	Mitigation
School Projects	Environmental work
Day care	

12) Identify yourself as local, regional, out-of-town residents.

Local	Regional	Out-of-Town
19	13	0

APPENDIX K

Notice of Intent to Prepare an Environmental Impact Statement

Land (by State)
Puerto Rico
119.3 acres
Culebra Island PR 00775–
Landholding Agency: Interior
Property Number: 619210001
Status: Excess
Reason: Floodway
[FR Doc. 92-1111 Filed 1–16–92; 8:45 am]
BILLING CODE 4210-29-M

DEPARTMENT OF THE INTERIOR

Bureau of Land Management

[CA-060-02-4130-09]

Proposed Plan of Operation Amendment for Open Pit Mining, Baltic Mine

AGENCY: Bureau of Land Management, Interior.

ACTION: Notice of intent to prepare an environmental impact statement and to request comments on the scope of the environmental impact statement.

SUMMARY: Pursuant to section 102(2)c of the National Environmental Policy Act of 1969, as amended, the Bureau of Land Management intends to prepare an environmental impact statement for a portion of the California Desert Conservation Area, Kern County, California. The proposed action, the Baltic Project, is located in the Stringer Mining District, approximately 1 mile south of Randsburg, California. This document will be prepared as a joint Environmental Impact Statement/Environmental Impact Report with Kern County, to meet the requirements of the National Environmental Policy Act and the California Environmental Quality Act.

Based on the analysis of an environmental assessment, the Bureau has made a finding of potential significant impact. At issue are the direct, indirect, and cumulative impacts to the human environment stemming from a plan amendment to conduct open pit mining and cyanide heap leach processing. The proposed action is surface mining and cyanide heap leach processing of up to 18 million tons of ore and waste on 200 acres of combined public and private land within a 532 acre project area. Possible alternatives include the processing of ore in a closed vat leach circuit, and no action.

ADDRESSES: To be considered in the scoping process, all written comments and suggestions must be received by Lee Delaney, Area Manager, Ridgecrest Resource Area, Bureau of Land Management, 300 South Richmond Road, Ridgecrest, California 93555, not later than February 18, 1992. Written comments made in response to the Kern County Notice of Preparation, need not be resubmitted.

FOR FURTHER INFORMATION CONTACT: Peter Milne, Project Manager, or Joe Liebhauser, Environmental Coordinator, Bureau of Land Management, Ridgecrest Resource Area, 300 South Richmond Road, Ridgecrest, California 93555, (619) 375–7125.

Steve Smith,
Acting Area Manager
[FR Doc. 92-1256 Filed 1–16–92; 8:45 am]
BILLING CODE 4310-40-M

[OR-130-02-4212-13; GPO-2-081]

Realty Action: Exchange of Public Lands in Ferry, Lincoln, Pend Oreille and Stevens Counties, WA

AGENCY: Bureau of Land Management, Interior.

SUMMARY: The following described public lands have been determined to be suitable for disposal by exchange under Sec. 206 of the Federal Land Policy and Management Act of 1976, 43 U.S.C. 1716:

Willamette Meridian:

T. 39 N., R. 32 E., sec. 11, M.S. 503 and M.S. 575;
T. 40 N., R. 32 E., sec. 9, NW¼NE¼,
Sec. 14, NW¼NE¼, SE¼NE¼,
Sec. 19, SW¼SE¼,
Sec. 24, NE¼, E½, NW¼;
T. 40 N., R. 33 E., sec. 7, lots 1, 6, and 12,
T. 35 N., R. 34 E., sec. 18, NW¼NE¼,
Sec. 20, SW¼SW¼;
T. 35 N., R. 36 E., sec. 24, NW¼NE¼,
T. 35 N., R. 37 E., sec. 18, NW¼NE¼, SW¼NW¼,
Sec. 34, E½SW¼SE¼;
T. 37 N., R. 37 E., sec. 17, SW¼NW¼,
Sec. 32, Lot 1;
T. 36 N., R. 37 E., sec. 18, Lots 5 and 9, SW¼SE¼;
T. 34 N., R. 38 E., sec. 29, SE¼SE¼,
Sec. 30, Lot 3,
Sec. 33, NW¼NE¼, NE¼NW¼, SE¼SE¼;
T. 36 N., R. 38 E., sec. 8, SW¼SW¼,
T. 36 N., R. 39 E., sec. 18, SW¼NE¼,
Sec. 19, E½SW¼;
T. 35 N., R. 40 E., sec. 4, SE¼NE¼
Sec. 9, Lots 3, 4, 8, & 9;
T. 38 N., R. 40 E., sec. 28, SW¼NW¼;
T. 32 N., R. 41 E., sec. 32, E½SW¼, SW¼SW¼;
T. 38 N., R. 41 E., sec. 18, E½NE¼;
T. 39 N., R. 41 E., sec. 13, SE¼SE¼,
Sec. 35, NW¼NE¼;
T. 38 N., R. 42 E., sec. 1, Lot 5;

The area described aggregates 1,706 more or less acres in Ferry, Pend Oreille, and Stevens Counties, Washington.

In exchange for all part of these lands, the Federal Government will acquire all or part of the following described private lands from several landowners using Clearwater Investments, Inc., to facilitate the exchange:

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T. 21 N., R. 32 E., sec. 1, Lots 1, 2, 3, & 4, S½N½, S½;
Sec. 3, These portions of the NE¼, SE¼NW¼, and N½SW¼ lying south of the Great Northern Railroad Right-of-Way, SW¼,
T. 22 N., R. 32 E., sec. 14, All;
Sec. 15, portion of SW¼SE¼,
Sec. 22, E½;
Sec. 23, All;

cc: RF DeLau
T. Naylor
2/24/92

T. 21 N., R. 33 E., sec. 6, Lots 3, 4, 5, 6, 7, S½NE¼, SE¼NW¼, E½SW¼, SE¼,
Sec. 7, Those portions of Lot 1 and the NE¼NW¼ lying north of the Great Northern Railroad Right-of-Way;
T. 21 N., R. 35 E., sec. 23, E½, E½W½;
Sec. 24, S½N½, S½;
Sec. 25, N½N½NW¼, S½SNW¼, SW¼;
Sec. 28, N½, E½SE¼;
Sec. 35, N½;

The area described above aggregates 4,982 acres more of less in Lincoln County, Washington.

The Bureau of Land Management (BLM) and Clearwater Investments, Inc. have grouped the exchange of these public and private lands into priorities based on the opportunity to exchange individual properties and through land-use planning. Completion of the total exchange of these lands is expected to occur in several stages. The value of the lands to be exchanged in each stage will be approximately equal. The proponent may be required to make payments to equalize the values of the lands based upon the approved appraisal.

The purpose of the land exchange is to facilitate resource management opportunities in eastern Washington as identified in the Spokane District's Resource Management Plan. The exchange will reduce the number of widely scattered parcels of public land that are difficult and uneconomic to manage, and acquire private property in the Upper Crab Creek Management Area of Lincoln County. The private lands being offered have important values for recreation, fish and wildlife habitat, riparian and watershed management.

The exchange is subject to:

1. The reservation to the United States of a right-of-way for ditches or canals constructed by the authority of the United States, act of August 30, 1890, (43 U.S.C. 945).

2. All minerals shall be reserved to the United States, together with the right to prospect for, mine and remove the minerals.

3. All other valid existing rights, including, but not limited to, any right-of-way, permit, or lease of record.