

APPENDIX B

Castle Mountain Mine 69 kV Power Transmission Line Environmental Assessment (1990)

CASTLE MOUNTAIN MINE 69 kV POWER TRANSMISSION LINE ENVIRONMENTAL ASSESSMENT

Abstract:

The Castle Mountain Mine 69 kV power transmission line project is a proposed alternate source of power for the Castle Mountain Mine, located in northern Lanfair Valley, California. In September and October 1990, the Applicant received approvals from the County of San Bernardino and the U.S.D.I. Bureau of Land Management for mine construction and operation, using onsite generators for electrical power supply. However, further discussions with the electrical power utility companies serving the region have resolved the legal issues that had previously precluded detailed consideration of the alternative of using utility power in place of onsite generation to supply the Castle Mountain Mine's electrical power requirements.

The proposed 22.1-mile power line would provide utility power from an existing substation near Searchlight, Nevada. The alignment would follow existing and approved power line and access road corridors from the substation to the mine site. Following completion of mining and reclamation activities, the power line would be removed and surface disturbances reclaimed.

This Environmental Assessment describes the existing environment, evaluates potential impacts, and specifies mitigation measures for the proposed power line. Issues identified and evaluated consist of land use, visual resources, vegetation, wildlife, and cultural resources. Alternative power line alignments are evaluated for feasibility and compared to the Proposed Action. Potential adverse impacts to the environment would be mitigated through measures incorporated in power line alignment planning and pole design.

Actions:

Power Transmission Line Right-of-Way Approval
Section 7 Consultation Pursuant to 50 CFR §§402.13(b) and 402.14(b)(i)

U.S.D.I. Bureau of Land Management

Stateline Resource Area
4675 Vegas Drive
Las Vegas, Nevada 89126

Needles Resource Area
101 West Spike's Road
Needles, California 92363

This document has been prepared by Environmental Solutions, Inc., an independent consulting firm, under the direction of the U.S.D.I. Bureau of Land Management. A disclosure statement indicating that Environmental Solutions, Inc. has no financial or other interest in the Castle Mountain Mine has been filed with the U.S.D.I. Bureau of Land Management in accordance with Federal Regulation 40 CFR 1506.5(c).

TABLE OF CONTENTS

	<u>PAGE NO.</u>
LIST OF TABLES/FIGURES	v
EXECUTIVE SUMMARY	ES-1
ES.1 Introduction	ES-1
ES.2 Purpose and Need for the Proposed Action	ES-1
ES.3 Proposed Action	ES-2
ES.4 Alternatives Evaluated in Detail	ES-2
ES.4.1 Clark County Road A68p Alternative	ES-2
ES.4.2 No Action Alternative	ES-2
ES.5 Summary Comparison of Proposed Action and Alternatives	ES-3
ES.6 Alternatives Considered and Rejected	ES-3
ES.6.1 Cima Substation Power Line Alternative	ES-5
ES.6.2 Underground Power Line Alternative	ES-5
1.0 INTRODUCTION	1-1
1.1 Background	1-1
1.2 Purpose and Need for the Proposed Action	1-2
1.3 Environmental Review Requirements	1-2
1.3.1 Use of this Environmental Assessment	1-3
1.3.2 Previous Environmental Documentation	1-3
1.3.3 Scope of Analysis	1-4
1.4 Report Organization	1-5
2.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES	2-1
2.1 Proposed Action	2-1
2.1.1 Project Location	2-1
2.1.2 Power Line Alignment	2-3
2.1.3 Power Pole Configuration	2-6
2.2 Alternatives Evaluated in Detail	2-8
2.2.1 Clark County Road A68p Power Line Alternative	2-8
2.2.1.1 Alternative Project Location	2-8
2.2.1.2 Power Line Alignment	2-8
2.2.1.3 Power Pole Configuration	2-8

TABLE OF CONTENTS (Continued)

	<u>PAGE NO.</u>
2.2.2 No Action Alternative	2-8
2.2.2.1 Approved Onsite Power Generation	2-8
2.2.2.2 Comparison to Proposed Action	2-10
2.4 Alternatives Considered and Rejected	2-10
2.4.1 Cima Substation Power Line Alternative	2-10
2.4.1.1 Power Line Alignment	2-10
2.4.1.2 Comparison to Proposed Action	2-11
2.4.2 Underground Power Line Alternative	2-11
2.4.2.1 Power Line Alignment	2-12
2.4.2.2 Comparison to Proposed Action	2-12
 3.0 DESCRIPTION OF EXISTING ENVIRONMENT	 3-1
3.1 Regional Environment	3-1
3.2 Local Environment	3-2
3.2.1 Visual Resources	3-7
3.2.2 Vegetation	3-7
3.2.3 Wildlife	3-8
3.2.3.1 Birds	3-8
3.2.3.2 Mammals	3-9
3.2.3.3 Reptiles	3-9
3.2.4 Cultural Resources	3-10
3.2.4.1 Inventories	3-10
3.2.4.2 Regional History	3-10
3.2.4.3 Prehistory and Archaeology	3-13
 4.0 ENVIRONMENTAL CONSEQUENCES AND MITIGATION MEASURES	 4-1
4.1 Considerations for Impacts and Mitigation Measures	4-1
4.2 Visual Resources	4-2
4.2.1 Proposed Action	4-2
4.2.1.1 Impacts	4-2
4.2.1.2 Mitigation Measures	4-5

TABLE OF CONTENTS (Continued)

	<u>PAGE NO.</u>
4.2.2 Clark County Road A68p Alternative	4-5
4.2.2.1 Impacts	4-5
4.2.2.2 Mitigation Measures	4-6
4.3 Vegetation	4-6
4.3.1 Proposed Action	4-6
4.3.1.1 Impacts	4-6
4.3.1.2 Mitigation Measures	4-6
4.3.2 Clark County Road A68p Alternative	4-7
4.3.2.1 Impacts	4-7
4.3.2.2 Mitigation Measures	4-7
4.4 Wildlife	4-7
4.4.1 Proposed Action	4-7
4.4.1.1 Impacts	4-7
4.4.1.2 Mitigation Measures	4-9
4.4.2 Clark County Road A68p Alternative	4-9
4.4.2.1 Impacts	4-9
4.4.2.2 Mitigation Measures	4-9
4.5 Cultural Resources	4-9
4.5.1 Proposed Action	4-9
4.5.1.1 Impacts	4-9
4.5.1.2 Mitigation Measures	4-12
4.5.2 Clark County Road A68p Alternative	4-12
4.5.2.1 Impacts	4-12
4.5.2.2 Mitigation Measures	4-12
4.6 No Action Alternative	4-12
4.7 Summary of Unavoidable Adverse Impacts	4-13
4.8 Cumulative Effects	4-14
 5.0 CONSULTATION AND COORDINATION	 5-1
5.1 Preparers	5-1
5.2 Persons Consulted	5-1

TABLE OF CONTENTS (Continued)

PAGE NO.

6.0 REFERENCES

6-1

APPENDIX A: FIELD STUDIES AND PERSONNEL

APPENDIX B: LIST OF OBSERVED AND EXPECTED PLANTS
AND WILDLIFE

TABLE OF CONTENTS (Continued)

LIST OF TABLES

<u>TABLE NO.</u>	<u>TITLE</u>	<u>PAGE NO.</u>
ES.1	Proposed Action and Alternatives Comparative Unavoidable Adverse Impacts	ES-4

LIST OF FIGURES

<u>FIGURE NO.</u>	<u>TITLE</u>	<u>PAGE NO.</u>
2.1	Regional Site Location Map	2-2
2.2	Power Line Alignment	2-4
2.3	Power Line Alignment at Walking Box Ranch Headquarters Area	2-5
2.4	Armless Power Pole and Line Configuration	2-7
2.5	Alternative Power Line Alignments	2-9
3.1	Photograph Viewpoint Locations	3-3
3.2	Power Line Corridor Photographs, Segment A	3-4
3.3	Power Line Corridor Photographs, Segments B and C	3-5
3.4	Power Line Corridor Photographs, Segment D	3-6
3.5	Nevada Desert Tortoise Habitat	3-11
3.6	Northern Piute Valley Desert Tortoise Population Densities	3-12
4.1	East Mojave Heritage Trail	4-4

EXECUTIVE SUMMARY

ES.1 INTRODUCTION

1. This Environmental Assessment (EA) has been prepared in accordance with National Environmental Policy Act (NEPA) requirements to address the potential environmental consequences of the construction, operation, and maintenance of power transmission facilities for the Castle Mountain Mine.
2. County of San Bernardino (County) and U.S.D.I. Bureau of Land Management (BLM) authorizations for construction and operation of the Castle Mountain Mine were completed in September and October 1990, respectively. Delivery of utility power from either California or Nevada had been determined to be infeasible, due to environmental, legal, and technical considerations in the Castle Mountain Project Final Environmental Impact Statement/Environmental Impact Report (EIS/EIR). Obstacles to utility power from the Cima substation in California included environmental factors such as Category 1 desert tortoise habitat, Wilderness Study Area (WSA) locations, and East Mojave National Scenic Area (EMNSA) Management Plan guidelines. The obstacle to utility power from Nevada was the inability, as cited by Nevada Power Company, to export power to California from its licensed service territory in southern Nevada. Project approvals, therefore, included provisions for onsite generation of power using propane-fired electrical generators.
3. Subsequent to completion of the Castle Mountain Project EIS/EIR and the receipt of County and BLM authorizations for the Castle Mountain Mine, Viceroy Gold Corporation (Applicant) was able to reach an understanding with Southern California Edison Company and Nevada Power Company that enabled the Applicant to purchase utility power from Nevada Power Company and import such power into California to supply the Castle Mountain Mine. The Applicant subsequently submitted Right-of-Way (ROW) applications to BLM offices in Needles, California and Las Vegas, Nevada, to construct the power line needed to transmit such power.

ES.2 PURPOSE AND NEED FOR THE PROPOSED ACTION

1. The Applicant has proposed construction of power transmission facilities to improve the reliability of electrical service and to realize economic savings in electrical power costs over the life of the mine. The large instantaneous load fluctuations caused by transient electrical power

demands of the primary crushing unit can best be accommodated by connection to a public utility power grid. In addition, utility power can be purchased at a cost savings of about 33 percent as compared to onsite generation.

ES.3 PROPOSED ACTION

1. The Proposed Action is to construct and operate a 22.1 mile power transmission line capable of delivering electrical power at 69,000 volts (69kV) to the Castle Mountain Mine. The 69 kV power line would follow existing roads. The alignment would be within a 40-foot ROW where an existing power line, located between Nevada Power Company's Searchlight substation and the Walking Box Ranch headquarters area, would be removed and within a 60-foot ROW from the ranch headquarters area to the Castle Mountain Mine. About 22 miles of power line would be constructed and would serve the mine for its permitted life up to 20 years (10 years of projected operations, plus 10 years of reclamation activities). It would then be removed as part of mine reclamation.

ES.4 ALTERNATIVES EVALUATED IN DETAIL

ES.4.1 CLARK COUNTY ROAD A68p ALTERNATIVE

1. The shortest power line alignment to the site would be from the Searchlight substation to the Castle Mountain Mine via Clark County Road A68p and the Castle Mountain Mine access road. The power line would be constructed along the existing A68p alignment. From the terminus of this road (near the California/Nevada state line), the power line would parallel the mine's Mitigated Access Route to the mine site. No new roads would be required for line construction or maintenance. Total line length would be nearly 20 miles. This alternative has been determined to be infeasible since it would result in a new power line adjacent to about ten miles of the East Mojave Heritage Trail and traverse Category 1 desert tortoise habitat.

ES.4.2 NO ACTION ALTERNATIVE

1. Approval of the Castle Mountain Mine by the BLM and County included use of onsite generators for electrical power. Should power transmission lines to the mine be determined infeasible based upon environmental or other considerations, the previously approved program of onsite power generation would be implemented.

2. The San Bernardino County Air Pollution Control District issued a New Source Review document approving use of propane-fired generators for the life of the project. The generators would be centrally located at the mine. Power transmission lines would deliver electricity to onsite facilities and offsite to the west well field water pumps. Propane generator fuel would be delivered daily by truck. About two fuel trucks per day would be required.
3. Unavoidable adverse environmental consequences associated with this alternative include the additional air emissions and traffic for fuel delivery for the life of the mine.

ES.5 SUMMARY COMPARISON OF PROPOSED ACTION AND ALTERNATIVES

1. The potential environmental effects of the Proposed Action and alternatives is shown in Table ES.1.
2. As indicated in the table, the primary environmental consideration for the Proposed Action versus the Clark County Road A68p Alternative is the potential impact to the desert tortoise. The Proposed Action power line would replace an existing power line crossing 5.9 miles of Category 1 habitat where population densities are very low (about 4 miles of less than 20 and 2 miles of 20 to 50 tortoises per square mile). The Clark County Road A68p Alternative power line would result in a new power line crossing 9.4 miles of Category 1 habitat (about 5 miles of less than 20 and 4.5 miles of 20 to 50 tortoises per square mile).
3. Also as indicated in the table, the primary environmental consideration for the Proposed Action versus the No Action Alternative is the trade-off between visual and air quality resources. The Proposed Action would result in the visual impact of a 45- to 50-foot high power line along the mine access road for the life of the mine. The No Action Alternative would result in the emission of 1,175.4 pounds per day (214.5 tons per year) of combustion hydrocarbon emissions and 2.3 pounds per day (0.4 tons per year) of particulates due to operating the onsite electrical generators.

ES.6 ALTERNATIVES CONSIDERED AND REJECTED

1. Two potential alternatives were initially considered and subsequently rejected based on adverse environmental consequences and technical infeasibility. These alternatives are described in the following paragraphs.

TABLE ES.1
PROPOSED ACTION AND ALTERNATIVES
COMPARATIVE UNAVOIDABLE ADVERSE IMPACTS⁽¹⁾

RESOURCE CATEGORY	PROPOSED ACTION	CLARK COUNTY ROAD A68p ALTERNATIVE	NO ACTION ⁽²⁾
Visual Resources	Impact: Power line would be visible to access road users and from unobstructed viewing locations in Lanfair and Piute Valleys. The power line would intersect the East Mojave Heritage Trail where it crosses the mine access road. The existing effects of human development in the region would be incrementally increased with the power line.	Similar Impact: Alignment of power line would follow Clark County Road A68p to the Searchlight substation. About 11 miles of the power line would be adjacent to the East Mojave Heritage Trail which uses Clark County Road A68p.	Less Impact: Power generation and distribution facilities would be limited to those permitted in the Record of Decision (ROD) for the mine. No additional visual impacts would occur.
Vegetation	Impact: The power line would be located along existing or approved roads. Total surface disturbance for pole installation would be approximately 0.5 acres in creosote bush scrub and Joshua tree woodland communities.	Similar Impact: The power line would be located along existing or approved roads. Total surface disturbance for pole installation would be less than 0.5 acres in creosote bush scrub and Joshua tree woodland communities.	Similar Impact: Surface disturbance permitted in the mine ROD includes 0.8 acres of onsite area for power generators.
Wildlife	Impact: Individual animal deaths could result from construction and maintenance equipment. A total of about 0.5 acres of wildlife habitat would be disturbed. Approximately six miles of Category 1 tortoise habitat would be crossed where the proposed power line would replace an existing power line. Since the replacement line would not have poles with arms, it would reduce the existing opportunity for raven nesting and perching sites.	Similar Impact: Less than 0.5 total acres of wildlife habitat would be disturbed. Approximately 9-1/2-miles of new power line would be constructed crossing Category 1 desert tortoise habitat.	Similar Impact: Surface disturbance permitted in the mine ROD includes 0.8 acres of onsite area for power generators. However, this would not result in Category 1 desert tortoise habitat disturbance. The delivery of propane to the site by truck would have the potential to result in individual tortoise deaths along the access route.
Cultural Resources	Impact: No impacts to cultural resources are anticipated.	Similar Impacts: No impacts to cultural resources are anticipated.	Similar Impact: No impacts to cultural resources are anticipated.
Air Quality	Impact: Impacts would be limited to utility power generation.	Similar Impacts: Impacts would be limited to utility power generation.	Greater Impact: Local air pollutants generated daily would include 1,175 pounds of combusive hydrocarbon emissions (214 tons annually) and 2.3 pounds of particulates (0.4 tons annually).

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⁽¹⁾ This table compares the anticipated unavoidable adverse impacts of each alternative to those associated with the Proposed Action. The primary anticipated unavoidable effects of the Proposed Action are summarized for each applicable environmental resource. Anticipated unavoidable effects of the alternatives are then compared to the effects of the Proposed Action as 'greater', 'similar', or 'less' impact.

⁽²⁾ Impacts of onsite power generation were evaluated in detail in the Castle Mountain Project EIS/EIR.

ES.6.1 CIMA SUBSTATION POWER LINE ALTERNATIVE

1. An alternative source of power for the Castle Mountain Mine could potentially be via a transmission line extending from a Southern California Edison Company substation located near Cima, California, in Ivanpah Valley. No new roads would be required for power line construction or maintenance. Total transmission line length would be nearly 30 miles.
2. Construction of a power transmission line from the Cima Substation to the Castle Mountain Mine would be expected to result in environmental effects similar to, but of greater magnitude than, the Proposed Action. The primary difference would be that the Cima Substation Power Transmission Line Alternative would be constructed entirely within the EMNSA, including 5.5 miles along a paved County road. An EMNSA Management Plan objective is to locate utility line developments outside EMNSA whenever possible (BLM, 1988b).
3. Compared to the Proposed Action, this alternative appears to offer no substantial environmental advantage. Because of EMNSA visual resource management objectives, construction of nearly 30 miles of new transmission line, including a 5.5-mile segment adjacent to a paved public road, is considered less environmentally desirable than the Proposed Action. Moreover, over ten miles of this alignment would be located in high density Category 1 tortoise habitat in Ivanpah Valley having tortoise populations ranging upwards from 50 tortoises per square mile to as many as 250 per square mile. Based upon these considerations, this alternative is considered infeasible.

ES.6.2 UNDERGROUND POWER LINE ALTERNATIVE

1. The feasibility of underground power line facilities was considered for potential environmental benefits. Underground facilities would consist of cables laid in a trench with a minimum depth of 2 feet. The cable would be laid in lengths of 5,000 feet, and underground manhole vaults would therefore be constructed every 5,000 feet along the alignment for access to cable connections.
2. The underground cable would have to be laid adjacent to the existing mine access road (as opposed to within the road bed) for both safety and maintenance reasons, including:
 - Routine grading over a cable located in a dirt road could expose the cable. Deep scarifying is necessary for maintenance, and locating the cable in the road could result in serious injury or electrocution of road maintenance personnel, if equipment were to come into contact with the cables.

- Locating the cable within the road alignment would be expected to result in off-road surface disturbance (as compared to off-road alignment), because traffic would have to be detoured off the mine road around cable installation crews as the cable is being laid and when maintenance repair of the cable is necessary.
3. Alignment of the underground power line would need to be constructed adjacent to existing road alignments to avoid construction of new roads. The primary environmental effects of this alternative would occur as a result of construction. The project would require trenching for placement of cable and each of the approximately 23 manhole vaults. Trenching equipment and activities would disturb an approximate 6-foot-wide path along the cable route, with an area of disturbance of approximately 15 feet by 6 feet (90 square feet) at each vault site. Total surface disturbance would be about 16 acres.
 4. Construction of the Underground Power Line Alternative would be expected to result in greater impacts to vegetation, wildlife, and potentially to cultural resources as compared to the Proposed Action. Vegetation and wildlife habitat would be affected as a result of construction disturbance. Wildlife would be indirectly affected by the habitat disturbance, while burrowing animals could be directly affected. Buried cultural resources could be disturbed by trenching activities. Visual impact of the underground line would primarily result from the removal of vegetation. This may be considered a reduced impact in terms of the visibility of man-made features, as compared to the proposed power line and poles. However, it is recognized that vegetation recovery of areas disturbed in order to bury power cables would require an extended time period, whereas overhead power lines would be removed at project completion. Reclamation would initiate vegetation recovery. As for the Proposed Action, views of the facilities and disturbance would primarily be limited to travelers along the mine access road.
 5. The Underground Power Line Alternative appears to offer no substantial environmental advantage, as compared to the Proposed Action. Because overall greater surface disturbing effects would be realized, this alternative is not considered in detail.

1.0 INTRODUCTION

1.1 BACKGROUND

1. The Castle Mountain Project Final Environmental Impact Statement/Environmental Impact Report EIS/EIR (August 1990) addressed the detailed environmental effects of onsite power generation using propane-fired electrical generators. Methods to provide California utility power to the project were determined infeasible in the EIS/EIR for both technical and environmental reasons. Methods to provide utility power from Nevada were determined infeasible in the EIS/EIR, due to environmental consideration and because service area agreement restrictions prevented delivery of Nevada power into California. Methods to provide utility power in California from the Cima substation were determined infeasible due to complicating environmental considerations including desert tortoise habitat, Wilderness Study Area (WSA) locations, and East Mojave National Scenic Area (EMNSA) Management Plan guidelines. The County of San Bernardino (County) Planning Commission approved a Conditional Use Permit for the mine on September 27, 1990. The U.S.D.I. Bureau of Land Management (BLM), California State Office, issued its Record of Decision approving the mine on October 31, 1990. The approved mine, therefore, includes provisions for onsite generation of power using propane-fired electrical generators.
2. Subsequent to project approvals by the BLM and County, Viceroy Gold Corporation (Applicant) was able to reach an understanding with Southern California Edison Company and Nevada Power Company that would enable the Applicant to import utility power from the Nevada power system to supply the Castle Mountain Mine. The Applicant therefore submitted applications to the Stateline Resource Area and Needles Resource Area offices of the BLM for rights-of-way (ROW) approvals for the construction, operation, and maintenance of facilities needed to supply electrical power to the mine site from Searchlight, Nevada.
3. The Proposed Action is in conformance with the Record of Decision for the Clark County Land Use Plan. Although not specifically provided for in the Management Framework Plan (MFP), the action is clearly consistent with the terms, conditions, and decisions of the MFP Lands Objective 3.0.
4. Land uses in Lanfair Valley, California, are managed by the Needles Resource Area BLM office, in accordance with the EMNSA Plan. While the plan seeks to minimize large scale energy production and new utility lines, it also recognizes and accepts the need to provide power for domestic, ranching, and mining uses in the form of onsite generated power. New

distribution systems may be allowed. However, the plan indicates they will be placed underground where feasible, except where this would have a more detrimental effect on the environment than surface alignment.

5. The Proposed Action has been designed to limit the length of new power lines in the EMNSA. Segment D, consisting of 6.8 miles, would be located in the EMNSA. Underground facilities are not considered feasible and would potentially be more damaging to the environment (see Section 2.4.2 of this EA).

1.2 PURPOSE AND NEED FOR THE PROPOSED ACTION

1. The purpose of the proposed project is to provide electric transmission facilities to supply power to the Castle Mountain Mine in the Hart Mining District, San Bernardino County, California. The Final EIS/EIR for the Castle Mountain Project addressed the construction and operation of a 3 million ton per year open pit heap leach gold mine, located in the East Mojave Desert of San Bernardino County, California. The Castle Mountain Mine is currently under construction, with production scheduled to begin in August 1991. Operation of the mine and process facilities will have an estimated maximum power demand of 3,000 kilowatts (kw) of electricity (BLM and County, 1989).
2. The Applicant has proposed construction of power transmission facilities due to the greater operational reliability and economic benefits that would be realized by having utility power delivered to the mine, as compared to onsite generation.

1.3 ENVIRONMENTAL REVIEW REQUIREMENTS

1. The purpose of this Environmental Assessment (EA) is to address power supply alternatives for the Castle Mountain Mine and evaluate the potential environmental effects that would result from construction, operation, and maintenance of power transmission facilities. The Final EIS/EIR for the Castle Mountain Project addressed the environmental effects of onsite power generation. This EA provides the supplementary environmental review necessary to address the potential effects from construction of approximately 22.1 miles of transmission line and use for the life of the Castle Mountain Mine.

2. This EA has been prepared to comply with the requirements of the National Environmental Policy Act (NEPA) in accordance with BLM instructions for compliance with the Council on Environmental Quality's (CEQ) regulations for implementing the procedural provisions of NEPA (40 CFR Parts 1500-1508) (BLM, 1988a).

1.3.1 USE OF THIS ENVIRONMENTAL ASSESSMENT

1. The proposed transmission line would be located in both Nevada and California on public lands managed by the BLM. The BLM will use this EA, in addition to other information, in considering approval of the ROW applications to permit construction, operation, and maintenance of the proposed electric transmission facilities.
2. This EA will also serve as the basis for San Bernardino County, California, to revise the Mine Plan and Reclamation Plan for the Castle Mountain Project, dated August 1990.
3. The U.S. Fish and Wildlife Service (FWS) will review this EA to assure that the Proposed Action would not have the potential to adversely affect the desert tortoise in accordance with 50 CFR §§402.13(b) and 402.14(b)(i). The FWS previously reviewed the potential impacts of the Castle Mountain Mine access road corridor and issued a non-jeopardy Biological Opinion on August 3, 1990. This Biological Opinion may be modified as a result of the proposed power line.

1.3.2 PREVIOUS ENVIRONMENTAL DOCUMENTATION

1. The existing environment, potential environmental impacts, and mitigation measures associated with the approved Castle Mountain Mine have been documented in the following reports:

<u>REPORT</u>	<u>PURPOSE/CONTENTS</u>
<i>Castle Mountain Project, San Bernardino County, California. Draft Environmental Impact Statement/ Environmental Impact Report. USDI Bureau of Land Management and County of San Bernardino. February 1989.</i>	Joint BLM and County environmental analysis prepared in accordance with requirements of NEPA (42 U.S.C. §4321 <i>et seq.</i>) and California Environmental Quality Act (CEQA) (Cal. Pub. Res. Code §21000 <i>et seq.</i>). Describes Proposed Action, existing environment, and analyzes potential environmental impacts. Mitigation measures are identified for each adverse effect. Evaluates cumulative effects, unavoidable adverse effects, and alternatives.

REPORT

Castle Mountain Project, San Bernardino County, California. Supplement to Draft Environmental Impact Statement/ Environmental Impact Report. USDI Bureau of Land Management and County of San Bernardino. January 1990.

Castle Mountain Project, San Bernardino County, California. Final Environmental Impact Statement/Environmental Impact Report. USDI Bureau of Land Management and County of San Bernardino. August 1990.

PURPOSE/CONTENTS

Joint BLM and County environmental analysis prepared in accordance with requirements of NEPA (42 U.S.C. §4321 *et seq.*) and CEQA (Cal. Pub. Res. Code §21000 *et seq.*). Provides discussion of federal and state listings of desert tortoise. Describes changes to Proposed Action adopted as a result of public and agency comment on Draft EIS/EIR. Presents expanded analysis of project alternatives and cumulative effects.

Joint BLM and County environmental analysis prepared in accordance with requirements of NEPA (42 U.S.C. §4321 *et seq.*) and CEQA (Cal. Pub. Res. Code §21000 *et seq.*). Displays all public and agency comments on Draft EIS/EIR and Supplement. Presents final adopted mitigation measures and design plans as modified by environmental review process.

These reports addressing the Castle Mountain Mine are incorporated by reference into this EA. The reports are on file and available for public review at locations listed in Chapter 6.0. In particular, portions of these reports describing the mine access route alignment (known as the Mitigated Access Route) are applicable, as the majority of the proposed power line alignment would use this approved road alignment. Information incorporated from these reports is summarized and referenced, as appropriate.

1.3.3 SCOPE OF ANALYSIS

1. Based upon review of the planned power transmission line alignment and the existing environment and environmental resources in the project vicinity, the following environmental resources could be affected by the Proposed Action and are evaluated:
 - Land Use - power line location in the context of Management Plans for the Piute Valley and the EMNSA; power line ROW policies.
 - Visual Resources - visual impact of power line along public access routes and in the EMNSA.
 - Vegetation - surface disturbance/vegetation removal impacts.
 - Wildlife - surface disturbance/habitat impacts. Effects to the desert tortoise.
 - Cultural Resources - mitigation and avoidance of archaeological and historical sites.

2. Other environmental resources that are not present or would not be expected to be affected by the Proposed Action include:
 - Geology
 - Water Resources
 - Air Quality
 - Socioeconomics
 - Wilderness Areas

These elements are therefore not further evaluated in this EA.

1.4 REPORT ORGANIZATION

1. The contents of this document have been organized to provide a clear and accurate understanding of the Proposed Action, alternatives, and environmental consequences. The remaining chapters are organized as follows:
 - Chapter 2.0, Description of Proposed Action and Alternatives
 - The proposed transmission facilities and alignment configuration are described in detail. Alternative power line configurations and methods of power supply to the mine are considered.
 - Chapter 3.0, Description of Existing Environment
 - This chapter provides a baseline description of the existing natural and man-made environments in Piute Valley and Lanfair Valley that could be affected by the Proposed Action.
 - Chapter 4.0, Environmental Consequences and Mitigation Measures
 - This chapter discusses the potential impacts that would result from the Proposed Action and evaluates their significance. Measures designed to reduce or avoid potential environmental effects are evaluated.
 - Chapter 5.0, Consultation and Coordination
 - Other agencies and individuals contributing to this EA are noted.
 - Chapter 6.0, References

2.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

2.1 PROPOSED ACTION

1. The Proposed Action is to construct and operate a 22.1 mile power transmission line capable of delivering electrical power at 69,000 volts (69kV) to the Castle Mountain Mine. The 69 kV power line would follow existing roads. The alignment would be within a 40-foot ROW, replacing an existing power line between Nevada Power Company's Searchlight substation and the Walking Box Ranch headquarters area, and as a new power line within a 60-foot combined road/power line ROW from the ranch headquarters area to the Castle Mountain Mine.
2. The Castle Mountain Mine is an approved mining operation with an estimated life of about ten years, plus about ten years of reclamation activities. The proposed power line would serve the mining operation and subsequent reclamation activities (onsite power would be required for water wells and other reclamation support). Following conclusion of mine site reclamation, the power line would be removed. Associated surface disturbance would be reclaimed by surface preparation and revegetation, as necessary.
3. The power line has been designed as an overhead configuration. Due to the design, alignment location, construction, maintenance, and removal/reclamation proposed for the power line, it is not expected that the power line would conflict with other land uses. Power poles would be located adjacent to existing or approved maintenance/access roads and would not present an obstruction to ranching, recreation, or other ongoing activities.

2.1.1 PROJECT LOCATION

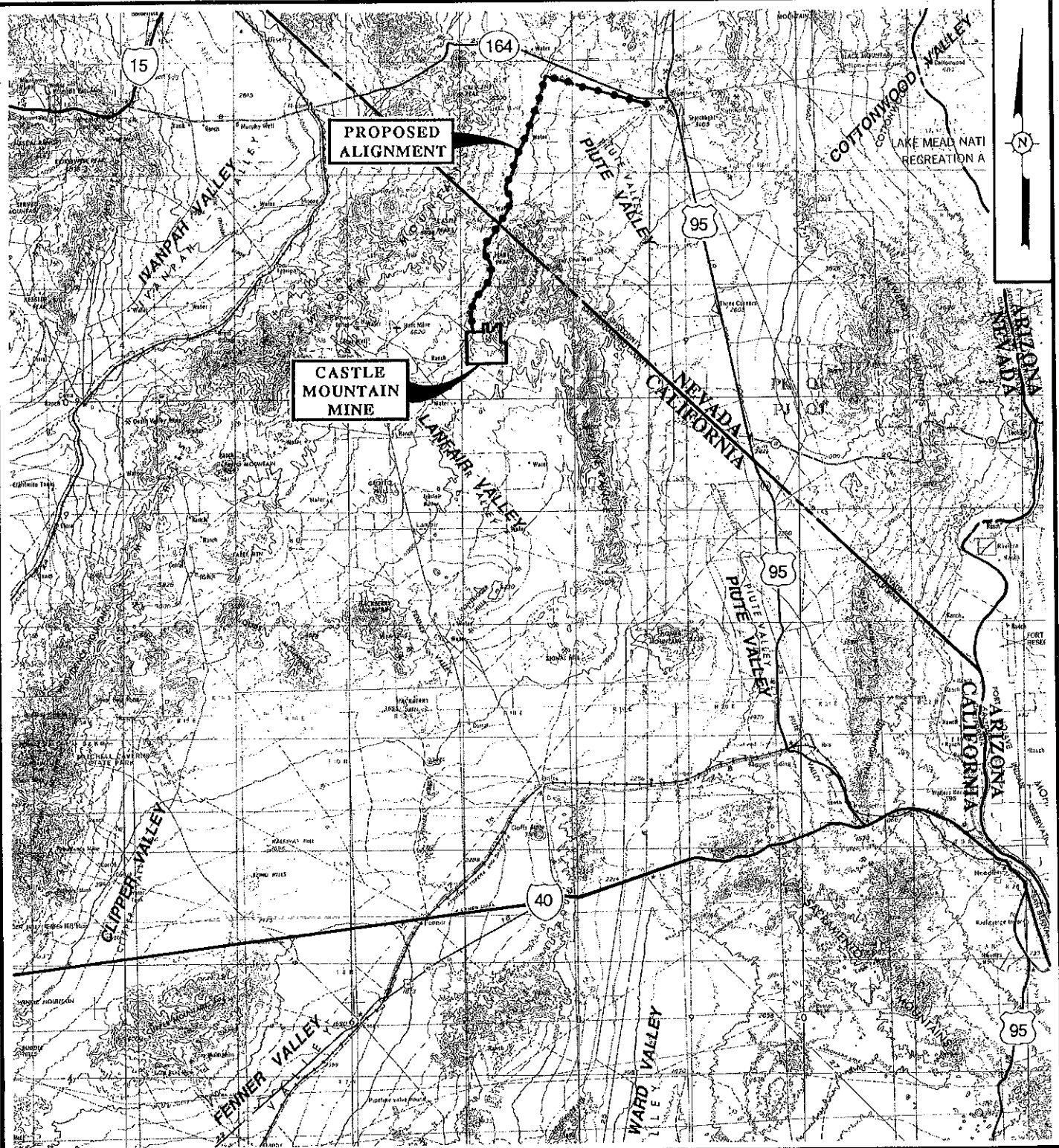
1. The proposed project would be located in north central Piute Valley, Nevada, and northern Lanfair Valley, California, as shown in Figure 2.1. Piute Valley is located in southern Clark County, Nevada. Lanfair Valley is located in eastern San Bernardino County, California.
2. The majority of the power line would be constructed on public lands administered by the BLM. About 3,700 feet of the power line would be located on private land owned by the Applicant as part of Walking Box Ranch property.

Figure 2.1

2.1.2 POWER LINE ALIGNMENT

1. The specific proposed power transmission line alignment is shown in Figure 2.2. The alignment for the transmission line has been selected to replace an existing power line from Searchlight to the Walking Box Ranch headquarters area, and to follow the mine access road between the ranch headquarters area and the mine site. Use of this alignment would therefore minimize new surface disturbance. As shown in Figure 2.2, the line consists of four alignment segments:
 - Segment A parallels an existing transmission line corridor that provides power to the Walking Box Ranch. This line segment extends approximately 5.9 miles and would be located in a 40 foot ROW.
 - Segment B is a short 0.7 mile line on private land, to avoid the historic Walking Box Ranch headquarters area.
 - Segment C follows 8.7 miles of the alignment of the approved Castle Mountain Mine access road from State Route 164 to the California/Nevada state line.
 - Segment D continues along the access road 6.8 miles to the mine site.

Total length of the transmission line would be 22.1 miles, about 15.3 miles in Nevada and 6.8 miles in California. The California portion would be within the EMNSA.
2. Although the power line is shown paralleling the west side at the road in Figure 2.2, the line as constructed in the field is likely to cross from one side of the road to the other at several points along Segments C and D.
3. No new roads would be required for power line construction or maintenance. However, construction and maintenance of power line Segment A may require repairing portions of the existing maintenance road where dry washes are crossed, by blading approximately a 10-foot wide (single lane) surface through such washes, to facilitate passage by construction vehicles. Segments C and D would require no additional road upgrading since they are being maintained for mine access. No changes to the Mitigated Access Route to the Castle Mountain Mine are anticipated for transmission line construction and maintenance.
4. Segment B is a transition from Segment A to Segment C that would occur on private land at the Walking Box Ranch headquarters area. To minimize the visual effects of a new power line at the historic ranch house, the segment alignment would avoid the ranch house and corral area, as shown in Figure 2.3. A metering station would be located at the east end of



0 8 16 MILES

SCALE
CONTOUR INTERVAL: 200 FEET

FIGURE 2.1

LEGEND

—••••• PROPOSED POWER LINE

REFERENCE: U.S.G.S. 1 X 2 DEGREE TOPOGRAPHIC MAPS OF KINGMAN, ARIZONA;
NEVADA; CALIFORNIA DATED 1954, AND NEEDLES, CALIFORNIA;
ARIZONA DATED 1956. BOTH MAPS REVISED IN 1969.

REGIONAL SITE LOCATION MAP

CASTLE MOUNTAIN MINE
POWER LINE PROJECT

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THIS FIGURE DEPICTS THE POWER LINE AS BEING LOCATED ON THE WEST SIDE OF THE ROAD. ACTUAL PLACEMENT WILL BE DETERMINED FROM FINAL DESIGN, BASED UPON TOPOGRAPHIC CONDITIONS. IT IS LIKELY THAT THE POWER LINE WILL ALTERNATE FROM ONE SIDE OF THE ROAD TO THE OTHER.

 APPROVED ACCESS ROAD
 PROPOSED POWER LINE
 (ROADSIDE TO BE DETERMINED)

LENGTH (MILES)	ROW (FEET WIDE)
----------------	-----------------

REFERENCE: U.S.G.S. 7.5 MINUTE TOPOGRAPHIC MAPS OF IVANPAH, CALIFORNIA-NEVADA; DAVIS DAM, ARIZONA-NEVADA; MESQUITE LAKE, CALIFORNIA-NEVADA; AND BOULDER CITY, ARIZONA-CALIFORNIA-NEVADA.
DATED: 1985, 1982, 1985, AND 1983 RESPECTIVELY.



CASTLE MOUNTAIN MINE
POWER LINE PROJECT

ENVIRONMENTAL SOLUTIONS, INC.

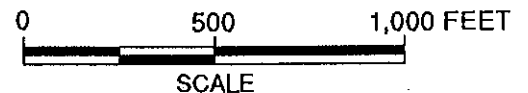
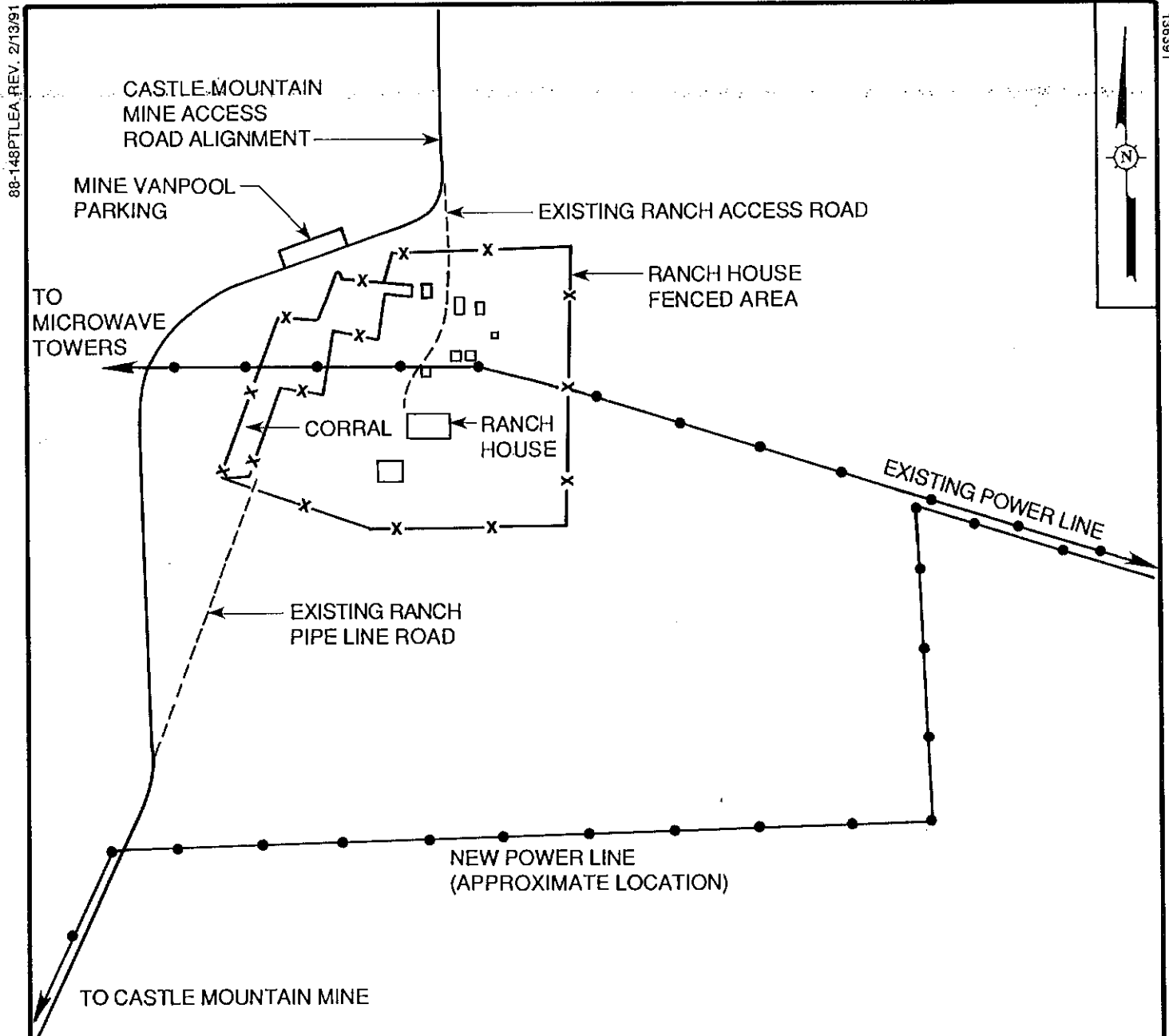


FIGURE 2.3
**POWER LINE ALIGNMENT AT
WALKING BOX RANCH
HEADQUARTERS AREA**

CASTLE MOUNTAIN MINE
POWER LINE PROJECT

REFERENCE: TAKEN FROM U.S.G.S. HOPPS WELL, NEVADA-CALIFORNIA,
7.5 MINUTE QUADRANGLES.

ENVIRONMENTAL SOLUTIONS, INC.

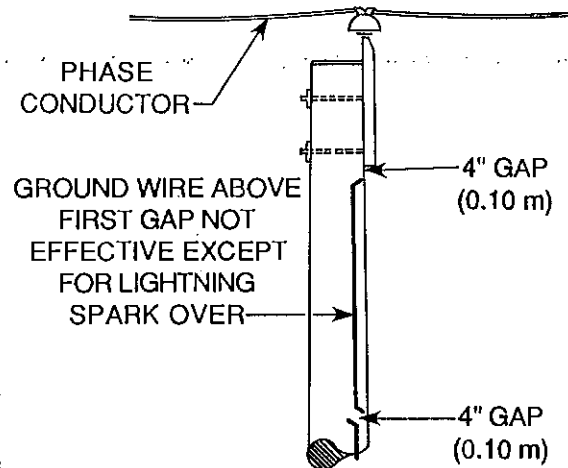
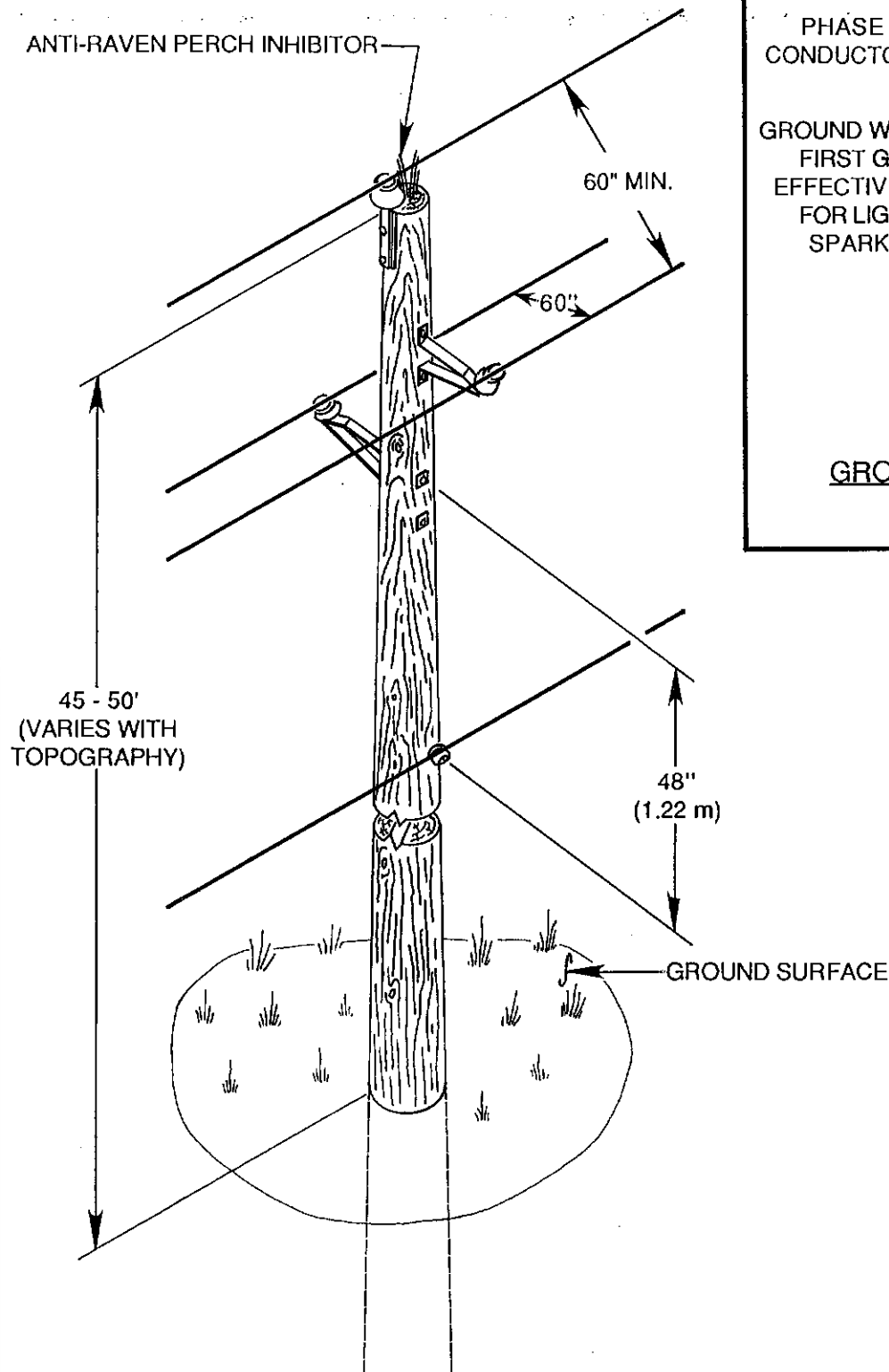
Segment B. The metering station would be an approximate 15 by 15 foot area surrounded by a 6-foot high chain link fence topped with barbed wire. The metering equipment would rest on a concrete pad within the fenced area.

5. Segment D is a 6.5-mile segment of the power line that would be located within the EMNSA. Multiple use guidelines in the EMNSA Management Plan indicate that, for transmission facilities on Class L (Limited Use) lands, "New distribution systems may be allowed and will be placed underground where feasible except where this would have a more detrimental effect on the environment than surface alignment. In addition, new distribution facilities shall be placed within existing ROW where they are reasonably available" (EMNSA Management Plan, Appendix C).
6. In accordance with this requirement, initial investigations for power line alignment considered the feasibility of underground cables. It was determined that underground cables within the existing road alignment would not be feasible, due to technical and safety considerations. Underground cables adjacent to the existing road alignment would be more detrimental to the environment, than the proposed surface power line. These considerations are summarized in Section 2.4.2 of this EA.
7. The proposed power line alignment has been located within established power and road ROW, in conformance with EMNSA Management Plan guidelines.

2.1.3 POWER POLE CONFIGURATION

1. The line would consist of single wood poles typically spaced 300 to 600 feet apart, each supporting three conductors. An overhead ground wire may be included. The planned pole and line configuration, shown in Figure 2.4, has been developed in accordance with suggested practices for raptor protection on power lines (Raptor Research Foundation, 1981).
2. Surface disturbance for pole and line installation would primarily be limited to an approximate 10 by 10 foot area at each pole site. This would result in a total surface disturbance of approximately 0.5 acres.⁽¹⁾ Vegetation would be crushed, as necessary, instead of cleared, to facilitate recovery.

(1) Based upon a 22-mile line with 10 poles per mile. At 100 square feet per pole installation, a total of 22,000 square feet would be disturbed, or 0.5 acres.



**GROUND WIRE GAPPING
DETAIL**

NOTE: LINE CONFIGURATION AND INTRA-LINE DISTANCES ARE IN ACCORDANCE WITH SUGGESTED PRACTICES FOR RAPTOR PROTECTION ON POWER LINES. THE STATE OF THE ART IN 1981. RAPTOR RESEARCH REPORT NO. 4, RAPTOR RESEARCH FOUNDATION INC., 1981.

FIGURE 2.4

**ARMLESS POWER POLE
AND LINE CONFIGURATION**

CASTLE MOUNTAIN MINE
POWER LINE PROJECT

ENVIRONMENTAL SOLUTIONS, INC.

2.2 ALTERNATIVES EVALUATED IN DETAIL

1. Alternatives to the proposed power transmission line include alternate alignments and alternate methods of providing power. The alternative to providing power to the mine via transmission lines would be onsite generation, which was previously authorized as part of mine permit approvals. The Proposed Action and alternate alignments are shown in Figure 2.5. These alternatives are discussed in the following sections.

2.2.1 CLARK COUNTY ROAD A68p POWER LINE ALTERNATIVE

2.2.1.1 Alternative Project Location

1. The Clark County Road A68p Alternative would be located in central Piute Valley, Nevada, and use the same alignment as the Proposed Action through northern Lanfair Valley, California, as shown in Figure 2.5.

2.2.1.2 Power Line Alignment

1. The shortest power line alignment to the site would be from the Searchlight substation to the Castle Mountain Mine via Clark County Road A68p and the Castle Mountain Mine access road, as shown in Figure 2.5. The power line would be constructed along the existing A68p alignment. From the terminus of this road (near the California/Nevada state line), the power line would parallel the Mitigated Access Route (Segment D) to the mine site. No new roads would be required for line construction or maintenance. Total line length would be nearly 20 miles.

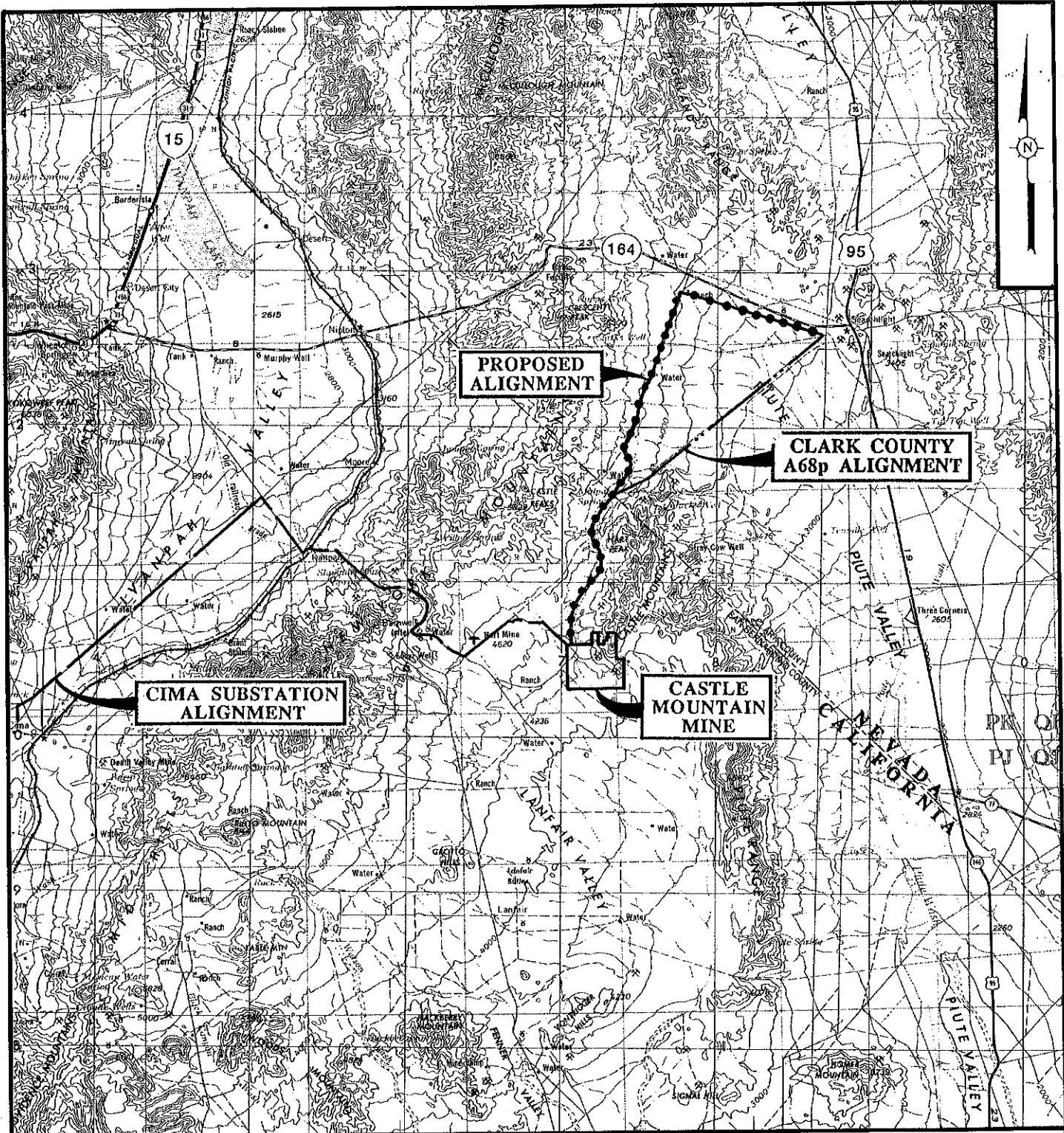
2.2.1.3 Power Pole Configuration

1. Power pole configuration would be as described for the Proposed Action.

2.2.2 NO ACTION ALTERNATIVE

2.2.2.1 Approved Onsite Power Generation

1. Approval of the Castle Mountain Mine by the BLM and County included use of onsite generators for electrical power. The San Bernardino County Air Pollution Control District has issued a New Source Review document and Authority to Construct permits approving use of propane-fired generators for the life of the project. The generators would be centrally located

**LEGEND**

POWER LINE ALTERNATIVE	LINE LENGTH (MILES)
PROPOSED ACTION	26.5
CIMA SUBSTATION	29.5
CLARK COUNTY ROAD A68p	19.6

0 5 10 MILES

SCALE

CONTOUR INTERVAL: 200 FEET

FIGURE 2.5

ALTERNATIVE POWER LINE ALIGNMENTS

CASTLE MOUNTAIN MINE
POWER LINE PROJECT

REFERENCE: U.S.G.S. 1 X 2 DEGREE TOPOGRAPHIC MAP OF KINGMAN, ARIZONA; NEVADA; CALIFORNIA DATED 1954, AND REVISED IN 1969.

ENVIRONMENTAL SOLUTIONS, INC.

at the mine. Power transmission lines would deliver electricity to onsite facilities and offsite to the west well field water pumps. Propane generator fuel would be delivered daily by truck. About two fuel trucks per day would be required.

2. Should power transmission lines to the mine be determined infeasible based upon environmental or other considerations, the previously approved program of onsite power generation would be implemented.

2.2.2.2 Comparison to Proposed Action

1. The environmental consequences of onsite fuel generation were evaluated in the Castle Mountain Project EIS/EIR. Elimination of propane-fired generators would reduce the amount of air contaminants potentially produced over the life of the mine and their effects on local and regional air quality. As compared to this alternative, the Proposed Action would reduce the potential for tortoise deaths along the access road.
2. Based upon air quality considerations, the approved onsite generation would appear to be less desirable than the Proposed Action. This alternative would not further reduce daily traffic to the mine, which was one objective of the EIS/EIR studies.
3. The Applicant has indicated that the proposed power line would be more economically desirable than the approved onsite power generation, due to the lower cost and greater reliability of utility power compared to onsite generation with propane.

2.4 ALTERNATIVES CONSIDERED AND REJECTED

1. The following alternatives were initially considered and subsequently rejected as infeasible, based on either environmental or technical considerations. These alternatives are not evaluated further in other sections of this EA.

2.4.1 CIMA SUBSTATION POWER LINE ALTERNATIVE

2.4.1.1 Power Line Alignment

1. An alternative source of power for the Castle Mountain Mine could potentially be via a transmission line extending from a Southern California Edison Company substation located near Cima, California, in the Ivanpah Valley shown in Figure 2.5. Assuming the alignment

would follow existing power transmission corridors and roads in the area rather than a direct route to the site (traversing the New York Mountains), the alignment shown would represent the shortest distance for a power line from Cima to the mine. The westerly segment of the line would be constructed within an existing power transmission line corridor from the Cima substation approximately 12 miles north to Ivanpah Road. The easterly segment would extend from the existing transmission corridor approximately 18 miles along Ivanpah Road and Hart Mine Road to the Castle Mountain Mine. No new roads would be required for power line construction or maintenance. Total transmission line length would be nearly 30 miles.

2.4.1.2 Comparison to Proposed Action

1. Construction of a power transmission line from the Cima Substation to the Castle Mountain Mine would be expected to result in environmental effects similar to, or greater than, the Proposed Action. The 30-mile Cima Substation Power Transmission Line Alternative would be constructed entirely within the EMNSA, including 5.5 miles along a paved County road. In addition, an 0.5-mile segment of Ivanpah road is bounded by WSAs 265 and 266. Since construction of the power line in a WSA would not be permitted, construction of this segment would be problematic.
2. Also, over ten miles of this alignment would be located in high density (50 to 250 tortoises per square mile) Category 1 tortoise habitat in Ivanpah Valley. Compared to the Proposed Action, this alternative appears to offer no substantial environmental advantage. Based upon these considerations, this alternative is considered infeasible.
3. The Applicant has also indicated that this alternative would be less desirable than the Proposed Action, due to a longer transmission line length resulting in higher construction, maintenance, and power transmission costs almost 50 percent greater than with the Proposed Action or the Clark County Road A68p Alternative.

2.4.2 UNDERGROUND POWER LINE ALTERNATIVE

1. The feasibility of underground power line facilities was considered for potential environmental benefits. Underground facilities would consist of cables laid in a trench with a minimum depth of 2 feet. The cable would be laid in lengths of 5,000 feet, and underground manhole vaults would therefore be constructed every 5,000 feet along the alignment for access to cable connections.

2. According to the Applicant's engineer, the underground cable should be laid adjacent to the existing mine access road (as opposed to within the road bed) for both safety and maintenance reasons. Routine grading over a cable located in a dirt road could expose the cable. Deep scarifying is necessary for maintenance and locating the cables in the road bed could result in serious injury or electrocution of road maintenance personnel if equipment were to come into contact with the cables.
3. The Applicant's engineer has also noted that repairing underground power cable problems would require mine power shutdown for extended period (several days) to enable location, excavation, and reburial of the cables, as compared to several hours for comparable repair of an overhead line. Repairs to the latter system could be accomplished without disrupting traffic on the road.
4. Locating the cable within the road alignment would be expected to result in off-road surface disturbances (as compared to an off-road alignment), because traffic would have to be detoured off the mine road around cable installation crews as the cable is being laid and when maintenance/repair is necessary.

2.4.2.1 Power Line Alignment

1. As for the overhead power line alternatives, alignment of the underground power line would need to be constructed adjacent to existing road alignments to avoid construction of new roads. For purposes of this analysis, it is assumed that the underground cable would be laid along the same alignment as the Proposed Action, illustrated in Figure 2.2.

2.4.2.2 Comparison to Proposed Action

1. The primary environmental effects of this alternative would occur as a result of construction. The project would require trenching for cable placement and each of the approximately 23 manhole vaults. Cable trenching would require a cut about 1-foot wide and up to 3-feet deep. The vaults would be coffin-shaped concrete boxes dimensioned 3 feet by 3 feet by 10 feet. Vault placement would require an approximate 4-foot deep trench, 4 feet by 12 feet long. Trenching equipment and activities would disturb an approximate 6-foot wide path that would need to be along the cable route, with an area of disturbance of approximately 15 feet by 6 feet (90 square feet) at each vault site. Total surface disturbance would be about 16 acres.

2. Construction of the Underground Power Line Alternative would be expected to result in greater impacts to vegetation, wildlife, and potentially to cultural resources as compared to the Proposed Action. Vegetation and wildlife habitat would be affected as a result of construction disturbance. Wildlife would be indirectly affected by the habitat disturbance, while burrowing animals could be directly affected. Buried cultural resources could be disturbed by trenching activities.
3. Visual impacts of the underground line would primarily result from the removal of vegetation. This may be considered a reduced impact in terms of the visibility of man-made features, as compared to the proposed power line and poles. However, it is recognized that vegetation recovery of areas disturbed in order to bury power cables would require an extended time period, whereas overhead power lines would be removed at project completion. Reclamation would initiate vegetation recovery. As for the Proposed Action, views of the facilities and disturbance would primarily be limited to travelers along the mine access road.
4. The Underground Power Line Alternative appears to offer no substantial environmental advantage, as compared to the Proposed Action. The more intensive construction activities and greater vegetation and wildlife habitat disturbance associated with installation of underground cables would be avoided by the Proposed Action. The potential advantage to visual resources that would occur through the absence of overhead power lines for the life of the mine appears to be offset by the more extensive surface disturbances and long-term vegetation recovery associated with an underground line. Based upon the overall greater environmental effects that could be realized, this alternative is considered infeasible.

3.0 DESCRIPTION OF EXISTING ENVIRONMENT

1. The majority of the proposed transmission line alignment was evaluated for environmental resources in conjunction with the environmental analysis for the Castle Mountain Mine access road, as discussed in the Castle Mountain Project Final EIS/EIR (BLM and County, 1990), incorporated by reference. In particular, the existing environment is described in Chapter 4.0 of the Draft EIS/EIR. Field studies and personnel involved are described in Appendix A. Relevant information is summarized in the following.

3.1 REGIONAL ENVIRONMENT

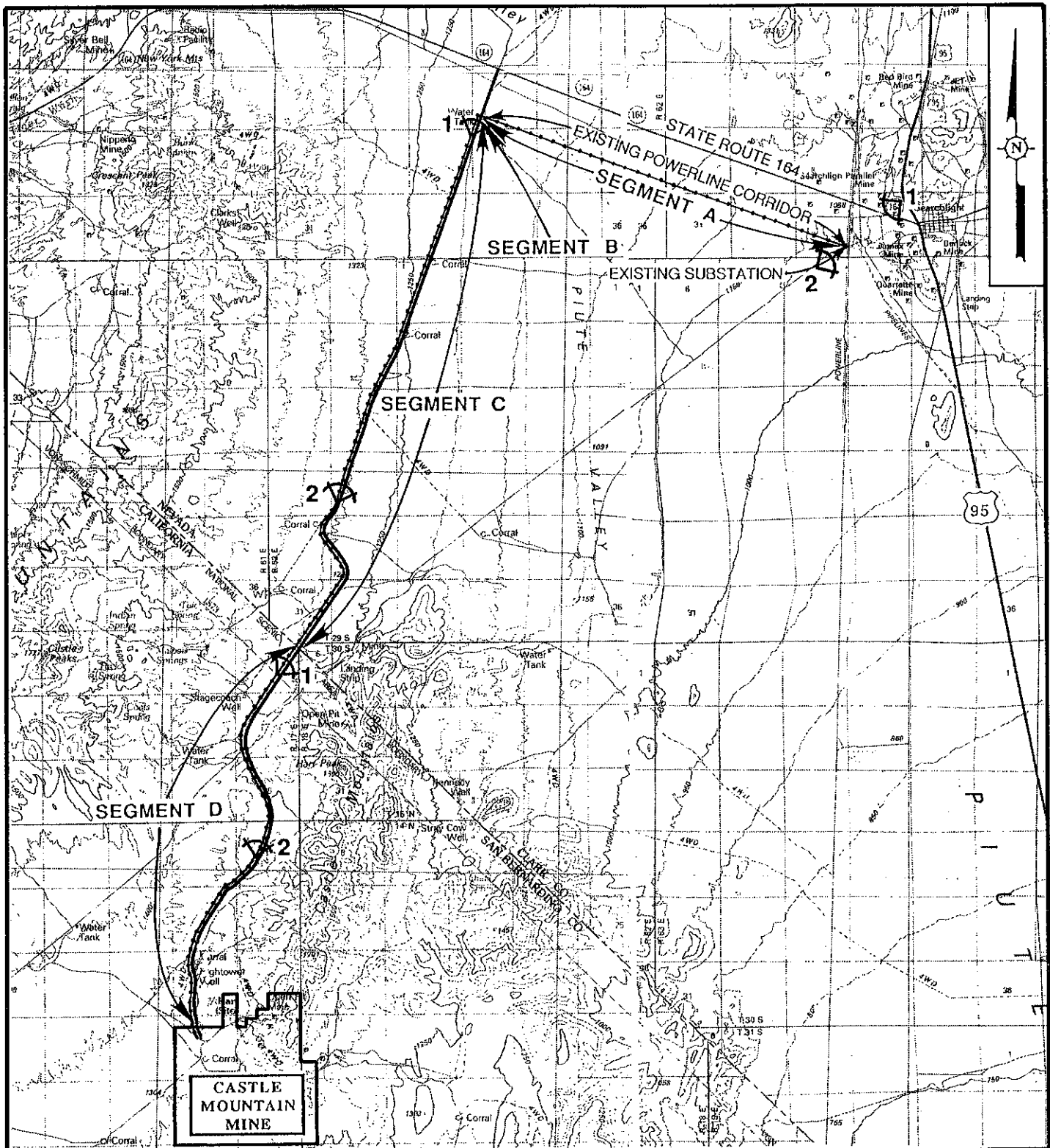
1. Piute Valley is a north-south oriented valley typical of the basin and range geomorphic province. It is approximately 40 miles long and averages about 15 miles wide. The valley is bounded by several mountain ranges, including the Dead Mountains and Piute Range at the southern end and the Castle Mountains, Newberry Mountains, and Bromand Range at the northern end.
2. Vegetation cover on the valley floor is dominated by creosote bush scrub community, with Joshua tree woodland occurring on gentle slopes at higher elevations (between about 3,700 and 4,400 feet on upper alluvial fans and bajadas). Wildlife in the area is comprised of widely distributed species typically associated with Mojave Desert habitats. Creosote bush scrub and Joshua tree woodland are widespread, and therefore support a fauna that consists of widely distributed species.
3. The climate of the area is semi-arid, with low annual rainfall and generally warm temperatures. Precipitation generally does not exceed 10 inches. Representative temperatures at Searchlight have historically ranged from 8 to 109 degrees Fahrenheit, with an average annual temperature of 63 degrees Fahrenheit. Piute and Lanfair Valleys are typical of such valleys in the Mojave Desert, with alluvial flatlands surrounded by gently sloping bajadas and steep sloped mountains.
4. U.S. Highway 95 traverses Piute Valley from north to south, providing the major access through the area. The community of Searchlight located in central Piute Valley is the largest population center (about 600 residents) and is located at the junction with the primary east-west access, State Highway 164.

5. Land use in the region is characterized by low intensity activities common to the desert areas of southern Nevada and eastern California. Land ownership in the region is dominated by public lands administered by the BLM. Livestock grazing is the most widespread activity, and much of the area includes BLM livestock grazing allotments. Other activities include mining and recreation/tourism.

3.2 LOCAL ENVIRONMENT

1. The proposed 22.1 mile long transmission line would originate at the Nevada Power Company substation on the west side of Searchlight, traverse Piute Valley to the Walking Box Ranch headquarters area, then follow the mine access road south to the state line, and continue through a pass between the Castle Mountains and New York Mountains into northern Lanfair Valley. Photograph locations and views of the power line alignment are shown in Figures 3.1, 3.2, 3.3, and 3.4. Elements of the existing environment potentially affected by power line construction and maintenance are described in the following paragraphs.
2. Land uses in the vicinity of the power line encompass a range of unrelated activities, primarily including off-highway vehicle (OHV) and other forms of recreational use, livestock grazing, and mineral extraction.
3. The OHV activities in Piute Valley occur in accordance with the BLM Stateline Resource Area Management Framework Plan, and in Lanfair Valley in accordance with the EMNSA Management Plan. Travel in both of these areas is limited to existing routes and trails. The East Mojave Heritage Trail uses Clark County Road A68p between the northern Castle Mountains and Searchlight. Other forms of recreational use include sightseeing, hiking, camping, hunting, bird watching, and rock collecting. These activities have not required major improvements.
4. Livestock grazing has been practiced in the region since the end of the 19th century, and BLM grazing allotments cover much of the region. The proposed power line would traverse portions of the Crescent Peak and Lanfair Valley Allotments. The Crescent Peak Allotment Grazing Permit (Nevada) and Grazing Lease (California) are held by the Applicant.
5. Isolated exploration and/or ongoing mineral extraction activities occur in the area. The majority of local activities are centered in the northern New York Mountains in the vicinity of Crescent Peak, Nevada. The Castle Mountain Mine is the largest local mining project.

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**LEGEND**

- APPROVED ACCESS ROAD
- PROPOSED POWER LINE
- ① VIEWPOINT LOCATION AND DIRECTION

NOTE: SEE FIGURES 3.2, 3.3 AND 3.4 FOR
CORRESPONDING PHOTOGRAPHS.

REFERENCE: U.S.G.S. 7.5 MINUTE TOPOGRAPHIC QUADRANGLE MAPS
OF IVANPAH, CALIFORNIA-NEVADA; DAVIS DAM, ARIZONA-
NEVADA; MESQUITE LAKE, CALIFORNIA-NEVADA; AND
BOULDER CITY, ARIZONA-CALIFORNIA-NEVADA.
DATED: 1985, 1982, 1985 AND 1983 RESPECTIVELY.

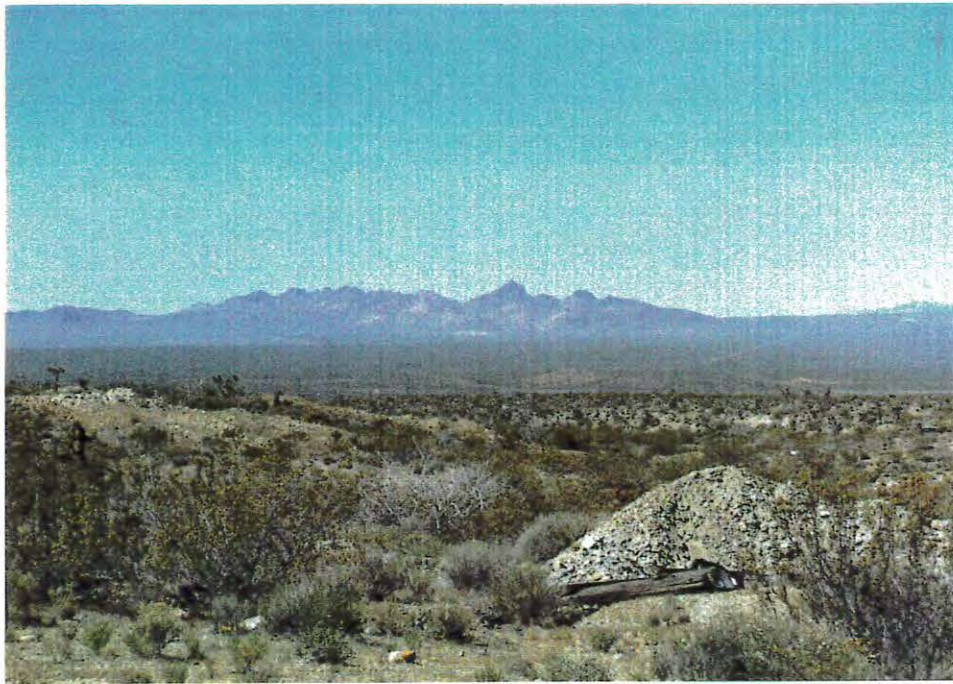


FIGURE 3.1

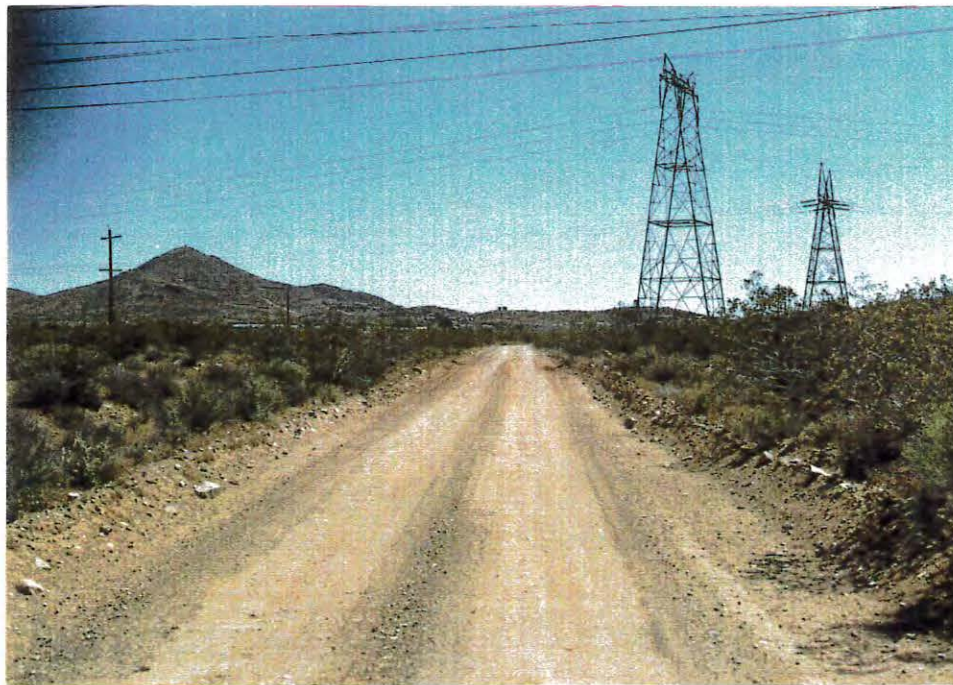
PHOTOGRAPH VIEWPOINT LOCATIONS

CASTLE MOUNTAIN MINE
POWER LINE PROJECT

ENVIRONMENTAL SOLUTIONS, INC.



VIEWPOINT 1: View of Piute Valley and Castle Mountains from Searchlight. Segment "A" of proposed power line would traverse valley. View southwest.



VIEWPOINT 2: High voltage power transmission corridor west of Searchlight in Piute Valley. Castle Mountain Mine power line would begin at nearby Nevada Power Company substation. View northeast.

FIGURE 3.2

**POWER LINE
CORRIDOR PHOTOGRAPHS
SEGMENT A**

CASTLE MOUNTAIN MINE
POWER LINE PROJECT

ENVIRONMENTAL SOLUTIONS, INC.



VIEWPOINT 1: South entrance to Walking Box Ranch Headquarters Area. Power line segment "B" would bypass headquarters fenced area and continue south along mine access road.



VIEWPOINT 2: Mine access road alignment in Piute Valley. This road corridor, to be upgraded in accordance with mine development stipulations, would also serve as power line corridor segment "C". View north.

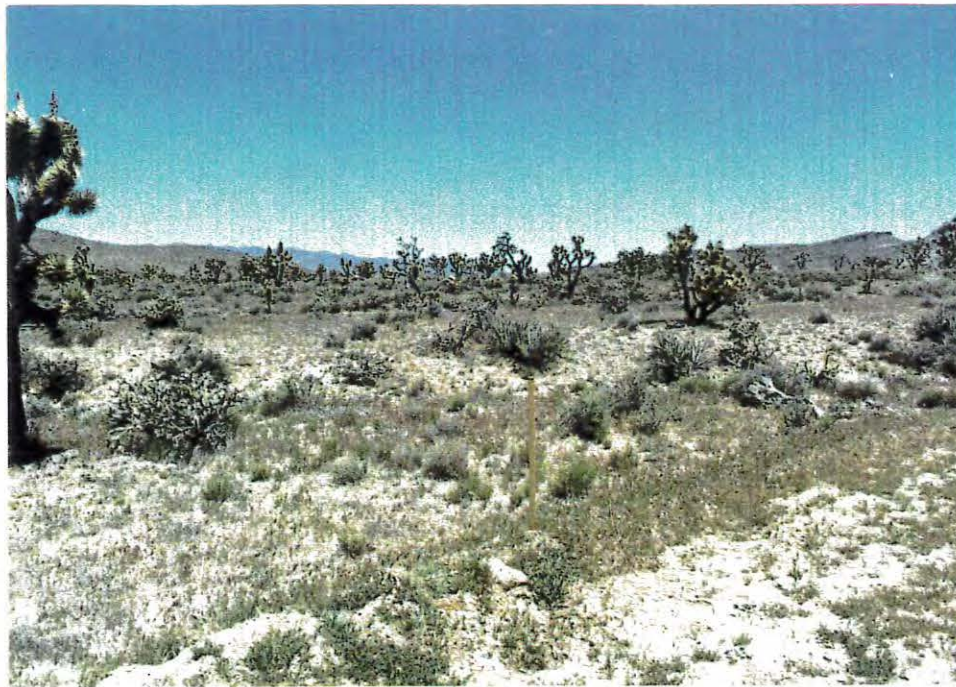
FIGURE 3.3
POWER LINE
CORRIDOR PHOTOGRAPHS
SEGMENTS B AND C

CASTLE MOUNTAIN MINE
POWER LINE PROJECT

ENVIRONMENTAL SOLUTIONS, INC.



VIEWPOINT 1: Mine access road alignment between northern Castle Mountains and New York Mountains in California.



VIEWPOINT 2: Portion of new/realignment mine access road to be constructed in northern Lanfair Valley. Power line would follow road alignment.

FIGURE 3.4
**POWER LINE
CORRIDOR PHOTOGRAPHS
SEGMENT D**

CASTLE MOUNTAIN MINE
POWER LINE PROJECT

ENVIRONMENTAL SOLUTIONS, INC.

3.2.1 VISUAL RESOURCES

1. The proposed power line corridor is located in northern Piute Valley and Lanfair Valley. The route in northern Piute Valley is topographically flat to gently sloping alluvial valley floor with vegetation cover comprised of creosote bush scrub (Figure 3.2). In the vicinity of the Walking Box Ranch headquarters, elevation increases, and the creosote bush scrub vegetation has an overstory of Joshua trees (Figure 3.3). Similar vegetation cover and gently rolling topography occur along the majority of the route to the mine (Figure 3.4).
2. Human modifications near Searchlight include scattered residences and the high voltage power transmission line corridor, which extends from north to south through Piute Valley. Walking Box Ranch facilities include an approximate six mile power line from the Searchlight substation the ranch headquarters area and several other structures to support the ranching operation, and various fences, corrals, water tanks, and other appurtenant improvements. Maintenance roads for fencing and watering facilities associated with the Crescent Peak Allotment and the Lanfair Valley Allotment occur along the remainder of the proposed power line alignment to the mine site. Scattered disturbances from previous mining and exploration activities are visible from the power line corridor/access route, primarily in the foothills of the northern Castle Mountains and New York Mountains.

3.2.2 VEGETATION

1. The power line corridor lies in two common Mojave desert vegetation communities: creosote bush scrub and Joshua tree woodland.
2. The creosote bush scrub community occurs on the valley floor and lower slopes of alluvial fans in Piute and Lanfair Valleys, generally below elevations of about 4,000 feet. Common species of this community include the creosote bush (*Larrea tridentata*), Mojave yucca (*Yucca schidigera*), burrobush (*Ambrosia dumosa*), mormon tea (*Ephedra nevadensis*), and fiddleneck (*Amsinckia intermedia*). Desert washes in this community support additional floristic components, the most common being the desert almond (*Prunus fasciculatus*) and catclaw acacia (*Acacia greggii*).

3. Joshua tree woodland occurs on gentle slopes with sandy or gravelly soils at elevations between 3,700 and 4,400 feet in northern Lanfair Valley. The most visible plant in this community is the Joshua tree (*Yucca brevifolia jaegeriana*), which is a member of the agave family. These trees can reach heights of 10 to 30 feet and are scattered, with shrubs and herbs between. Other common species in this community include matchweed (*Gutierrezia microcephala*), cheesebush (*Hymenoclea salsola*), and staghorn cholla (*Opuntia acanthocarpa*).

3.2.3 WILDLIFE

1. The desert tortoise is the single threatened species that occurs in the vicinity of the power line alignment. Other species of special interest (Category 2 candidates) that could occur in the area include a reptile (gila monster), two birds (ferruginous hawk, Swainson's hawk), and one mammal (Townsend's big-eared bat). Species of plants and animals that are of special interest to the FWS, California Department of Fish and Game (DFG), and BLM and are known or expected to occur on the project site or in the region are shown in Appendix B. These species are of special concern for a variety of reasons, such as declining populations, vulnerability to habitat change, or restricted distributions and natural rareness.

3.2.3.1 Birds

1. Most of the birds expected to be found in the Lanfair Valley region may not be permanent residents, but simply fly over, forage, or feed in the area for a short time, often seasonally. Because of the absence of water, their numbers are expected to be limited. The birds listed in Appendix B are widely distributed desert species.
2. Several raptors (falcons, eagles, vultures, hawks, and owls), all widely distributed species, occur or are expected to occur within the region. These raptors are of interest because of their role in the natural ecosystem balance and are known to feed throughout the area. Owl species, the kestrel, and possibly the red-tailed hawk (*Buteo jamaicensis*) may nest locally. An immature gold eagle (*Aquila chrysaetos*) was observed in Lanfair Valley about three miles south of the proposed project site. This species probably nests at higher elevations and cliffs in the New York Mountains and elsewhere in the region and forages widely throughout the desert. Prairie falcon (*Falco mexicanus*) and Bendire's thrasher (*Toxostoma bendirei*)

are known to occur in the region. Gray vireo (*Vireo vicinior*) and Swainson's hawk (*Buteo swainsoni*) have also been noted. These are species of fairly wide distribution, but the prairie falcon and Swainson's hawk are not common.

3. Open pools of water often attract migrating birds. Those that visit pools of water at the edge of the mostly dry Soda Lake, located about 50 miles to the west in California, are listed in Appendix B. Some of these species may occasionally visit areas where there is standing water, such as at livestock watering facilities.

3.2.3.2 Mammals

1. Lists of mammals observed or expected in Lanfair and Piute Valleys are presented in Appendix B. Most are common and wide-spread species typical of high desert areas. Common species include the coyote (*Canis latrans*), blacktail jackrabbit (*Lepus californicus*), desert cottontail (*Sylvilagus auduboni*), and the whitetail antelope ground squirrel (*Ammospermophilus leucurus*). Desert woodrat (*Neotoma lepida*) nests have been observed on the project site. Several species of mice (*Peromyscus* spp.) and other common small mammals also are expected to be present. Desert bighorn sheep (*Ovis canadensis*) live in the surrounding mountains.

3.2.3.3 Reptiles

1. The only threatened or endangered species known or expected to occur on or in the vicinity of the proposed power line is the desert tortoise (*Gopherus agassizii*). Desert tortoise populations have declined over the last 50 years due to taking of animals as pets, shootings, road kills, raven predation, destruction of burrows by off-road vehicles and cattle, reduction in habitat, destruction of habitat quality, and diseases. In response to this decline, BLM has recently adopted a range-wide plan for managing desert tortoise habitat. A Resource Management Plan to address management of desert tortoise habitat in Nevada is currently being developed. The FWS listed the Mojave population of the desert tortoise as a threatened species on April 2, 1990, pursuant to the Endangered Species Act of 1973.
2. Although of limited abundance at the elevations of the northern Lanfair Valley, large tortoise populations exist in Piute Valley and other lower elevations valleys in the Mojave Desert of Nevada and California. Access to the Castle Mountain Mine, through northern Lanfair Valley and northern Piute Valley, was planned to avoid travel through Category 1 desert tortoise

habitat, as shown in Figure 3.5. Segment A of the power line would traverse the northern limits of Category 1 habitat near State Highway 164. Segments C and D would follow the mine access road that was sited out of Category 1 habitat.

3. Tortoise population densities along the Walking Box Ranch pipeline service road were evaluated by BLM Stateline Resource area biologists in August 1989. The results, included with previously recorded data in Figure 3.6, indicate low densities (less than 20 tortoises per square mile) in this area of Piute Valley.
4. Other reptile species which may be found in the region are typical of similar locations in the eastern Mojave Desert. Most are widely distributed species of lizards and snakes. Species expected and observed in the area are listed in Appendix B.

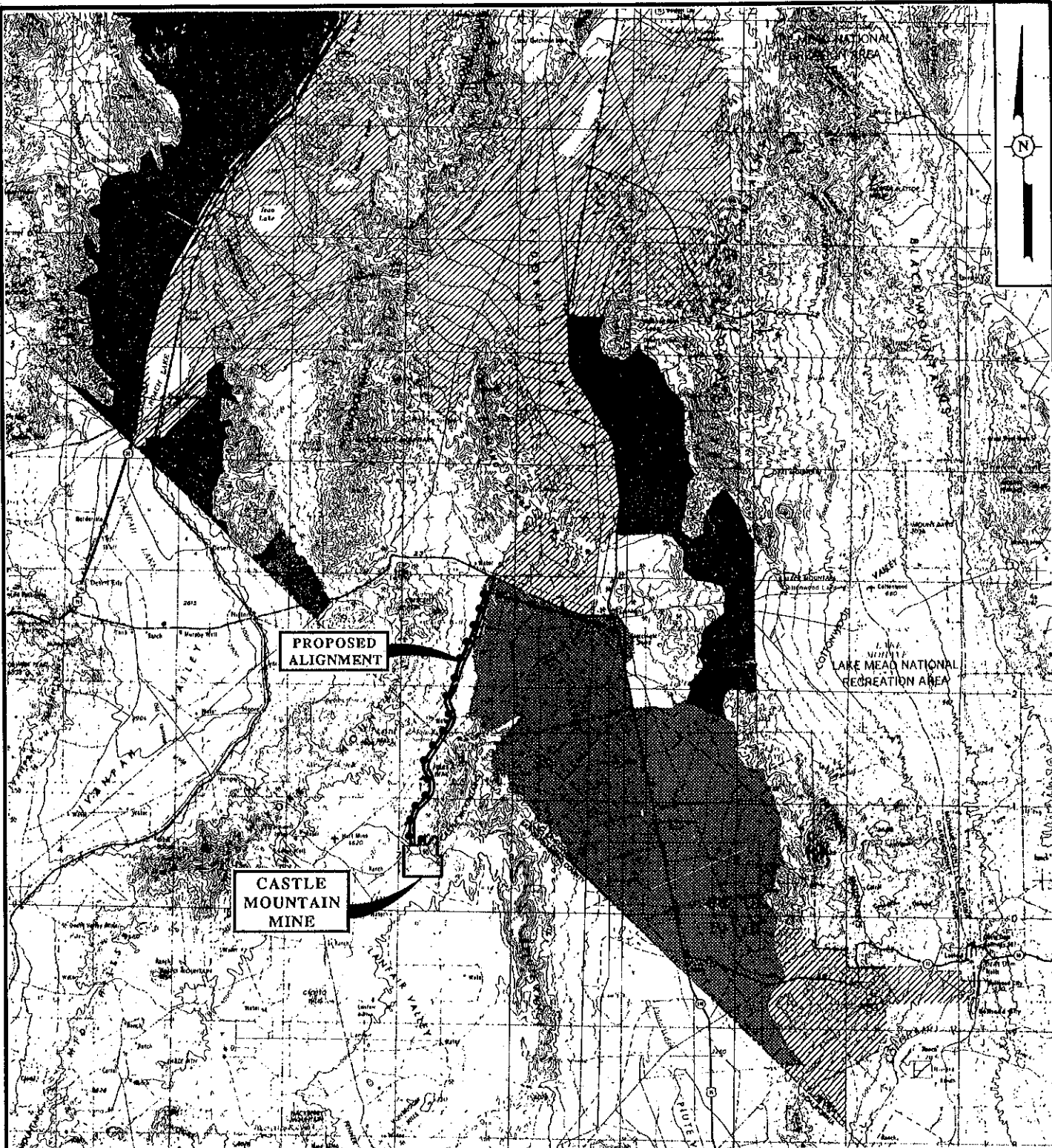
3.2.4 CULTURAL RESOURCES

3.2.4.1 Inventories

1. The Class III cultural resource inventories along the majority of the proposed power line alignment have been completed in conjunction with the Castle Mountain Project EIS/EIR.
2. Section 106 of the National Historic Preservation Act (NHPA) establishes procedures for determination of eligibility for listing historic and archaeological sites on the National Register of Historic Places (NRHP). Concurrence on the corridor to be used for the power line has been received from the Nevada and California State Historic Preservation Offices (SHPO), respectively, largely in conjunction with review and approval of the Castle Mountain Mine access road.

3.2.4.2 Regional History

1. Active settlement of the region began in the second half of the 19th century and early part of the 20th century, with the advent of mining and farming activities. Various small mining operations and towns were established in the New York Mountains (e.g., Vanderbilt) and Castle Mountains (Hart), in Searchlight, Nevada, and at other locations within the region. The Nevada Southern Railroad was built to Barnwell, a town that served as a supply point for mining towns in the region. The railroad was later extended into the Ivanpah Valley as the California Eastern Railroad. A branch of this railroad, the Barnwell and Searchlight Railroad,

**LEGEND**

- CATEGORY I TORTOISE HABITAT
- CATEGORY II TORTOISE HABITAT
- /// CATEGORY III TORTOISE HABITAT
- PROPOSED POWER LINE ALIGNMENT
- CASTLE MOUNTAIN MINE ACCESS ROAD

REFERENCE: PROPOSED CATEGORIZATION OF DESERT TORTOISE HABITAT IN THE LAS VEGAS DISTRICT, INTERIM CATEGORY MAP DATED AUGUST 8, 1989. THIS MAP IS BASED ON THE U.S.G.S. 1X2 DEGREE TOPOGRAPHIC MAP OF KINGMAN, ARIZONA; NEVADA; CALIFORNIA. DATED 1954 AND REVISED IN 1969.

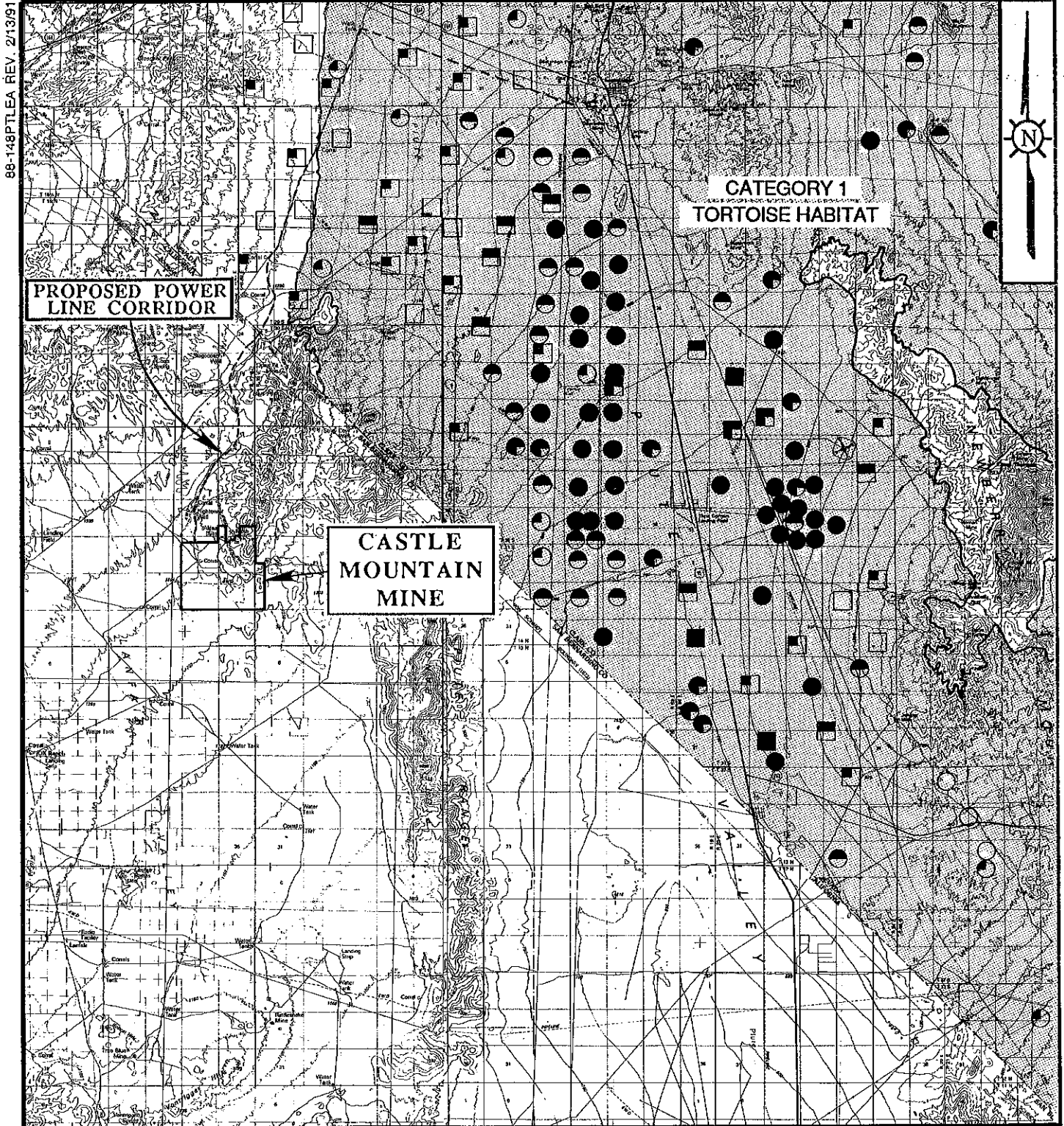
0 8 16 MILES
SCALE

FIGURE 3.5

NEVADA DESERT TORTOISE HABITAT

CASTLE MOUNTAIN MINE
POWER LINE PROJECT

ENVIRONMENTAL SOLUTIONS, INC.



LEGEND

TRANSECTS PRIOR TO 1987	CONDUCTED POST 1987	NUMBER OF TOTAL ADJUSTED SIGN (TAS)	RELATIVE DENSITY
		0	LOW
		1-3	LOW
		4-7	MODERATE
		8-11	MODERATE-HIGH
		> 12	HIGH-VERY HIGH

0 2 4 MILES
SCALE

FIGURE 3.6

NORTHERN PIUTE VALLEY DESERT TORTOISE POPULATION DENSITIES

CASTLE MOUNTAIN MINE
POWER LINE PROJECT

ENVIRONMENTAL SOLUTIONS, INC.

SOURCE: B.L.M. TORTOISE TRANSECTS STUDY 1987.
REFERENCE: 30X60 MINUTE U.S.G.S. TOPOGRAPHIC MAP OF
IVANPAH, CALIFORNIA-NEVADA
DATED: 1979

was built between these two communities to serve mining operations in Searchlight. In the early 1920s, these lines were abandoned with the decline in mining and farming activities in the region and because of storm damage to rail facilities.

2. Cattle ranching was introduced into the area in the late 19th century, followed by dry farming in the first two decades of the 20th century. With the advent of homesteading and settlement, small farm towns, including Lanfair, Dunbar, and Maruba were established at points along the alignment of the Nevada Southern Railroad (now Lanfair Road).

3.2.4.3 Prehistory and Archaeology

1. The earliest dated period of human occupation in the eastern Mojave Desert is presently established at 10,270 years before present (BP). This period is characterized by the Lake Mojave Complex, when the Soda and Silver playas were inundated by Pleistocene Lake Mojave following the last period of glaciation. The subsistence economy of the inhabitants at this time is thought to have been based on generalized hunting.
2. With the transition to a more arid and warmer climate following the Pleistocene, subsistence practices changed, and new cultures developed. The Pinto Complex (7,000 to 4,000 BP) saw the development of a more migratory society exploiting a number of environments, with a greater reliance on more diverse plant resources. The Gypsum Period (4,000 to 1,500 BP) marked the beginning of seed milling technology, selective gathering, and surplus stockpiling. Ceramics and turquoise mining were introduced into the area in the following Saratoga Springs Period (1,500 to 700 BP).
3. The final period of human occupation in the eastern Mojave prior to Euro-American expansion was the Shoshonean Period. Southern Piute groups had migrated southward, replacing the long standing Mojave groups. The Chemehuevi, an offshoot of the Southern Piute, occupied the Castle Mountain Project site in historic times. These groups were wide-ranging foragers and many eventually settled on the Colorado River and adopted farming.

4.0 ENVIRONMENTAL CONSEQUENCES AND MITIGATION MEASURES

1. Impacts of mine access road construction, maintenance, and use were addressed in the Castle Mountain Project EIS/EIR. It was determined that potential adverse impacts could be mitigated by design of the access route and additional mitigation measures incorporated into the project.
2. The impacts of the mine access road on the desert tortoise were specifically addressed in the Castle Mountain Project Biological Assessment. The Biological Assessment was prepared for formal consultation with the FWS in accordance with Section 7 of the Endangered Species Act. FWS issued its Biological Opinion concluding that the project would not be likely to jeopardize the tortoise.
3. The following sections address the potential for additional impacts to be created by installing the proposed power line along side the mine access road. In addition, Segment A located adjacent to an existing power line and Segment B bypassing the Walking Box Ranch headquarters area are evaluated.
4. Aspects of the project considered in this evaluation include:
 - Power line assembly/installation
 - Power line maintenance
 - Power line removal and surface reclamation

4.1 CONSIDERATIONS FOR IMPACTS AND MITIGATION MEASURES

1. The impact evaluations in this chapter address foreseeable effects on the existing environment that would occur from implementation of either the Proposed Action or the No Action Alternative. For purposes of this analysis, an environmental impact is defined as a change in the status of the existing physical conditions that would be affected by the Proposed Action. The effects can be "direct" (or primary), which are caused by the project and occur at the same time and place, or indirect (or secondary) which are caused by the project and are later in time or farther removed in distance, but are still reasonably foreseeable. The duration of the effect can be temporary (short-term) or relatively permanent (long-term). Anticipated effects are assessed quantitatively and/or qualitatively, as appropriate.

2. Considerations for evaluating adverse impacts are based upon changes to the existing environment that could result in substantial detrimental effects. These effects are evaluated with regard to:
 - Resource sensitivity, or the probable response of a particular resource to project-related activities.
 - Resource quality, or the present condition of the resource potentially affected.
 - Resource quantity, or the amount of the resource potentially affected.
 - Duration of impact, or the period of time over which the resource would be affected, stated as short-term (up to a few years) or long-term (beyond the operational life of the project).
3. Mitigation measures have been identified to avoid, reduce, or reclaim the affected environment. The Applicant has committed to incorporate the identified measures into final design plans and operational procedures.

4.2 VISUAL RESOURCES

4.2.1 PROPOSED ACTION

4.2.1.1 Impacts

1. Visual impacts associated with the Proposed Action are defined by the degree of visibility of the power line facilities. Visibility is a function of the compatibility of the facilities with the form, line, color, and texture of the surrounding landscape, and the potential for viewers to be in the vicinity of the facilities.
2. As depicted in Figure 2.4, the proposed power line would be constructed in a single pole configuration. The pole would be constructed of nonreflective natural wood that would blend with the surrounding vegetation and soils. The variable terrain, and the height and density of surrounding vegetation (mostly Joshua tree woodland), would minimize the visibility of the facilities from distant locations.
3. The primary public viewpoints would be from the paved highways roads and other public access ways in the area. State Highway 164 is the only paved access in the vicinity of the power line corridor. Average daily traffic on this road has been recorded at about 500 vehicles. Since the power line would be located about 4,000 feet (3/4 mile) from State Highway 164, it would not be highly visible to highway travelers. Further, since this corridor already contains a power line, which would be removed as part of the Proposed Action, a new

feature would not be developed along this segment. Other public access ways in the vicinity include limited unimproved trails in Piute Valley, northern Lanfair Valley, and the Castle Mountain Mine access road, which will be open to public traffic. Due to its proximity to the road, the power line would be highly visible from this road. Although open for public travel to northern Lanfair Valley, the mine access road is expected to experience limited public use.

4. The East Mojave Heritage Trail (Heritage Trail) follows Clark County Road A68p on its route to Searchlight. As shown in Figure 4.1, the Heritage Trail then doubles back along A68p to a point about four miles southwest of Searchlight, before turning northwest, then west across Piute Valley, where it crosses the mine access road and proposed power line alignment south of the Walking Box Ranch headquarters. The Heritage Trail is intended as a self-guided sightseeing tour of natural, historical, and cultural points of interest in the East Mojave Desert, rather than a "wilderness experience." The Guide to the East Mojave Heritage Trail (Guide) directs travelers to these points of interest using existing roads in the EMNSA. In some cases, the Guide uses power lines of an historical nature as landmarks and points of interest. The Guide discusses the large Metropolitan Water District power line corridor in Piute Valley (see Volume 1, Page 71 of the Guide), which was constructed about the time of the Hoover Dam project. Other power line alignments are crossed along the Heritage Trail (see Viewpoint 2 in Figure 3.2), and the trail follows power line roads along some trail segments. Elsewhere in the Guide, the Castle Mountain Mine is discussed. Given the public interest in the Castle Mountain Project and historical attributes of the Hart Mining District, it is possible that the proposed mine power line would be another point of interest to users of the Heritage Trail. However, it should be recognized that, for those travelers desiring views of undisturbed desert environment, the power line would add incrementally to the effects of human development in the region and may detract from their experience.
5. The Walking Box Ranch headquarters is located adjacent to the Castle Mountain Mine access road. The ranch house is considered to be of historic value. An application for an Historic Preservation Certificate has been filed with the State and National Historic Preservation Offices to have the ranch house considered for inclusion in the NRHP. Although overhead power lines currently service the ranch, the Stateline Resource Area archaeologist has recommended that it would be desirable to avoid construction of additional facilities in the immediate ranch house area. In light of this recommendation, and as shown in Figure 2.3, the Castle Mountain Mine power line would be sited outside the fenced ranch headquarters area.

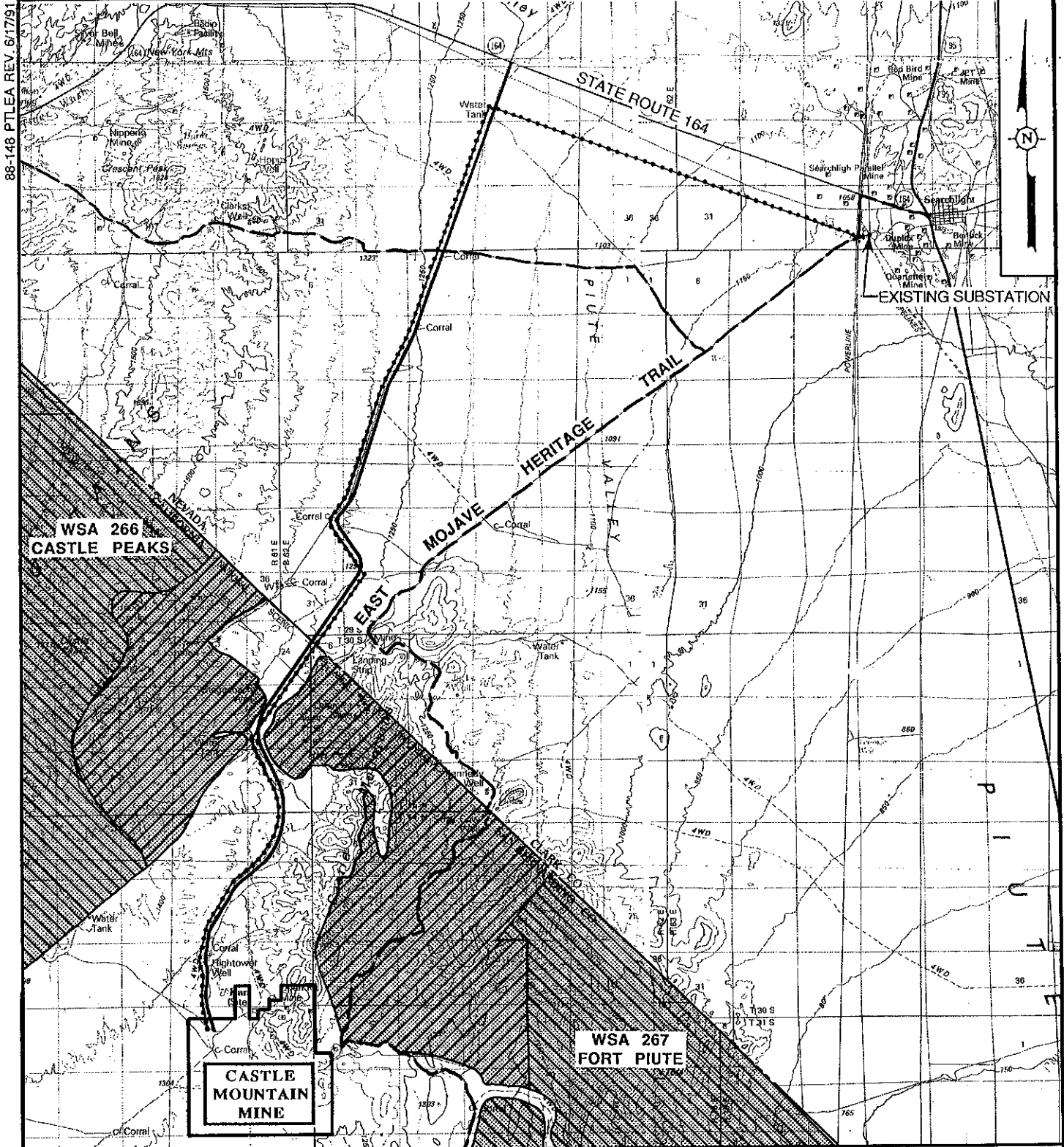


FIGURE 4.1

EAST MOJAVE HERITAGE TRAIL

**CASTLE MOUNTAIN MINE
POWER LINE PROJECT**

ENVIRONMENTAL SOLUTIONS, INC.

6. A portion of the power transmission line would be located in the EMNSA, where Visual Resource Management (VRM) Class II objectives are applicable. Activities in this area may be seen, but should not attract the attention of the casual observer and should blend into the existing landscape (BLM, 1988b). Based upon the planned design of the proposed power line and the limited facilities involved, it is expected that the facilities would blend with the characteristic landscape and meet VRM Class II objectives. However, the power lines would be taller than the surrounding vegetation.

4.2.1.2 Mitigation Measures

1. Measures to minimize the visual impact have been incorporated into plans for the configuration and siting of the proposed power line:
 - Power line construction would be on an armless pole, minimizing aboveground facilities. The poles would be natural wood and blend with surrounding landscape colors.
 - Power line corridor Segment A would be located away from the closest paved public road, replacing an existing power line.
 - Segment B would be located outside the historic Walking Box Ranch headquarters area.
 - Power line Segment C would be located along the alignment of the mine access road, avoiding alternate line-of-sight routes that would impact additional land.
 - Compared to the alternative of supplying power from the Cima California substation, the Proposed Action would minimize the length of power line to be constructed in the EMNSA (Segment D).
2. The power line to the mine would be removed following mine operations and reclamation. The facilities would therefore not be a permanent feature. However, it should be recognized that the planned life of the power line could be extended if the mine life is extended beyond that currently envisioned.

4.2.2 CLARK COUNTY ROAD A68p ALTERNATIVE

4.2.2.1 Impacts

1. The visual aspects of the power line construction and configuration for this alternative would be identical to that described for the Proposed Action.

2. The primary difference in visibility would be the degree of power line alignment that would be located in the vicinity of the Heritage Trail. The proposed alignment would cross the Heritage Trail at a point south of the Walking Box Ranch headquarters area. This alternative alignment would follow nearly 11 miles of the Heritage Trail along Clark County Road A68p to Searchlight.

4.2.2.2 Mitigation Measures

1. Mitigation measures would be similar to those identified for the Proposed Action.

4.3 VEGETATION

4.3.1 PROPOSED ACTION

4.3.1.1 Impacts

1. The proposed power line would be located along existing or approved roads. Additional surface disturbances for power line installation or maintenance roads would therefore be unnecessary. Surface disturbances affecting vegetation would be limited to the approximate 10 square-foot area required to dig the hole for each power pole. Total acreage disturbed would be approximately 0.5 acres.
2. The vegetation affected by pole installation would be plants of the creosote bush scrub and Joshua tree woodland communities. Yucca and other cacti are important elements of these communities along portions of the alignment. A species list is included in Appendix B. No threatened, endangered, or BLM "sensitive" plants would be affected. The limited acreage disturbed would not substantially affect livestock grazing in the Crescent Peak Allotment.

4.3.1.2 Mitigation Measures

1. To limit vegetation disturbance and enhance recovery, vegetation at each power pole site would be crushed instead of removed through blading.
2. In Joshua tree woodland, intra-pole distance would be modified as feasible to minimize removal of Joshua trees.

4.3.2 CLARK COUNTY ROAD A68p ALTERNATIVE

4.3.2.1 Impacts

1. Vegetation impacts associated with this alternative would be similar to those for the Proposed Action. However, as this alignment crosses central Piute Valley in creosote bush scrub habitat, fewer Joshua trees could be affected.

4.3.2.2 Mitigation Measures

1. Mitigation measures would be identical to those described for the Proposed Action.

4.4 WILDLIFE

4.4.1 PROPOSED ACTION

4.4.1.1 Impacts

1. Due to the limited activities involved in construction and maintenance of the proposed power line, no substantial detrimental impacts to wildlife would be expected. However, limited wildlife effects, both direct and indirect, may be associated with construction and operation of the facilities. BLM will consult with the FWS to minimize the potential for habitat impacts and incidental take. All terms and conditions of the FWS Biological Opinion will be implemented. Offsite mitigation may be required for habitat loss.
2. A direct effect of power line construction could include individual animal deaths due to construction and maintenance equipment. The most likely effect would be to burrowing animals. Of particular concern is the desert tortoise. The proposed power line would replace an existing power line crossing 5.9 miles of Category 1 desert tortoise habitat where population densities are very low (about four miles of less than 20 tortoises per square mile, and about two miles at densities of 20 to 50 tortoises per square mile). However, since surface disturbances would be limited to the approximate 100 square-foot construction sites (total disturbance of less than 0.5 acres), the potential to effect tortoise or other animal burrows would be minimized. To ensure that no tortoise burrows are affected, planned pole locations would be flagged, and the 100 square-foot disturbance area surveyed for burrows prior to construction. If a burrow were to be present at a potential pole location, the power pole location would be adjusted to avoid effects to the tortoise.

3. Direct effects to wildlife that could occur as a result of power line operation could consist of raptor electrocution. As discussed above, several raptors (falcons, eagles, vultures, hawks, and owls) are expected to occur within the region. Raptors are basically opportunistic and will use power lines and support structures for perching and nesting. The greatest use is as hunting perches. Studies have shown that raptors can be electrocuted by power lines; immature or sub-adult birds are the most susceptible (Raptor Research Foundation, 1981). To avoid the potential for raptor electrocution, the proposed power pole and line configuration has been designed in accordance with "Suggested Practices for Raptor Protection on Power Lines" (Raptor Research Foundation, 1981). The configuration employs a specified distance between lines (greater than raptor wing spans) and uses an armless pole (to minimize perching).
4. Other effects of power line construction and operation could include the indirect effects to wildlife by habitat disturbance and indirect effects to the tortoise from ravens.
5. Vegetation would be crushed in place instead of removed at each power pole. This will aid in the recovery of vegetation. Because of this, and the minor acreage affected for each pole installation, impacts to wildlife would be limited.
6. Concern for the growth of raven populations has been expressed because ravens have preyed on tortoises for food. Ravens have apparently preyed on juvenile tortoises for years, but excessive or abnormally high rates of consumption have recently been noted. Once a raven family group presents a search image for a specific food item, this behavior can be transferred by social facilitation to other individuals, causing an impact on the available prey. In some areas of the western Mojave Desert, for example, ravens have been found to consume large numbers of young tortoises, from hatchlings up to six years of age. This predation may have an impact on the population dynamics of the affected tortoise population (Berry, 1988). The BLM is currently addressing the issue of raven predation and is preparing an EIS for selective control of individuals in the vicinity of tortoise populations. The armless power pole configuration design has been proposed to decrease opportunities for raven nesting or roosting on the power line. Anti-perching devices would be constructed on top of the poles. Moreover, the Proposed Action would remove an existing power line along Segment A that has arms, serving as potential raven nesting or roosting sites.

4.4.1.2 Mitigation Measures

1. As specified in the Castle Mountain Project EIS/EIR and FWS Biological Opinion:
 - Tortoise burrows within the mine road (and power line corridor) shall be located and flagged prior to initiating surface disturbing activities.
 - Burrows will be checked for tortoise occupancy.
 - Anti-perching devices will be added to the tops of the poles.
 - Flagged burrows should be avoided whenever possible.
 - If occupied burrows can not be avoided, relocation of tortoises shall be coordinated with BLM and FWS, and completed as specified in the Biological Opinion.
2. Construction and maintenance personnel shall be informed of tortoise protected status and penalties for violation of the Endangered Species Act. Proper protocol shall be followed should tortoise be encountered in the construction area or during maintenance activity.
3. Power poles shall be constructed as planned to discourage raven nesting/roosting.

4.4.2 CLARK COUNTY ROAD A68p ALTERNATIVE

4.4.2.1 Impacts

1. Impacts resulting from this alternative would be essentially the same as those described for the Proposed Action. However, this alternative would result in a new segment of power line crossing about 9.4 miles of Category 1 desert tortoise habitat. The line would cross about 5 miles with population density of less than 20 tortoises per square mile and about 4.5 miles of densities in the range of 20 to 50 tortoises per square mile.

4.4.2.2 Mitigation Measures

1. Mitigation measures would be identical to those described for the Proposed Action.

4.5 CULTURAL RESOURCES

4.5.1 PROPOSED ACTION

4.5.1.1 Impacts

1. Native American sociocultural values are reflected in their religious practices, which form an integral part of their culture and are intimately associated with and dependent upon the natural environment. A basic philosophy of tribal religion is to remain in a harmonious relationship

with nature as participants in the ongoing process of creation. Native American religions embody a belief system in which interaction with the environment is holistic. They express reverence toward the total environment and consider specific places to be sacred.

2. Native American sociocultural values also are reflected in the importance attributed to plants and animals, objects, places, lifestyles, and beliefs and frequently are associated with the gathering and use of natural substances. These sociocultural values tend to be associated with three categories of locations identified by BLM:
 - Traditional use areas
 - Currently or historically utilized for secular and subsistence activities, including the collection of foodstuffs, craft, medical and domestic materials, and hunting.
 - Ritually associated localities
 - Includes seasonal non-locatable sites in areas related to ritual performance such as procreative and purification rites, and sources of ritual materials.
 - Sacred areas
 - Includes areas of particular religious significance, such as burials, ceremonial sites, and areas employed for healing purposes.
3. None of these areas are known to exist within the proposed power line corridor.
4. Intensive Class III cultural resources inventories have been completed for the entire power line corridor, from the substation to the Castle Mountain Mine. The majority of the route (Segments C and D) was evaluated and mitigation and data recovery measures were determined as part of the EIS/EIR for the Castle Mountain Mine.
5. Supplementary inventories for power line corridor Segments A and B were completed for this environmental review. As a result of these inventories, five previously unrecorded sites (including the Walking Box Ranch headquarters area) and two previously recorded sites were located. These include two historic isolates, two small historic sites, the Walking Box Ranch, and the two previously recorded historic sites.

6. The criteria established to evaluate a site's potential for inclusion in the NRHP is set forth in 36 CFR 60.4 as follows:
- "The quality of significance in American history, architecture, archaeology, and culture, is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:
 - (a) that are associated with events that have made a significant contribution to the broad patterns of our history; or
 - (b) that are associated with the lives of persons significant in our past; or
 - (c) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
 - (d) that have yielded, or may be likely to yield, information important in prehistory or history."

Upon application of the criteria of eligibility, the criteria of effect and adverse effect are applied to sites recommended for inclusion in the NRHP. Determinations of eligibility, effect, and treatment are reached through consultation between BLM and the SHPO.

7. An action is considered to have an adverse impact when its effect on eligible cultural properties may diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. An effect may be considered not adverse, pursuant to 36 CFR 800.9(c), when the property is of value only for its potential contribution to research (i.e., meeting NRHP criterion d) and when such value can be substantially preserved through the conduct of appropriate research. No data recovery mitigation provision is afforded for adverse effect determinations where properties meet NRHP criteria. However, under certain circumstances, other types of mitigation may contribute to a determination of "No Adverse Effect."
8. Four of the newly recorded historic sites (the Walking Box Ranch is the exception) and one of the previously recorded sites have not been recommended as eligible to the NRHP. Their recordation has reasonably exhausted their data potential. The other previously recorded site has been determined as not eligible to the NRHP based upon concurrence between the BLM and the SHPO. No further work has been recommended for these resources.

9. An application has been filed to list the residence built for Rex Bell and Clara Bow at the Walking Box Ranch in the NRHP. Since Segment B of the proposed power line would be routed to avoid the defined boundaries of the Walking Box Ranch headquarters area, there would be "no effect" to this historic building. No further work has been recommended.

4.5.1.2 Mitigation Measures

1. Mitigation for the newly recorded historic sites has been completed as part of this environmental evaluation through the recordation of each site. No further work is recommended.
2. Segment B of the power line alignment has been selected to bypass the fenced Walking Box Ranch headquarters area. Implementation of this alignment would result in a "no effect" determination to the ranch house building. No further work is recommended.

4.5.2 CLARK COUNTY ROAD A68p ALTERNATIVE

4.5.2.1 Impacts

1. Intensive Class III cultural resource inventories were completed along Clark County Road A68p as part of the Castle Mountain Project EIS/EIR. The primary findings in this vicinity included historic sites associated with the former Barnwell and Searchlight Railroad. These sites include the grade of the former railroad and one site where material related to either construction or use of the railroad was discarded.

4.5.2.2 Mitigation Measures

1. An extensive trash scatter (26-Ck-3878) along the historic railroad grade is associated with aspects of the construction or use of the railroad. Although the site is considered eligible for NRHP nomination, it would be avoided by the power line and consequently would not be affected by the Proposed Action.

4.6 NO ACTION ALTERNATIVE

1. The environmental consequences of the No Action Alternative are related to the effects of power generation for the anticipated 20-year operating and reclamation period of the Castle Mountain Mine. Since onsite power generation would not involve additional surface

disturbance beyond that previously permitted for mine construction and operation, no new impacts would occur to land use, visual resources, vegetation, wildlife, or cultural resources. However, as this alternative would involve additional traffic (as compared to the proposed power transmission line) for delivery of propane, the potential for direct effects to the tortoise would be greater with the No Action Alternative.

2. The air quality impacts associated with onsite power generation were addressed in the Castle Mountain Project EIS/EIR. Onsite power generation will result in the annual emission of 42.9 tons of reactive organic compounds, 64.3 tons of oxides of nitrogen, 0.1 tons of oxides of sulfur, 107.2 tons of carbon monoxide, and 0.4 tons of combustible PM₁₀ particulates. The mine includes an air quality mitigation program requiring use of Best Available Control Technology to reduce emissions below applicable national and state ambient air quality standards.
3. Implementation of the No Action Alternative would be fuel and cost intensive. An average of two vehicle trips per day to the mine would be required for delivery of an estimated 3 million gallons of propane annually. Such fuel consumption was cited as an irretrievable commitment of energy resources in the Castle Mountain Project EIS/EIR.

4.7 SUMMARY OF UNAVOIDABLE ADVERSE IMPACTS

1. The Proposed Action is not anticipated to have any significant adverse impacts. As documented in this EA, potential adverse impacts could be mitigated by the design of the Proposed Action and additional mitigation measures incorporated into the project. Therefore, the power line project is not expected to result in significant unavoidable adverse impacts to the environment.
2. Short-term effects would include those related to disturbance of vegetation and wildlife habitat. The potential for additional raven roosting in desert tortoise habitat, potential incidental take of desert tortoise during construction and maintenance of the power line, and limited loss of habitat at pole sites would be unavoidable.

3. The primary effect of the Proposed Action will be the visual presence of the power line for the life of the mine. Visitors to the mine or others using the mine access road will observe the power line as part of the visual environment. The power line would be removed following mine operations and reclamation of the mine site. The facilities would therefore not be a permanent feature.

4.8 CUMULATIVE EFFECTS

1. As discussed above, impacts associated with the proposed power line could be mitigated such that no significant unavoidable adverse environmental effects would be expected. However, the power line will be an additional man-made facility and, where visible, will contribute cumulatively to the number of power line facilities and other man-made features in Piute and Lanfair Valleys. As these facilities are widely separated and other development is limited to few areas, the cumulative visual effect is expected to be limited. Moreover, the facilities would be removed in conjunction with reclamation activities for the Castle Mountain Mine.

5.0 CONSULTATION AND COORDINATION

1. This EA has been prepared by Environmental Solutions, Inc. under the direction of the BLM. Included below are the primary authors and those persons who provided information and assistance in preparing this report.

5.1 PREPARERS

Environmental Solutions, Inc.

1. The following individuals were involved in report preparation:
 - David E. Brown
 - Carolyn Trindle
 - Deanna Kress
2. In addition, technical advice on environmental issues was obtained from:
 - Dr. Bayard Brattstram (Wildlife)
 - Alan P. Romspert (Vegetation)
 - Allen McCabe, Archaeological Research Services, Inc. (Archaeology)

U.S.D.I. Bureau of Land Management.

1. The following individuals were primary contributors to this report:

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- Keith Myhrer
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Needles Resource Area Office

- Richard Fagan
- George Meckfessel
- Ken McMullen
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5.2 PERSONS CONSULTED

Viceroy Gold Corporation

1. The Applicant provided data on the proposed facilities and power line alignment. Primary contact:
 - J. Christopher Mitchell, P. Eng.
 - Michael Attaway, P.E.

APPENDIX A
FIELD STUDIES AND PERSONNEL

APPENDIX A

FIELD STUDIES AND PERSONNEL

A.1 FIELD PERSONNEL

1. Information on the biological resources along the mine access road corridor in Lanfair and Piute Valleys has been compiled by experts familiar with flora and fauna in this region of the Mojave Desert. The following persons were involved in literature reviews, data collection, impact assessment, and mitigation development:

<u>Personnel</u>	<u>Responsibility</u>
• Dr. Bayard Brattstrom, Professor of Zoology, Department of Biology, California State University, Fullerton	Inventory of access route wildlife resources. Literature review and evaluation of potential wildlife impacts. Detailed assessment of desert tortoise considerations.
• Alan P. Romsper, Consulting Botanist	Inventory of access route vegetation. Literature review and evaluation of potential vegetation impacts.
• BLM, Stateline Resource Area Staff	Inventory of desert tortoise population densities in northwestern Piute Valley in vicinity of Walking Box Ranch pipeline service road.

A.2 LITERATURE SEARCH

1. Several data bases on special interest wildlife and plants were reviewed relative to species known or expected to occur in the vicinity of the proposed project, including:
 - **Federal:**
 - List of endangered, threatened, and candidate wildlife and plant species (50 CFR 17.11).
 - **State of California:**
 - List of rare, threatened and endangered wildlife and plant species (CAC Title 14, Section 670.5).
 - California Natural Diversity Data Base inventory of geographic coordinates of rare and threatened animals, plants, and natural communities.
 - **BLM:**
 - Sensitive Species List, a compilation of federal and state lists, and some species listed by organizations.

Additionally, regional information published by other investigators, standard field guides, faunal studies completed for BLM, and other environmental impact studies were reviewed.

Experts on desert biota were previously consulted in conjunction with environmental analyses for the Castle Mountain Mine, as appropriate, especially for special interest species such as the desert tortoise and some species of bats and birds.

A.3 FIELD STUDIES AND METHODS

1. The majority of onsite field studies were completed for the Castle Mountain Project Environmental Impact Statement/Environmental Impact Report (EIS/EIR). Supplementary wildlife vegetation and cultural resource inventories were completed for power line Segment A. The personnel involved, dates and results of these studies are discussed in this section.

A.3.1 VEGETATION INVENTORIES

1. A comprehensive inventory of plant species on the mine site and along the proposed mine access routes was completed in June 1988 by Alan Romspert. This systematic inventory involved walking 300 to 800 yard transects from the Ivanpah-Goffs Road, the Hart Mine Road, and several roads at the mine site.
2. A supplemental inventory was completed in October 1989 along the Walking Box Ranch pipeline service road segment of the mine access route (power line Segment C). The methodology and results were consistent with those of the June 1988 study. Segment A of the power line corridor was inventoried by Mr. Romspert in January 1991. Results of the inventory were consistent with previous study findings.
4. The results of these vegetation studies have been compiled into this Environmental Assessment (EA). A list of plant species known or expected to occur in the area, compiled from these studies, is included in Appendix B.

A.3.2 GENERAL WILDLIFE INVENTORIES

1. A comprehensive inventory of wildlife on the project site and along the mine access route was completed in June 1988 by Dr. Bayard Brattstrom. Data for wildlife habitats, observations of animals, scat, and other sign were recorded in field notes and on topographic maps or aerial photographs. The results of this inventory were incorporated into the Castle Mountain Project EIS/EIR.

2. A supplementary inventory of power line corridor Segment A was undertaken by Dr. Brattstrom in January 1991. Results of this survey confirmed previous data obtained for mine studies. A wildlife inventory was completed in September 1989 for Segment C (along the mine access route). A list of animal species compiled from all studies for this project is included in Appendix B.

A.3.3 DESERT TORTOISE STUDIES

1. In October 1988, the mine site and Segment C and D of the mine access road were surveyed by Dr. Brattstrom to ascertain the presence or absence of desert tortoises. No tortoises or recent sign were located.
2. The Walking Box Ranch Road segment of the mine access route (power line Segment B) was inventoried by BLM staff biologists from the Stateline Resource Area office in 1989. The inventory included desert tortoise transects at eight selected locations, designed to determine tortoise population densities.
3. Segment A of the power line alignment was surveyed by Dr. Brattstrom in January 1991 for desert tortoise burrows. Two tortoise burrows were located adjacent to the existing road.

A.3.4 CULTURAL STUDIES

1. Intensive Class III cultural resource inventories were completed along power line corridor segments A and B. As a result of this inventory, five previously unrecorded sites (including the Walking Box Ranch) and two previously recorded sites were located. These include two historic isolates (26Ck4622/53-5651, -4623/53-5652), two small historic sites (26Ck4624/53-5653, -4625/53-5654), the Walking Box Ranch (26Ck4626/53-5655), and the previously recorded historic sites.
2. Sites 26Ck1151, 26Ck4622/53-5621, -4623/53-5652, -4624/53-5653, and -4625/53-5654 are not recommended as eligible to the National Register of Historic Places (NRHP). Their recordation has reasonably exhausted their data potential. Site 26Ck3873 has been determined as not eligible to the NRHP given concurrence between the BLM and the State Historic Preservation Office (SHPO). No further work is recommended for these resources.

3. The Walking Box Ranch is recommended as eligible to the NRHP under criteria a, b, c, and possibly d (36 Code of Federal Regulations 60.4). The proposed access road (Segments C and C1) avoids the Walking Box Ranch and will have no effect. Further, the power line reroute (Segment B) avoids the defined boundaries of the Walking Box Ranch. Therefore, there will be no effect to this historic property and no further work is recommended.

APPENDIX B
LIST OF OBSERVED AND EXPECTED PLANTS AND WILDLIFE

TABLE OF CONTENTS

		<u>PAGE NO.</u>
B.1	List of Plants Expected to Occur in the Vicinity of the Castle Mountain Mine Power Line	B-1
B.2	Special Interest Plant Species in Vicinity of the Castle Mountain Mine Power Line	B-7
B.3	Amphibians and Reptiles Observed or Expected to Occur in the Vicinity of the Castle Mountain Mine Power Line	B-9
B.4	Birds Observed or Expected to Occur in the Vicinity of the Castle Mountain Mine Power Line	B-11
B.5	List of Migratory Aquatic and Water Birds Likely to be Attracted to Open Ponds of Water in the East Mojave Desert	B-14
B.6	Mammals Observed or Expected to Occur in the Vicinity of the Castle Mountain Mine Power Line	B-15
B.7	Special Interest Wildlife Species in the Vicinity of the Castle Mountain Mine Power Line	B-17
B.8	Bats Expected to Occur in the Vicinity of the Castle Mountain Mine Power Line	B-18
B.9	References	B-19
B.10	Proposed Castle Mountain Mine Power Line Alignment Supplementary Survey Along Segment A	B-20

TABLE B.1

**LIST OF PLANTS EXPECTED TO OCCUR IN THE
VICINITY OF THE CASTLE MOUNTAIN MINE POWER LINE**

ANGIOSPERMAE (DICOTYLEDONES)

AMARANTHACEAE

Amaranthus fimbriatus

ANACARDIACEAE - SUMAC FAMILY

Rhus trilobata anisophylla

APIACEAE - CARROT FAMILY

Cymopterus multinervatus

Lomatium nevadense

ASCLEPIDACEAE - MILKWEED FAMILY

Asclepias erosa

ASTERACEAE - SUNFLOWER FAMILY

Acamptopappus sphaerocephalus

Ambrosia dumosa

Ambrosia eriocentra

Artemisia ludoviciana

Baileya multiradiata

Baileya pauciradiata

Baileya pleniradiata

Brickellia arguta arguta

Brickellia californica californica

*Brickellia desertorum**

Brickellia incana

Brickellia oblongifolia linearifolia

Chaenactis stevioides brachypappa

Chrysothamnus paniculatus

Chrysothamnus teretifolius

Cirsium neomexicanum

Dyssodia cooperi

Ericameria (Haplopappus) cooperi cooperi

Ericameria (Haplopappus) cuneata cuneata (cuneatus cuneatus)

*Ericameria (Haplopappus) laricifolia (laricifolius)**

Ericameria (Haplopappus) linearifolia (linearifolius)

Encelia virginensis actoni

Erigeron divergens

Erigeron foliosus covillei

Erigeron pumilus concinnoides

Eriophyllum ambiguum

Gutierrezia microcephala

Gutierrezia sarathrae

Hymenoclea salsola salsola

Leucelene ericoides

Machaeranthera canescens

* Plants not in flower, identification tentative

TABLE B.1

**LIST OF PLANTS EXPECTED TO OCCUR IN THE
VICINITY OF THE CASTLE MOUNTAIN MINE POWER LINE
(Continued)**

ASTERACEAE - SUNFLOWER FAMILY - (Continued)

Machaeranthera canescens canescens

Machaeranthera tephrodes

Malacothrix coulteri

Pectis papposa

Psilostrophe cooperi

Senecio multilobatus

Stephanomeria exigua exigua

Stephanomeria parryi

Stephanomeria pauciflora

Stylocline micropoides

Tetradymia stenolepis

Viguiera parishii (deltoides parishii)

Xylorhiza (Machaeranthera) tortifolia

BIGNONIACEAE - BIGNONIA FAMILY

Chilopsis linearis arcuata

BORAGINACEAE - BORAGE FAMILY

Amsinckia intermedia

Amsinckia tessellata

Cryptantha circumscissa

Cryptantha nevadensis

Cryptantha pterocarya

Cryptantha tumulosa

Pectocarya setosa

Plagiobothrys arizonicus

BRASSICACEAE - MUSTARD FAMILY

Arabis perennans

Arabis pulchra

Caulanthus cooperi

Descurainia pinnata

Descurainia sophia

Draba cuneata

Lepidium fremontii

Lepidium lasiocarpum

Lesquerella palmeri

Sisymbrium irio

Stanleya pinnata pinnata

Streptanthella longirostris

Thysanocarpus curvipes

Thelypodium lasiophyllum

* Plants not in flower; identification tentative

TABLE B.1

**LIST OF PLANTS EXPECTED TO OCCUR IN THE
VICINITY OF THE CASTLE MOUNTAIN MINE POWER LINE
(Continued)**

CACTACEAE - CACTUS FAMILY

Coryphantha vivipara deserti
Echinocactus polycephalus
Echinocereus engelmannii chrysocentrus
Ferocactus acanthodes lecontei
Mammillaria tetrancistra
Opuntia acanthocarpa coloradensis
Opuntia basilaris basilaris
Opuntia chlorotica
Opuntia erinacea erinacea
Opuntia erinacea ursina
Opuntia phaeacantha parishii
Opuntia ramosissima
Opuntia stanleyi parishii

CARYOPHYLLACEAE - PINK FAMILY

Arenaria macradenia

CHENOPODIACEAE - GOOSEFOOT FAMILY

Atriplex canescens
Ceratoides (Eurotia) lanatum
Chenopodium incanum occidentale
Grayia spinosa
Salsola iberica

CUCURBITACEAE - GOURD FAMILY

Cucurbita palmata

EUPHORBIACEAE - SPURGE FAMILY

Chamaesyce albomarginata
Chamaesyce micromera
Euphorbia incisa

FABACEAE - PEA FAMILY

Acacia greggii arizonica
Astragalus lentiginosus fremontii
Astragalus nuttallianus
Lotus humistratus
Lupinus brevicaulis
Lupinus concinnus
Hoffmanseggia glauca (densiflora)

GERANIACEAE - GERANIUM FAMILY

Erodium cicutarium

* Plants not in flower; identification tentative

TABLE B.1

**LIST OF PLANTS EXPECTED TO OCCUR IN THE
VICINITY OF THE CASTLE MOUNTAIN MINE POWER LINE
(Continued)**

HYDROPHYLLACEAE - WATERLEAF FAMILY

Eucrypta micrantha
Phacelia distans
Phacelia fremontii
Phacelia crenulata crenulata
*Phacelia vallis-mortae**

KRAMERIACEAE - KRAMERIA FAMILY

Krameria grayi
Krameria parvifolia imparata

LAMIACEAE - MINT FAMILY

Marrubium vulgare
Salazaria mexicana
Salvia columbariae columbariae
Salvia dorrii dorrii
Salvia mohavensis

LINACEAE - FLAX FAMILY

Linum lewisii
Linum puberulum

LOASACEAE - LOASA FAMILY

Mentzelia albicaulis

MALVACEAE - MALLOW FAMILY

Sphaeralcea ambigua ambigua

NYCTAGINACEAE - FOUR O'CLOCK FAMILY

Allionia incarnata
Mirabilis bigelovii
Mirabilis (Oxybaphus) coccineus
Mirabilis multiflora pubescens (froebelii)

OLEACEAE - OLIVE FAMILY

Menodora scabra
Menodora spinescens

ONAGRACEAE - EVENING PRIMROSE FAMILY

Gaura coccinea
Oenothera californica californica
*Oenothera primiveris**

PAPAVRACEAE - POPPY FAMILY

Eschscholzia mexicana

* Plants not in flower; identification tentative

TABLE B.1

**LIST OF PLANTS EXPECTED TO OCCUR IN THE
VICINITY OF THE CASTLE MOUNTAIN MINE POWER LINE
(Continued)**

PLANTAGINACEAE - PLANTAIN FAMILY*Plantago purshii***POLEMONIACEAE - PHLOX FAMILY***Eriastrum diffusum**Eriastrum wilcoxii**Gilia aliquanta**Linanthus demissum**Linanthus dichotomus***POLYGONACEAE - BUCKWHEAT FAMILY***Centrostegia (Chorizanthe) thurberi**Eriogonum deflexum deflexum**Eriogonum fasciculatum polifolium**Eriogonum (possibly) plumatella**Eriogonum heermanii floccosum**Eriogonum inflatum inflatum**Eriogonum maculatum**Eriogonum nidularium**Eriogonum palmerianum**Eriogonum pusillum**Eriogonum trichopes**Eriogonum wrightii**Rumex hymenosepalus***RANUNCULACEAE - BUTTERCUP FAMILY***Delphinium parishii***ROSACEAE - ROSE FAMILY***Coleogyne ramosissima**Fallugia paradoxa**Prunus fasciculata**Purshia glandulosa***SCROPHYLARIACEAE - FIGWORT FAMILY***Castilleja chromosa**Castilleja linearifolia**Penstemon palemri**Penstemon stephensii****SOLALNACEAE - NIGHTSHADE FAMILY***Lycium andersonii**Lycium cooperi**Physalis hederæfolia***VERBENACEAE - VERVAIN FAMILY***Aloysia (Lippia) wrightii*

* Plants not in flower; identification tentative

TABLE B.1

**LIST OF PLANTS EXPECTED TO OCCUR IN THE
VICINITY OF THE CASTLE MOUNTAIN MINE POWER LINE
(Continued)**

ZYGOPHYLLACEAE - CALTROP FAMILY

Larrea divaricata tridentata
Kallstroemia californica

ANGIOSPERMAE (MONOCOTYLEDONES)**AGAVACEAE - AGAVE FAMILY**

Yucca baccata
Yucca brevifolia jaegeriana
Yucca schidigera

ALLIACEAE (AMARYLLIDACEAE) - AMARYLLIS FAMILY

Dichelostemma pulchella

LILIACEAE - LILY FAMILY

Calochortus kennedyi
Yucca brevifolia jaegeriana
Yucca schidigera

POACEAE - GRASS FAMILY

Aristida purpurea
Bouteloua aristidoides
Bouteloua eriopoda
Bromus rubens
Bromus tectorum
Eragrostis cilianensis
Erioneuron pulchellum
Festuca octoflora
Hilaria jamesii
Hilaria rigida
Muhlenbergia porteri
Oryzopsis hymenoides
Sitanion hystrix hystrix
Stipa speciosa

GYMNOSPERMAE**CUPRESSACEAE - CYPRESS FAMILY**

Juniperus osteosperma

PINACEAE - PINE FAMILY

Pinus Monophylla

EPHEDRACEAE - EPHEDRA FAMILY

Ephedra nevadensis
Ephedra veridis

* Plants not in flower; identification tentative

TABLE B.2
SPECIAL INTEREST PLANT SPECIES IN THE
VICINITY OF THE CASTLE MOUNTAIN MINE POWER LINE

SPECIES	OCCURRENCE	STATUS		
		Federal	BLM	STATE (CA)
<i>Penstemon stephensii</i> , Stephens' beardtongue	Present ⁽¹⁾	C2	S	N/R
<i>Cryptantha tumulosa</i> , New York Mountains <i>Cryptantha</i> ⁽²⁾	Expected	C3c	N/R	N/R
<i>Eriogonum heermannii</i> var. <i>floccosum</i> , Clark Mountain buckwheat ⁽²⁾	Expected	C3c	N/R	N/R

88-148 (4/12/91/cm)

OCCURRENCE

Present - Known to occur in the vicinity.

Expected - Occurrence in area suspected based on literature.

STATUS DESIGNATIONS**FEDERAL (U.S. Fish and Wildlife Service) (FWS)**

E - Federally listed, endangered.

T - Federally listed, threatened.

C1 - Category 1 candidate species. Sufficient data are on file to support the federal listing.

C2 - Category 2 candidate species. Threat and/or distribution data are insufficient to support federal listing.

C3a - Extinct.

C3b - Taxonomically invalid.

C3c - Too widespread and/or not threatened. No longer considered as a federal candidate for listing.

STATE (California Department of Fish and Game) (DFG)

E - State listed, endangered.

T - State listed, threatened.

R - Rare.

BLM DESIGNATION

S - Plants considered "sensitive," based on compilation of federal, state, and other lists.

N/R - Not recognized on current data base.

⁽¹⁾ Located at upper elevations on disturbed ground at mine site.⁽²⁾ *C. tumulosa* and *E. heermannii* var. *floccosum* are non-candidate species and are not recognized on state or BLM data bases, and are not further considered as sensitive species.

TABLE B.2

SPECIAL INTEREST PLANT SPECIES

IN VICINITY OF THE CASTLE MOUNTAIN MINE POWER LINE

(Continued)

Legal differences exist between "listed" "endangered" and "threatened" species, "proposed" endangered and threatened species and "Candidate" species under the provisions of the Endangered Species Act (ESA) and its implementing regulations. These terms and their meanings are summarized below:

<u>Term</u>	<u>Interpretation</u>
Endangered species	A species that is in danger of extinction throughout all or a significant portion of its range.
Threatened species	A species likely to become endangered in the foreseeable future throughout all or a significant portion of its range.

The following categories are used in conjunction with the above terms and the protection afforded plants:

<u>Term</u>	<u>Interpretation</u>	<u>Protection Afforded Plants Under ESA</u>
"Listed" (endangered or threatened species)	A species that has been the subject of a proposed and final rule or regulation in the <u>Federal Register</u> .	Fully protected. Recovery plans are required.
"Proposed" (endangered or threatened species)	A species for which a proposed regulation has been published in the <u>Federal Register</u> , but not a final rule.	Limited protection. Must be addressed in environmental assessments. Must confer with FWS if likely to jeopardize the continued existence.
"Candidate" (C1 and C2) species	Species being considered for listing as an endangered or threatened species but not yet the subject of a proposed rule.	Not protected. Should be monitored for impacts.*
"Non-Candidate" (C3) species	Species previously considered and included on past lists but now excluded because they are known to be extinct (3a), they are taxinomically invalid or not meeting the FWS definition of a "species" (3b) or are too widespread or not threatened at this time (3c).	Not protected.

*BLM policy is to take positive action to prevent the need for Candidate (C1, C2) species to be listed.

TABLE B.3

**AMPHIBIANS AND REPTILES
OBSERVED OR EXPECTED TO OCCUR
IN THE VICINITY OF THE CASTLE MOUNTAIN
MINE POWER LINE**

This list represents species expected to occur in the area based on range maps (Stebbins, 1986), habitat preferences, and literature records. Species actually recorded from the area by Gould (1987a) and this study are indicated by "*". Questionable species are indicated by "?".

AMPHIBIANS

Bufo punctatus, Red-spotted Toad

REPTILES

TURTLES

Gopherus agassizii, Desert Tortoise

LIZARDS

Coleonyx variegatus, Banded Gecko

Sauromalus obesus, Chuckwalla

* *Dipsosaurus dorsalis*, Desert Iguana

* *Callisaurus draconoides*, Zebra-tailed Lizard

Crotaphytus insularis, Collared Lizard

* *Gambelia wislizeni*, Leopard Lizard

* *Sceloporus magister*, Desert Spiny Lizard

* *Uta stansburiana*, Side-blotched Lizard

Urosaurus graciosus, Long-tailed Brush Lizard

* *Phrynosoma platyrhinos*, Desert Horned Lizard

Xantusia vigilis, Desert Night Lizard

* *Cnemidophorus tigris*, Western Whiptail

Heloderma suspectum, Gila Monster

TABLE B.3

**AMPHIBIANS AND REPTILES
OBSERVED OR EXPECTED TO OCCUR
IN THE VICINITY OF THE CASTLE MOUNTAIN
MINE POWER LINE
(Continued)**

SNAKES*Leptotyphlops humilis*, Western Blind Snake*Lichanura trivirgata*, Rosy Boa*Phyllorhynchus decurtatus*, Leaf-nosed Snake*Masticophis flagellum*, Coachwhip*Masticophis taeniatus*, Striped Whipsnake*Salvadora hexalepis*, Western Patch-nosed Snake*Arizona elegans*, Glossy Snake*Pituophis melanoleucus*, Gopher Snake*Lampropeltis getulus*, Common Kingsnake*Rhinocheilus lecontei*, Long-nosed Snake*Sonora semiannulata*, Western Ground Snake*Chinonactis occipitalis*, Western Shovel-nosed Snake? *Tantilla hobartsmithi*, Great Basin Black-headed Snake*Trimophodon lambda*, Sonoran Lyre Snake*Hypsiglena torquata*, Night Snake*Crotalus atrox*, Western Diamondback Rattlesnake*Crotalus mitchelli*, Speckled Rattlesnake*Crotalus cerastes*, Sidewinder Rattlesnake*Crotalus scutulatus*, Mohave Rattlesnake

TABLE B.4

**BIRDS OBSERVED OR EXPECTED TO OCCUR
IN THE VICINITY OF THE CASTLE MOUNTAIN
MINE POWER LINE**

This list includes species expected in the area based on studies in the Clark Mountains and at the Soda Springs Field Station south of Baker. Those species actually observed in the area by Gould (1987a,b) and this study are indicated by "*".

- Cathartes aura*, Turkey Vulture
- Accipiter striatus*, Sharp-shinned Hawk
- Accipiter cooperii*, Cooper's Hawk
- * *Buteo jamaicensis*, Red-tailed Hawk
- Buteo swainsoni*, Swainson's Hawk
- * *Aquila chrysaetos*, Golden Eagle
- * *Falco sparverius*, American Kestrel
- * *Falco mexicanus*, Prairie Falcon
- * *Callipepla gambelii*, Gambel's Quail
- * *Alectoris chukar*, Chukar
- * *Zenaida macroura*, Mourning Dove
- Geococcyx californianus*, Greater Roadrunner
- * *Bubo virginianus*, Great Horned Owl
- Athene cunicularia*, Burrowing Owl
- Asio otus*, Long-eared Owl
- * *Tyto allba*, Barn Owl
- Chordeiles minor*, Common Nighthawk
- Chordeiles acutipennis*, Lesser Nighthawk
- * *Phalaenoptilus nuttallii*, Common Poorwill
- Aeronautes saxatalis*, White-throated Swift
- Calypte costae*, Costa's Hummingbird
- Sphyrapicus varius*, Yellow-breasted Sapsucker
- * *Picoides scalaris*, Ladder-backed Woodpecker
- Colaptes auratus*, Common Flicker
- Sayornis nigricans*, Black Phoebe
- * *Sayornis saya*, Say's Phoebe

TABLE B.4

**BIRDS OBSERVED OR EXPECTED TO OCCUR
IN THE VICINITY OF THE CASTLE MOUNTAIN
MINE POWER LINE
(Continued)**

- * *Myiarchus cinerascens*, Ash-throated Flycatcher
- * *Tyrannus vociferans*, Cassin's Kingbird
- * *Tyrannus verticalis*, Western Kingbird
- * *Eremophila alpestris*, Horned Lark
- Hirundo phyrhronota*, Cliff Swallow
- Gymnorhinus cyanocephalus*, Pinyon Jay
- * *Corvus corax*, Common Raven
- Auriparus flaviceps*, Verdin
- * *Campylorhynchus brunneicapillus*, Cactus Wren
- * *Salpinctes obsoletus*, Rock Wren
- Thryomanes bewickii*, Bewicks Wren
- * *Mimus polyglottos*, Northern Mockingbird
- * *Toxostoma bendirei*, Bendires Thrasher
- Toxostoma dorsale*, Crissal Thrasher
- Toxostoma lecontei*, LeConte's Thrasher
- * *Turdus migratorius*, American Robin
- Regulus calendula*, Ruby-crowned Kinglet
- * *Poliophtila melanua*, Black-tailed Gnatcatcher
- Poliophtila caerulea*, Blue-gray Gnatcatcher
- * *Lanius ludovicianus*, Loggerhead Shrike
- Vireo vicinior*, Gray Vireo
- Vireo solitarius*, Solitary Vireo
- Dendroica nigrescens*, Black-throated Gray Warbler
- Vermivora virginiae*, Virginia's Warbler
- Dendroica coronate*, Yellow-rumped Warbler
- Oporornis tolmiei*, MacGillivray's Warbler
- * *Wilsonia pusilla*, Wilson's Warbler
- Myioborus pictus*, Painted Redstart
- Piranga ludoviciana*, Western Tanager
- Piranga flava*, Hepatic Tanager

TABLE B.4
BIRDS OBSERVED OR EXPECTED TO OCCUR
IN THE VICINITY OF THE CASTLE MOUNTAIN
MINE POWER LINE
(Continued)

	<i>Pheuticus melanocephalus</i> , Black-headed Grosbeak
	<i>Zonotrichia leucophrys</i> , White-crowned Sparrow
	<i>Junco hyemalis</i> , Dark-eyed Junco
	<i>Spizella passerina</i> , Chipping Sparrow
	<i>Spizella breweri</i> , Brewer's Sparrow
	<i>Spizella atrogularis</i> , Black-chinned Sparrow
*	<i>Amphispiza bilineata</i> , Black-throated Sparrow
	<i>Amphispiza belli</i> , Sage Sparrow
	<i>Pooecetes gramineus</i> , Vesper Sparrow
	<i>Chondestes grammacus</i> , Lark Sparrow
	<i>Melospiza melodia</i> , Song Sparrow
	<i>Pipilo erythrophthalmu</i> , Rufous-sided Towhee
*	<i>Pipilo chlorurus</i> , Green-tailed Towhee
*	<i>Icterus parisorum</i> , Scott's Oriole
	<i>Sturnella neglecta</i> , Western Meadowlark
	<i>Euphagus cyanocephalus</i> , Brewer's Blackbird
	<i>Molothrus ater</i> , Brown-headed Cowbird
	<i>Carduelis psaltria</i> , Lesser Goldfinch
*	<i>Carpodacus mexicanus</i> , House Finch
	<i>Carpodacus purpureus</i> , Purple Finch
	<i>Sturnus vulgaris</i> , European Starling

TABLE B.5

**LIST OF MIGRATORY AQUATIC AND WATER BIRDS
LIKELY TO BE ATTRACTED TO OPEN PONDS OF WATER
IN THE EAST MOJAVE DESERT**

List based on common water and shore birds observed at the Soda Springs Field Station of the California State Universities and Colleges south of Baker, California. None of these birds would be expected to stay at the site due to the lack of food. While all migratory birds are protected or regulated, none of these are specifically state or federally listed as rare or endangered:

Belted Kingfisher

American Widgeon
Blue-winged Teal
Bufflehead
Canadian Goose
Canvasback
Cinamon Teal
Common Merganser
European Widgeon
Gadwall
Green-winged Teal
Hooded Merganser
Mallard
Pintail
Ruddy Duck
Shoveler
Lesser Scaup

Black-crowned Night Heron
Cattle Egret
Common Egret
Snowy Egret
Great Blue Heron
Green Heron
Little Blue Heron

Killdeer
Greater Yellowlegs
Lesser Yellowlegs
Long-billed Dowitcher
Least Sandpiper
Spotted Sandpiper
Willet
Semipalmated Sandpiper
Northern Phalarope
Wilton's Phalarope
American Avocet
Black-necked Stilt

Ring-billed Gull
Herring Gull

Double-crested Cormorant

American Coot

White-faced Ibis

Horned Grebe
Pied-billed Grebe
Western Grebe
Eared Grebe

TABLE B.6
MAMMALS OBSERVED OR EXPECTED TO OCCUR
IN THE VICINITY OF THE CASTLE MOUNTAIN
MINE POWER LINE

This list is based on studies in the Clark Mountains at the Soda Springs Field Station south of Baker, range maps (mostly from Ingles, 1965), habitats present, Gould, (1987 a,b) and this study. X = Known from area (observed or reported), P = Possible in area (expected).

	HABITAT PREFERENCE			
	Creosote Bush	Joshua Tree	Black Bush	Pinyon Juniper
<i>Macrotus californicus</i> , California Leaf-nosed Bat	P	P		
<i>Myotis thysanodes</i> , Fringed Myotis		P	P	
<i>Myotis californicus</i> , California Myotis	P	P	P	P
<i>Myotis subulatus</i> , Small-footed Myotis		P	P	P
<i>Myotis volans</i> , Hairy-winged Myotis		P	P	P
<i>Myotis yumanensis</i> , Yuma Myotis		P	P	P
<i>Lasiurus cinerius</i> , Hoary Bat		P	P	P
<i>Eptesicus fuscus</i> , Big Brown Bat		P	P	P
<i>Pipistrellus hesperus</i> , Western Pipistrelle	P	P		
<i>Antrozous pallidus</i> , Pallid Bat	P	P		
<i>Tadarida brasiliensis</i> , Brazilian Free-tailed Bat	P	P		
<i>Tadarida molossa</i> , Big Free-tailed Bat		P		
<i>Sorex merriami</i> , Merriam Shrew	P	P	P	
<i>Notiosorex crawfordi</i> , Gray Shrew	P	P	P	
<i>Lepus californicus</i> , Black-tailed Hare	X	X	X	X
<i>Sylvilagus auduboni</i> , Desert Cottontail	X	X	X	X
<i>Ammospermophilus leucurus</i> , Antelope Ground Squirrel	X	X	X	X
<i>Otospermophilus variegatus</i> , Rock Squirrel		X?	X?	
<i>Citellus Tereticaudus</i> , Round-tailed Ground Squirrel	P			
<i>Thomomys bottae</i> , Botta Pocket Gopher	X	X	X	X
<i>Perognathus longimembris</i> , Little Pocket Mouse	P	P		
<i>Perognathus formosus</i> , Long-tailed Pocket Mouse	P			
<i>Perognathus spinatus</i> , Spiny Pocket Mouse	P	P	P	
<i>Perognathus parvus</i> , Great Basin Pocket Mouse		P	P	P

TABLE B.6

**MAMMALS OBSERVED OR EXPECTED TO OCCUR
IN THE VICINITY OF THE CASTLE MOUNTAIN
MINE POWER LINE
(Continued)**

	HABITAT PREFERENCE			
	Creosote Bush	Joshua Tree	Black Bush	Pinyon Juniper
<i>Dipodomys merriami</i> , Merriam Kangaroo Rat			X	
<i>Dipodomys deserti</i> , Desert Kangaroo Rat	P	P		
<i>Reithrodontomys megalotis</i> , Western Harvest Mouse	P	P	P	P
<i>Peromyscus crinitis</i> , Canyon Mouse		P	P	P
<i>Peromyscus eremicus</i> , Cactus Mouse	P			
<i>Peromyscus boylii</i> , Brush Mouse		P	P	P
<i>Peromyscus truei</i> , Pinyon Mouse				P
<i>Peromyscus maniculatus</i> , Deer Mouse	P	P	P	P
<i>Onychomys torridus</i> , Southern Grasshopper Mouse	P	P		
<i>Neotoma lepida</i> , Desert Wood Rat	X	X	X	X
<i>Mus musculus</i> , House Mouse			P	P
<i>Vulpes macrotis</i> , Kit Fox	X	X	P	
<i>Urocyon cinereoargenteus</i> , Gray Fox		P	P	P
<i>Canis latrans</i> , Coyote	X	X	X	X
<i>Bassariscus astutus</i> , Ringtail		P	P	P
<i>Taxidea taxus</i> , Badger	P	P	P	P
<i>Spilogale putorius</i> , Spotted Skunk	P	P	P	P
<i>Mephitis mephitis</i> , Striped Skunk	P	P	P	P
<i>Lynx rufus</i> , Bobcat	P	P	P	P
<i>Felis concolor</i> , Mountain Lion		P	P	P
<i>Equus asinus</i> , Burro	X	X	X	X
<i>Odocoileus hemionus</i> , Mule Deer		P	P	P
<i>Ovis canadensis</i> , Bighorn		X	X	X
<i>Bos taurus</i> , Cattle	X	X	X	X

TABLE B.7
SPECIAL INTEREST WILDLIFE SPECIES
IN VICINITY OF THE CASTLE MOUNTAIN MINE POWER LINE

SPECIES	OCCURRENCE	STATUS		
		Federal	BLM	State (CA)
MAMMALS				
<i>Plecotus townsendii</i> , Townsend's big-eared bat	Present	C2	N/R	SC
BIRDS				
<i>Buteo regalis</i> , ferruginous hawk	Expected	C2	N/R	N/R
<i>Buteo swainsoni</i> , Swainson's hawk	Expected	C2	N/R	T
REPTILES				
<i>Gopherus agassizii</i> , desert tortoise	Present	T	N/R ⁽¹⁾	T
<i>Heloderma suspectum</i> , gila monster	Expected	C2	S	N/R

88-148 (4/18/91/mg)

OCCURRENCE

Present - Known to occur in the vicinity as determined by observation or sign.

Expected - Occurrence in area suspected based on literature.

STATUS DESIGNATIONS**FEDERAL (FWS)**

E - Federally listed, endangered.

T - Federally listed, threatened.

C1 - Category 1 candidate species. Enough data are on file to support the federal listing.

C2 - Category 2 candidate species. Threat and/or distribution data are insufficient to support federal listing.

C3a - Extinct.

C3b - Taxonomically invalid.

C3c - Too widespread and/or not threatened. No longer considered as a federal candidate for listing.

STATE (DFG)

E - State listed, endangered.

T - State listed, threatened (previously listed as rare).

CE - State Candidate, Endangered.

CT - State Candidate, Threatened.

SC - Species of Special Concern.

BLM DESIGNATION

S - Animals considered "sensitive," based on compilation of federal, state, and other lists.

N/R - Not recognized on current data base.

⁽¹⁾ The desert tortoise is recognized by BLM as federally threatened which takes precedence over BLM's sensitive designation.

TABLE B.8
BATS EXPECTED TO OCCUR IN THE VICINITY OF
THE CASTLE MOUNTAIN MINE POWER LINE

FAMILY/SPECIES	COMMON NAME
Phyllostomidae <i>Macrotus californicus</i>	California Leaf-nosed Bat**
Vespertilionidae <i>Myotis yumanensis</i> <i>Myotis thysanodes</i> <i>Myotis volans</i> <i>Myotis californicus</i> <i>Lasionycteris noctivagans</i> <i>Pipistrellus hesperus</i> <i>Eptesicus fuscus</i> <i>Lasiurus cinereus</i> <i>Plecotus townsendii</i> <i>Antrozous pallidus</i>	Yuma Myotis Fringed Myotis Long-legged Myotis California Myotis Silver-haired Bat Western Pipistrelle Big Brown Bat Hoary Bat Townsend's Big-eared Bat** Pallid Bat
Molossidae <i>Tadarida brasiliensis</i>	Brazilian Free-tailed Bat

Species of Special Concern (Williams, 1986):

* Highest Priority

** Second Priority

Nomenclature follows Jones *et al.* (1982)

B.9 REFERENCES

Casebier, D. *Guide to the East Mojave Heritage Trail*. 1987.

Gould, P. *Biological Resources Survey, Castle Mountain Project*. Castle Mountains, California. Bureau of Land Management Report. April. 33 pp. 1987a.⁽¹⁾

Gould, P. *Addendum, Biological Resources Survey, Castle Mountain Project*. Castle Mountains, California. Bureau of Land Management Report. June 1. 15 pp. 1987b.⁽¹⁾

Ingles, L.G. *Mammals of the Pacific States*. Stanford, California: Stanford University Press. 1965.

Jones, J.K., Jr., D.C. Carter, H.H. Genoways, R.S. Hoffmann, and D.W. Rice. *Revised Checklist of North American Mammals North of Mexico*. Occas. Papers Mus., Texas Tech Univ. No. 80:1-22. 1982.

Stebbins, R. *A Field Guide to Western Reptiles and Amphibians*. Second Edition. Boston, Massachusetts: Houghton Mifflin Company. 1986.

U.S.D.I. Bureau of Land Management. *Clark County Management Framework Plan*. Las Vegas District, Stateline Resource Area. 1983.

Williams, D.F. *Mammalian Species of Special Concern in California*. The Resources Agency, Department Fish and Game, Wildlife Management Division Administration Report: 86-1.112. 1986.

⁽¹⁾ Document on file and available for public review at: BLM, Needles Resource Area; BLM, California Desert District.

B.10 PROPOSED CASTLE MOUNTAIN PROJECT POWER LINE ALIGNMENT SUPPLEMENTARY SURVEY ALONG SEGMENT A

1. A supplementary biological survey was conducted along the proposed power line route from Searchlight, Nevada to Viceroy Gold Corporation's Castle Mountain Mine. This supplementary survey was undertaken to determine if important or unique biological resources occurred along the proposed power line alignment. Previous studies of the Castle Mountain Mine project area, including the Nipton-Searchlight Road, were conducted by Dr. Bayard H. Brattstrom, Professor of Zoology, Department of Biological Sciences, California State University, Fullerton, California, and Victor Horchar of MDC Environmental Consultants. Dr. Brattstrom and Mr. Horchar conducted the supplementary survey on January 10 and 11, 1991.

B.10.1 AREA OF EVALUATION AND PROCEDURES

1. The northern segment of the proposed alignment (Walking Box Ranch headquarters area to Searchlight) was explored by driving the dirt road between the ranch property line and Nipton-Searchlight Road. This road parallels the power line alignment, located about halfway between it and the paved road. About every one-half mile, transects were walked north, south, east, and west for 100 to 300 yards in each direction. At Searchlight, a road paralleling the current power line to the Walking Box Ranch headquarters area corresponding with the proposed power line was travelled by vehicle and foot. The area surrounding the headquarters was explored by vehicle and foot.

B.10.2 BIOLOGICAL RESOURCES

1. The area for the power line alignment does not differ significantly from the rest of the previously surveyed area. It consists of dense Joshua tree woodland, with spanish bayonet and creosote as subdominant perennial plants. The proposed alignment does not go through any other vegetation type. It does not traverse any washes with any characteristic desert wash vegetation. A few mesquite bushes occur on the easternmost north segment near Searchlight. The southern segment passes through large patches of *Krameria parvifolia imparta* and the general path of that route passes through less dense, less diverse habitat.

B.10.3 CONCLUSIONS

1. Power lines are the least obtrusive of man's disturbances of the desert. Except for assembly sites, the power poles disrupt the desert only in the small confines where the poles are connected to the ground. Thus, these lines and poles bypass most of the desert and animal habitats. In addition, poles are installed at far distances from each other. The main disruption to the desert is the service road and for most of the alignment, the proposed route follows existing roads, which will act as the service road for the power line.
2. While concern has previously been expressed on the role of the power line poles in attracting ravens, which are potential predators on baby tortoises, only three ravens were observed on January 10 and two on January 11, 1991. There was no concentration of ravens on or about the many power lines which emanate from the Searchlight substation or high tension lines which pass through the Searchlight area. Our previous surveys of ravens suggest that ravens are in fact not abundant and apparently not a significant predator on tortoises in this area.
3. This research survey concludes that, except for some habitat slightly modified during power line placement and assembly, there is no substantial impact of this proposed power line on desert animals above that already present on the site by previous activities.