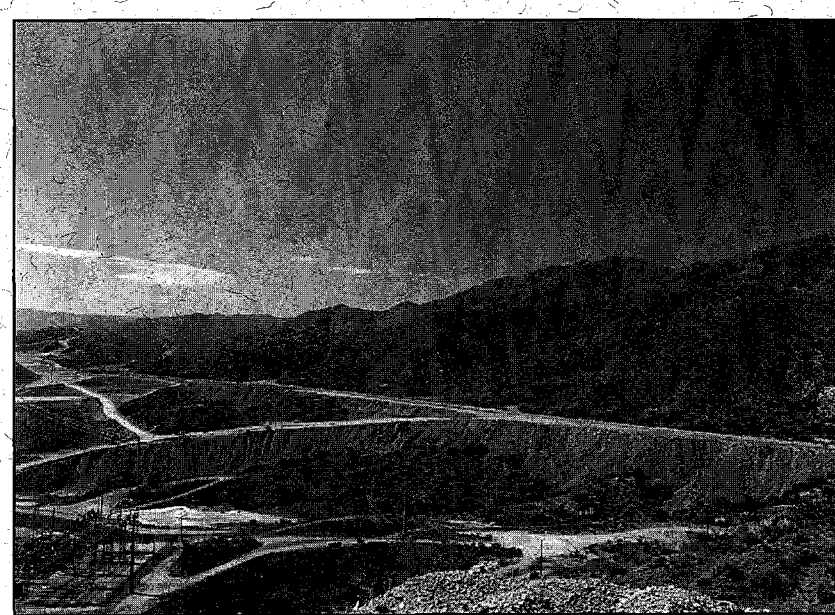
U.S. Department of the Interior

Bureau of Land Management
Arizona State Office
Tucson Field Office

June 1999

Final Environmental Impact Statement Ray Land Exchange/Plan Amendment

OFFERED LANDS
Big Sandy River on the Tomlin #4 Parcel, one of the lands offered to the public under the proposed land exchange.



SELECTED LANDS
Overlooking RM-17, (just west of the Ray Mine), a parcel selected by Asarco under the proposed land exchange.

The Bureau of Land Management is responsible for the balanced management of the public lands and resources and their various values so that they are considered in a combination that will best serve the need of the American people. Management is based upon the principles of multiple use and sustained yield; a combination of uses that take into account the long term needs of future generations for renewable and nonrenewable resources. These resources include recreation, range, timber, minerals, watershed, fish and wildlife, wilderness and natural, scenic, scientific, and cultural values.

BLM/AZ/PL-98/0013

United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Tucson Field Office
12661 East Broadway Blvd.
Tucson, AZ 85748-7208

In reply refer to:

AZA28350/2200 (AZ917/060) (520) 722-4289

June 7, 1999

Dear Reader:

The Bureau of Land Management (BLM) has prepared a Final Environmental Impact Statement (FEIS) in response to an exchange proposal --the Ray Land Exchange--from ASARCO Incorporated. In the FEIS, the agency preferred alternative (the proposed action) would exchange 10,976 acres of federal lands or mineral estate for 7,300 acres of private lands. The enclosed FEIS encompasses the draft EIS with appropriate corrections, additional information, and DEIS comments with agency responses.

Changes made to the EIS since the draft publication are identified by a highlight (highlight) or strikeout (~~strikeout~~). These markings indicate updated, corrected, or additional information. A new chapter has been added, Chapter 7, which documents the comments received on the Draft EIS and BLM's responses.

Comments received on the FEIS will be considered in preparing the record of decision on the land exchange. All **comments on the FEIS** must be received **within the 30 day comment period** after the publication of the Notice of Availability in the *Federal Register*, anticipated for June 25,1999. **Send FEIS comments to:** Shela McFarlin, Project Manager, BLM, Arizona State Office, 222 N. Central Avenue, Phoenix, AZ 85004.

Please note that comments, including names and street addresses of respondents, are available for public review and/or release under the Freedom of Information Act (FOIA). Individual respondents may request confidentiality. If you wish to withhold your name and street address from public review or from disclosure under FOIA, you must state this prominently at the beginning of your written comment. Such requests will be honored to the extent allowed by law. All submissions from organizations or businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, will be made available for public inspection in their entirety.

This FEIS combines the analysis of the exchange proposal with a **proposed plan amendment**. The proposed plan amendment would change the existing land tenure decisions in the Phoenix and Safford District Resource Management Plans to retain much of the selected lands, to a decision to

dispose of these lands. The plan amendment process offers an opportunity for administrative review by filing a protest with the BLM Director. This applies only to the proposed plan amendment, not the exchange itself. The **protest** must be received at the address below by close of business **no later than 30 days** after the Notice of Availability is published in the *Federal Register*, anticipated for June 25.

Protest letters must be sent to:
Director, BLM; Attention: Ms. Brenda Williams, Protests Coordinator WO-210/LS-1075; Department of the Interior, Washington, DC 20240.
The overnight mail address for protests is: Director, BLM; Attention: Ms. Brenda Williams, Protests Coordinator (WO-210), 1620 L. Street NW, Room 1075, Washington, DC 20036.

At a minimum, protest letters must include:

1. The name, mailing address, telephone number and interest of the person filing the protest.
2. A statement of which parcel or parcels (by township, range and section) or issues are being protested.
3. A statement of the part or parts of the plan amendment being protested. To the extent possible, this should be done by reference to specific pages, paragraphs, sections, tables and maps included within the proposed plan amendment.
4. A copy of all documents addressing the issues or parcels that you submitted during the planning process or a reference to the date the issue or issues were discussed by you for the record.
5. A statement of reasons explaining why the BLM State Director's proposed decision is believed to be incorrect. All relevant facts need to be included in the statement of reasons. These facts, reasons, and documentation are very important to understand the protest rather than merely expressing disagreement with the proposed decision.

Please call Shela McFarlin if you have any questions on the FEIS and proposed plan amendment at (602) 417-9568. We welcome your comments to assist us throughout the EIS process.

Sincerely,

Jesse Juen
Field Manager

Enclosure:
FEIS

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

PROPOSED PLAN AMENDMENT AND FINAL ENVIRONMENTAL IMPACT STATEMENT

for the

RAY LAND EXCHANGE

Prepared by the
Arizona State Office
Tucson Field Office

June 1999

Gary D. Bauer

Arizona State Director, Acting

Cover Sheet

FINAL ENVIRONMENTAL IMPACT STATEMENT

Ray Land Exchange and Proposed Plan Amendment
Bureau of Land Management

EIS Number:	BLM/AZ/PL99/0013
Lead Agency:	U.S. Department of the Interior, Bureau of Land Management(BLM)
Project Location:	Pinal, Gila, and Mohave Counties, Arizona
Date of Issue of FEIS:	June 25, 1999

Abstract:
This Final Environmental Impact Statement (EIS) analyzes impacts that may occur from a proposed land exchange combined with a proposed plan amendment. ASARCO Incorporated (Asarco), a mining company, proposed the Ray Land Exchange to acquire approximately 10,976 acres of public lands in Pinal and Gila Counties. In exchange, BLM would acquire approximately 7,304 acres in Pinal and Mohave Counties. The BLM's preferred alternative is the Proposed Action, which would result in the exchange of lands as noted above. In addition to analyzing the direct, indirect and cumulative impacts of the land exchange, the EIS also analyzes whether to approve a plan amendment. Changes to the Phoenix and Safford District Resource Management Plans are required to allow BLM to authorize an exchange in areas previously designated for retention in public ownership. Mining-related uses, as allowed under the General Mining Law of 1872 and the Federal Land Policy and Management Act, are the foreseeable uses of the public lands regardless of whether the land exchange is approved or not. The EIS analyzes the impacts of foreseeable uses at the current level of information. Four alternatives are considered: The Proposed Action (Preferred Agency Alternative); the Buckeye Alternative which would delete 800 acres of selected lands from the exchange; the Copper Butte Alternative which would remove 1,815 acres from the exchange; and the No Action Alternative. Effects of the Proposed Action include: acquisition of riparian, desert tortoise, and southwestern willow flycatcher habitat; transfer of private inholdings in wilderness and in Areas of Critical Environmental Concern to federal ownership; improved manageability; and the removal of BLM administrative responsibilities to oversee mining activities. The Buckeye and Copper Butte alternatives would have similar impacts with certain selected lands remaining under BLM administration and portions of offered lands excluded from the exchange to equalize values. Impacts of the No Action Alternative include continued or increased BLM involvement in overseeing mining; loss of opportunity to acquire high resource valued lands; and loss of ability to improve management on "checker boarded" lands in Mohave County.

Manager Responsible for Preparing this EIS and for Approving the Land Exchange:
Jesse Juen, Tucson Field Office

Official Responsible for Authorizing the Proposed Plan Amendment:
Gary Bauer, Acting Arizona State Director

FEIS Comments Must be Postmarked By: July 25, 1999

Agency Contact: Shela McFarlin, Project Manager
Submit Comments to: Native American Minerals/Arizona Land Exchange Teams
Arizona State Office
Bureau of Land Management
222 North Central Avenue
Phoenix, Arizona 85004
(602) 417-9568

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SUMMARY

This Final Environmental Impact Statement (FEIS) documents the analysis of the potential environmental impacts of the proposed Ray Land Exchange/Plan Amendment between ASARCO Incorporated (Asarco) and the U.S.D.I. Bureau of Land Management (BLM). This DEIS has been prepared in compliance with the National Environmental Policy Act (NEPA) guidelines set by the Council on Environmental Quality (CEQ), and the BLM NEPA Handbook (BLM 1988). The first five chapters of this document describe the purpose of and need for action; the Proposed Action and alternatives, including BLM's Preferred Alternative; the affected environment; environmental consequences, cumulative impacts, irreversible and irretrievable commitments of resources, unavoidable adverse impacts; and consultation and coordination undertaken for this analysis. Chapter 6 lists the persons primarily responsible for preparing this document and Chapter 7 documents the public comments on the DEIS and BLM's responses to these comments.

The Proposed Action consists of two connected actions: a plan amendment and a land exchange. Through the exchange, Asarco seeks to acquire approximately 10,976 acres of public lands and mineral estate lands (the selected lands), the vast majority of which are adjacent to its existing Ray Mine in Pinal County, Arizona. These lands are administered by the BLM Tucson Field Office. The selected lands include three isolated tracts of less than one acre each and 30 larger parcels ranging in size from approximately 2 acres to 2,001 acres. A plan amendment to the Phoenix and Safford Resource Management Plans (RMPs) is required as the selected lands have not been designated for disposal through previous BLM planning processes.

In exchange, Asarco is offering two separate parcels and three parcel groups (the offered lands, 18 parcels in all) that it owns, totaling approximately 7,300 acres. These private parcels are located in Pinal and Mohave County and include the following: 1) the Gila River Parcel at Cochran is located in Pinal County and contains a segment of the Gila River Riparian Management Area (GRRMA) and is within the Middle Gila Cultural Resource Management Area (MGCRMA); 2) the Sacramento Valley Parcel abuts the Warm Springs Wilderness in Mohave County; 3) the Knisely Ranch parcel group lies within the Mount Tipton Wilderness in Mohave County, 4) the Tomlin Parcel group lies adjacent to the Big Sandy River, located within the Big Sandy Herd Management Area; and 5) the McCracken Mountains Parcel group occurs within the McCracken Desert Tortoise Habitat Area of Critical Environmental Concern (ACEC).

PURPOSE OF AND NEED FOR ACTION

In proposing the Ray Land Exchange, Asarco seeks to consolidate its land holdings within and adjacent to areas of ongoing mineral development at the Ray Mine. Asarco intends to use a portion of the selected lands to support and expand current and future mining-related operations, with the remainder used for site security and environmental buffers. In exchange, the BLM Tucson and Kingman Field Offices would acquire lands containing important natural resources and other values and move toward achieving its land tenure adjustment objectives, as stated in the Phoenix and Kingman Resource Area Resource Management Plans (RMPs). The offered lands are located within special management areas identified by the appropriate RMPs. Criteria for lands to be acquired within special management areas include: lands with riparian habitat; lands within watersheds of important riparian areas; lands with high value wildlife habitat; lands for administrative sites, developed recreation sites, or that provide access to public lands; lands with significant cultural and paleontological properties; and inholdings within special management areas. Collectively, the offered lands meet several of these acquisition criteria.

The Proposed Action is not consistent with the Phoenix and Safford RMPs in that these plans do not identify all the selected lands for disposal by exchange. Therefore a plan amendment to change the land tenure decision for both RMPs is also considered in this EIS. Criteria for disposal include lands that are difficult or uneconomic to manage, lands no longer needed for the original purpose for which they were acquired, and/or lands that will serve an important public purpose.

The BLM is authorized to complete land exchanges under Section 206 of the Federal Land Policy Management Act (FLPMA) of 1976, as amended by the Federal Land Exchange Facilitation Act (FLEFA) of 1988, after considering whether the exchange will: 1) provide the opportunity to achieve better management of federal lands; 2) meet the needs of state and local residents and their economies; and, 3) secure important objectives, including but not limited to, protection of fish and wildlife habitats, cultural resources, watersheds, and wilderness and aesthetic values [43 CFR §2200.0-6(b)].

ALTERNATIVES CONSIDERED

Four alternatives are analyzed in this document: the Proposed Action, the Buckeye Alternative, the Copper Butte Alternative, and the No Action Alternative. The Buckeye Alternative was developed to address the public's concern for public lands adjacent to Walnut Creek, while the Copper Butte Alternative further minimizes the amount of land to be exchanged around the Copper Butte deposit. All of the alternatives, including the No Action, have actions in common; that is, activities that are likely to occur regardless of which alternative is selected. These actions common to all alternatives are called the foreseeable uses and involve mining-related uses of the selected lands. Other alternatives which were considered but eliminated from detailed consideration in the EIS, are presented in Chapter 2.

Proposed Action Alternative (Agency Preferred Alternative)

The Proposed Action consists of a land exchange between Asarco and the BLM and a corresponding plan amendment for the Phoenix and Safford District RMPs. This alternative would result in the largest area of land exchanged of all the action alternatives. Completion of the exchange would result in Asarco acquiring 31 selected parcels (approximately 10,976 acres) most of which are near its Ray Mine. In exchange, BLM would acquire two individual offered lands parcels and three parcel groups (approximately 7,300 acres) located within or adjacent to three special management areas and two wilderness areas in Pinal and Mohave Counties.

Buckeye Alternative

This alternative involves reducing the total acreage of the selected lands from approximately 10,976 acres to approximately 10,176 acres by excluding 800 acres of Parcel CB-1 in Sections 25 and 26 of T3S, R12E. The purpose of this alternative is to eliminate from the exchange the Buckeye Long-Range prospect as this is an area with high resource values and future mining potential. The offered lands would include all parcels in the Proposed Action except Section 9 of the McCracken Mountains Parcels for a total offered lands package of approximately 6,659 acres.

Copper Butte Alternative

This alternative involves the smallest area of land exchange of all the action alternatives. It would reduce the total acreage of the selected lands from approximately 10,976 acres to approximately 9,161 acres by excluding Parcels CB-1, CB-2 and portions of CB-3. The purpose of this alternative is to eliminate from the exchange the Long-Range Prospect, and the Intermittent and Transition foreseeable use areas that are not immediately adjacent to the Copper Butte deposit. The offered lands would include all parcels in the Proposed Action except Sections 3, 9 and 19 of the McCracken Mountains Parcels for a total offered lands package of approximately 5,601 acres.

No Action Alternative

Under this alternative, no lands would be exchanged. The selected lands and federal minerals would remain publicly owned and administered by the BLM according to the multiple use management directives in FLPMA and the RMPs, as amended. The RMP would not be amended at this time to allow for an exchange proposal. The offered lands would remain under private ownership and subject to development.

Actions Common to All Alternatives

The foreseeable uses of the selected lands are mining-related uses and are expected to occur under all alternatives. Mining could occur on private, patented lands under a land exchange, on public lands subject to BLM's 43 CFR 3809 regulations, or through patenting under the Mining Law of 1872.

Descriptions of the foreseeable uses are based on conceptual plans provided by Asarco, which broadly outline three general types of facilities and activities that are likely to occur on the selected lands. Foreseeable uses involve: Production Operations and Support Areas for stockpiles, haul roads, and other facilities related to production and processing using solution extraction/electrowinning (SX/EW) techniques; Transition Areas for access roads, safety buffers, and pollution prevention stormwater facilities maintenance; and Intermittent Use Areas for spatial buffers, site access, and environmental monitoring facilities.

SCOPING

The preparation of the Ray Land Exchange began in 1994 with a proposal from Asarco to acquire BLM lands adjacent to the Ray Mine. A Notice of Intent (NOI) was published in the *Federal Register* on December 19, 1994 and a scoping period was conducted from December 1994 to February 1995 with meetings in Kearny and Mesa, Arizona on January 30 and 31, 1995, respectively. However, an offered lands package was not completed in time for scoping. In the following two years, Asarco acquired the offered lands and expanded the selected lands and scoping was reinitiated in the summer of 1997, with publishing a NOI in the *Federal Register* on June 20,1997. A Notice of Exchange Proposal (NOEP) was published in the *Federal Register* on June 20, 1997 and in local newspapers in Gila, La Paz, Pinal and Mohave Counties. The NOEP announced the proposal for exchange of approximately 10,976 acres of selected lands for approximately 8,994[1] acres of offered lands, provided legal descriptions for the selected and offered lands, and stated that the selected lands identified in the exchange have been segregated from appropriation for a period of five years under the public land laws.

During the Ray Land Exchange/Plan Amendment scoping period, three open house meetings were held in Kearny, Mesa and Kingman on July 21, 22 and 23, 1997. Open house meetings were advertised through publication of the NOI in the *Federal Register*, legal notices in local papers, and the informational mailer sent to over 1,000 interested parties. Fliers written in Spanish and English with scoping open house information were posted throughout the towns of Kearny, Winkelman, and Hayden. Open house participants were provided with a fact sheet and comment form. A total of 190 individuals attended the five open house meetings, each of which lasted four hours.

A list of 46 issues were compiled from written and verbal comments received during and after formal scoping. Thirteen issues and comments were determined to be beyond the scope of the EIS and/or were eliminated from further consideration. The remaining 31 issues and comments, organized for both the selected and offered lands under the major topic headings of Biological Resources, Physical Resources, Mineral Resources, Land Use, Cultural Resources, Socioeconomic Resources, and Hazardous Materials, were carried forth for analysis. These issues are discussed further in Section 1.8 of Chapter 1.

SUMMARY OF POTENTIAL ENVIRONMENTAL IMPACTS

Table 2-7 in Chapter 2 of this document summarizes the potential environmental impacts of the Proposed Action, the Buckeye, Copper Butte and No Action alternatives. Detailed descriptions of impacts of both the proposed exchange and the foreseeable uses are provided in Chapter 4; also described are cumulative effects; irretrievable and irreversible commitments of resources; and unavoidable adverse impacts of the Proposed Action, Buckeye and Copper Butte alternatives. Unavoidable adverse impacts include: 1) impacts

[1] Due to the results of the appraisals, the Proposed Action no longer includes all 8,994 acres of offered lands. The offered lands for the Proposed Action have been reduced to 7,300 acres and are discussed in more detail in Chapters 1 and 2.

to archaeological sites from transfer out of public ownership and; 2) loss of approximately 8,196 acres of public land within seven BLM grazing allotments and corresponding reduction in grazing receipts and approximately 918 Animal Unit Months (AUMs).

COMMENTS AND RESPONSES

Chapter 7 has been added to the FEIS to describe the BLM's efforts to notify the public of the availability of the DEIS through *Federal Register* notices, legal notices, public hearings, and pubic outreach. Additionally, this chapter provides reproductions of comments received on the DEIS and the BLM's responses to these comments. Sixty-one comment letters were received during the 90-day comment period. Six themes that were frequently raised in the comment letters were addressed by general responses; these included public access to the White Canyon Wilderness, Proposed Action and Copper Butte Alternatives, Arizona Trail, Public Interest Determination, MPO/Land exchange, and Mineral Creek Consent Decree/Work Plan Project. Other comments received individual responses, which are presented in Chapter 7.

CHAPTER 1

PURPOSE OF AND NEED FOR ACTION

1.1 INTRODUCTION

This Final Environmental Impact Statement (FEIS) describes the potential environmental impacts of the proposed Ray Land Exchange/Plan Amendment. This Proposed Action consists of two connected actions: 1) a land exchange between ASARCO, Inc. (Asarco) and the U.S.D.I. Bureau of Land Management (BLM), and 2) corresponding amendments to BLM's Phoenix Resource Management Plan (Phoenix RMP) and the Safford District Resource Management Plan, as amended (Safford District RMP), which are needed to allow BLM to consider disposing of the lands Asarco wants to acquire through exchange. Since authorization of the land exchange and the plan amendment constitute two connected federal actions that are both subject to compliance with the National Environmental Policy Act (NEPA) and other federal laws, executive orders, and policies, the BLM is preparing one EIS for both actions (40 CFR 1508.25).

Asarco has proposed to acquire approximately 10,976[2] acres of public lands and federally owned mineral estate located near its Ray open-pit copper mine and other operations in south-central Arizona. The parcels that Asarco has identified for acquisition are termed the "selected lands." All of the selected lands are currently administered by the Tucson Field Office of the Arizona BLM.[3] A portion of the selected lands (8,196 acres) are full estate, meaning that the public owns and BLM administers both the surface and the subsurface mineral estates associated with these parcels. Both estates would be traded in the proposed land exchange. The remainder of the selected lands (2,780 acres) are split-estate lands, meaning that Asarco already owns, or is in the process of purchasing, the surface estate, and the BLM administers the mineral estate. Only the mineral estate of these 2,780 acres would be traded in the proposed land exchange.

In exchange for these federal holdings, Asarco is offering to the BLM approximately 7,300 acres of private land that it owns within the state of Arizona. These parcels are termed the "offered lands." They are located in Pinal and Mohave Counties, and fall within the boundaries of BLM's Tucson and Kingman Field Offices. The offered lands possess resource qualities considered to be of significant value to the public and have been identified for acquisition by the BLM in the Phoenix and Kingman Resource Area RMPs, as amended (BLM 1988, 1985, 1992, 1996d). For purposes of this environmental analysis, the offered lands have been clustered into five units (see Chapter 2 for the configuration of these units).

Asarco is one of the state's largest producers of nonferrous metals, principally copper. In Arizona, Asarco operates three open-pit copper mines, one in-situ mine, two solution extraction/electrowinning (SX/EW) plants, four mills, and one smelter. The Ray Mine, located near the community of Kearny in south-central Arizona, has been in operation for more than 85 years, of which the last 11 years have been under Asarco ownership. The mine and associated SX/EW plant produce approximately 40,000 tons of copper cathodes each year (Asarco 1996).

This FEIS has been prepared in compliance with procedures established under NEPA[4], Council on Environmental Quality (CEQ) regulations (40 CFR §1500-1508) and BLM guidelines contained within the

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[2] The acreage figure for selected lands used throughout this document is approximate, but correct in magnitude, and is sufficiently accurate to be used pending cadastral survey or other BLM-approved methods to quantify acreage.

[3] Arizona BLM recently reorganized the boundaries of its administrative units and changed the name of those units from "Districts" to "Field Offices." Before reorganization, the selected lands were within the administrative boundaries of the Phoenix District and managed under the guidance of two documents, the Phoenix RMP and Safford District RMP. Now the selected lands are within the administrative boundaries of the Tucson Field Office; however, management guidance for these lands is still provided by these two RMPs.

[4] 42 USC § 4321, et seq., as amended.

BLM NEPA Handbook (H-1790-1, 1988). Implementation of the proposed land exchange/plan amendment is subject to the BLM's Record of Decision (ROD) on the Final EIS and completion of associated land appraisals, surveys, and realty transactions.

1.2 PROJECT HISTORY AND BACKGROUND

In 1994, Asarco proposed to consolidate its holdings in the Ray Mine Complex and Casa Grande area through a land exchange with the BLM, who began processing the exchange under a Memorandum of Agreement (MOA). Through the proposed exchange, Asarco would acquire 6,549 acres of public lands or federal minerals (the selected lands) within and adjacent to its existing Ray Mine and Santa Cruz In-Situ Project in exchange for other lands (the offered lands) in Arizona owned by Asarco. The BLM determined that prior to making a decision about the land exchange the agency would have to prepare a plan amendment because the exchange proposal was not in conformance with existing planning decisions. The proposed plan amendment would be conducted at an Environmental Assessment (EA) level that would analyze the potential environmental impacts of changing the land tenure decision from retention to disposal by exchange of the selected lands. The proposed *Ray Land Exchange* would be analyzed concurrently but separately in an EIS. In December 1994, a Notice of Intent (NOI) was published in the *Federal Register* and public scoping was conducted through February 1995 for the *Ray Land Exchange EIS*. At the completion of scoping, Asarco still did not have an offered lands package due to offered land contracts collapsing. The decision was made to rescope the exchange once the offered lands became known but to continue baseline studies for the selected lands.

Shortly following scoping for the land exchange, a NOI was published in the *Federal Register* in March 1995, and scoping was conducted for the *Proposed White Canyon Plan Amendment and Environmental Assessment for the Phoenix and Safford District Resource Management Plans* (BLM 1996a). The proposed Plan Amendment had two purposes: 1) to consider changing the land tenure classification from retention to disposal by exchange of the selected lands identified in the Ray Land Exchange and; 2) to change the designation and management of the White Canyon Area of Critical Environmental Concern (ACEC). In February 1996, a Finding of No Significant Impact (FONSI) was issued on the EA for the Plan Amendment (BLM 1998c). Three protests were filed in March 1996. Before the protests were resolved, however, Asarco requested an expanded exchange and the protest issues became moot. The BLM decided: 1) to partially adopt portions of the Plan Amendment, specifically those dealing with the ACEC decision, and 2) the decisions regarding land tenure would not be approved at that time since the exchange had been expanded considerably.

In response to Asarco's request of additional selected lands and the need for a larger plan amendment, the BLM determined that the EIS should consider both the land exchange and a plan amendment in one document. The EIS was renamed the *Ray Land Exchange/Plan Amendment Environmental Impact Statement.*

The land exchange package, finalized in 1997, includes all the lands from the original Ray Land Exchange package plus nine new selected land parcels and a plan amendment. BLM reinitiated the scoping process in June 1997 because adding new selected and offered lands and combining a plan amendment was a significant change from the original Proposed Action. Public scoping efforts for the Ray Land Exchange/Plan Amendment are summarized in Section 1.8 of this chapter and are described in detail in Chapter 5.

1.3 PURPOSE OF AND NEED FOR ACTION

The purpose of the proposed Ray Land Exchange/Plan Amendment is to exchange ownership of federal lands for private lands. Asarco proposed the Ray Land Exchange with the BLM in order to acquire public lands adjacent to its Ray Complex (Ray Mine and associated facilities) and the Santa Cruz In-Situ Copper

Mining Research Project.[5] In exchange, Asarco is offering to the BLM private lands containing important natural resource and other values. By acquiring the selected lands, Asarco seeks to consolidate its land holdings within and near areas of ongoing mineral development and to use the selected lands to support and expand current and future mining-related operations. Through the exchange, BLM has an opportunity to achieve several public lands management objectives: 1) improve resource management efficiency by disposing of heavily encumbered, isolated and difficult to manage public lands; 2) acquire lands that will consolidate ownership patterns within wilderness and special management areas; and 3) acquire lands with fewer encumbrances and higher resource values.

The proposal is not consistent with the current land tenure objectives provided in the Phoenix and Safford District RMPs. According to these documents, lands within Resource Conservation Areas (RCAs) and Long-Term Management Areas (LTMAs), including the selected lands, are to be retained in federal ownership. Further, these RMPs direct the BLM to seek to expand its ownership within these resource areas by acquiring private and State Trust lands (surface and subsurface) through an active exchange program. Due to a 1988 court decision, the State of Arizona has not been able to complete land exchanges with the BLM, nor will the State be able to complete any land exchanges with the BLM within the foreseeable future (Arizona Supreme Court and Deer Valley Unified School District v Superior Court, 1988). Further, Asarco is looking to expand its mining operations within the area which would require BLM to administer, on a long-term basis, lands that are encumbered by mining activities.

Approximately 9,906 acres of the selected lands are part of the White Canyon RCA, which is managed under the Phoenix RMP, and approximately 433 acres are part of a former Safford District LTMA, which is managed under the Safford District RMP (Table 1-1). As stipulated by the RMPs, these selected lands, totaling approximately 10,339 acres, or about 94.2 percent of all the public lands desired by Asarco, are to be retained in public ownership.

Table 1-1. Selected Lands Acreage to Which a Plan Amendment to the Phoenix and Safford District RMPs Would Apply

RMP	Selected Lands (ac)	Selected Lands Already Identified for Disposal (ac)	Lands Requiring Plan Amendment (ac)
Phoenix	10,543	637	9,906
Safford District	433	0	433
TOTAL	**10,976**	**637**	**10,339**

The purpose of the proposed plan amendment is to change the land tenure classifications in the Phoenix and Safford District RMP's so that the BLM may consider the proposed Ray Land Exchange. This objective would be accomplished by 1) changing the land tenure decision from retention to disposal by exchange for those public lands within the White Canyon RCA that were selected for the proposed exchange, and 2) changing the land tenure decision from retention to disposal by exchange for the similarly selected public lands within the former Safford District LTMA.

The proposed land tenure decision adjustments would apply to both full estate and split (subsurface mineral) estate parcels. Table 1-2, ~~on the preceding page,~~ summarizes the acreage of full and mineral estate selected lands managed under the Phoenix and Safford District RMPs.

[5] The Santa Cruz In-Situ Copper Mining Research Project is located west of Casa Grande, Arizona, on lands owned by Asarco Santa Cruz Inc., Asarco, and Freeport-McMoRan Inc., doing business as the Santa Cruz Joint Venture (SCJV).

Table 1-2. Acreage of Full Estate and Mineral Estate Selected Lands Managed under the Phoenix and Safford District RMPs

RMP	Full Estate (ac)	Mineral Estate (ac)	Total
Phoenix	7,841	2,702	10,543
Safford District	355	78	433
TOTAL	**8,196**	**2,780**	**10,976**

1.4 DECISION TO BE MADE

This EIS will analyze the environmental impacts of both the proposed Ray Land Exchange, including foreseeable uses of the selected and offered lands, and the proposed plan amendment for the Phoenix and Safford District RMPs. During preparation of the EIS, the BLM considered three types of actions (connected, cumulative, and similar); three types of impacts (direct, indirect, and cumulative); and three types of alternatives (no action, Proposed Action, and other reasonable action alternatives) when determining the scope of the EIS. The analysis and disclosure of impacts in the EIS will be the basis for the following federal decisions, which will be rendered in a Record of Decision issued by the Arizona State Office of the BLM.

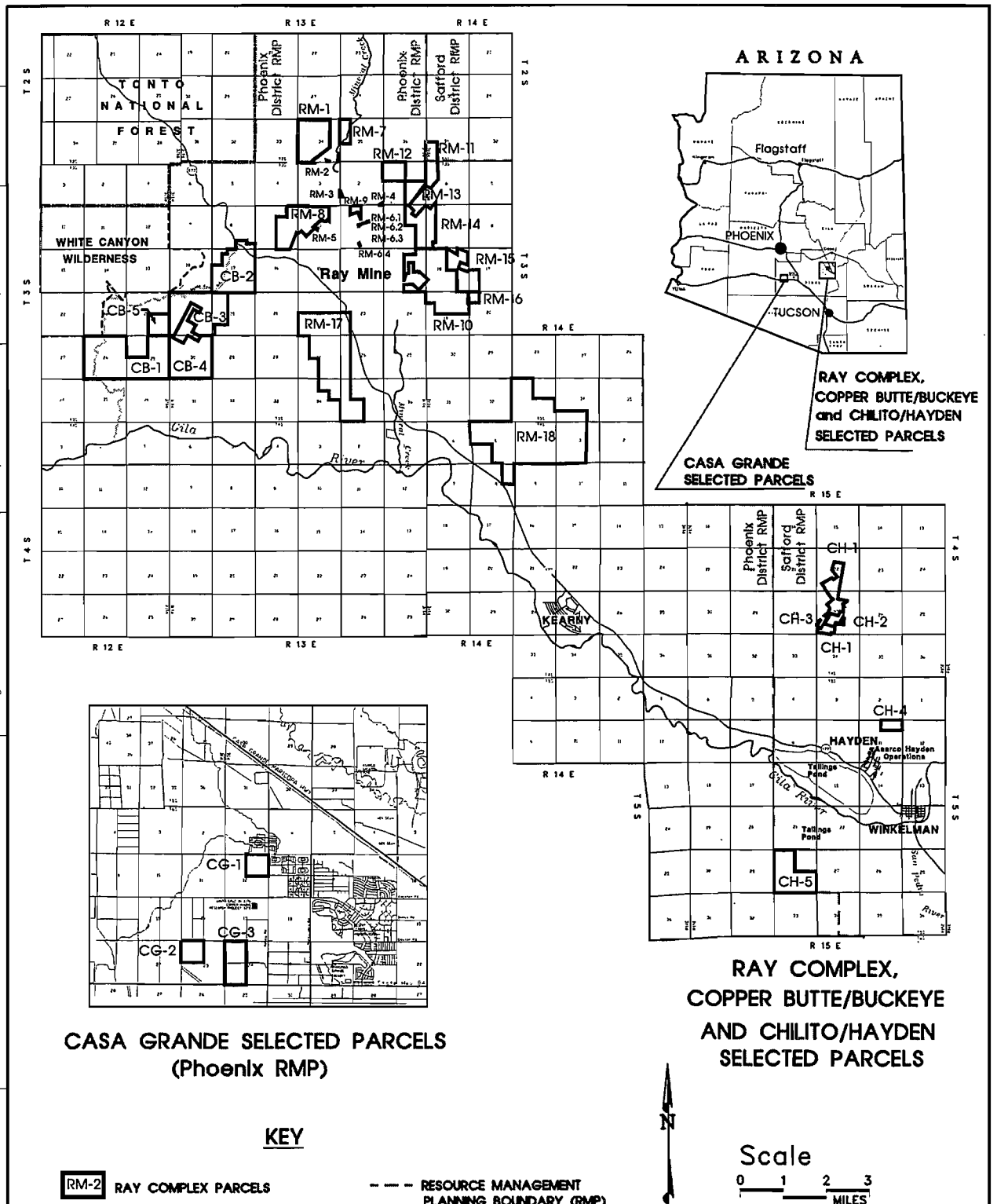
1. BLM must decide whether or not to approve the plan amendment for the Phoenix and Safford District RMPs.
2. If the plan amendment is approved, BLM must decide whether or not to approve the land exchange proposed by Asarco, or an exchange alternative which is consistent with the approved plan amendment.

If a plan amendment is not approved, BLM cannot approve any land exchange considered in the EIS with the exception of the Casa Grande parcels.

1.5 PROJECT LOCATION AND PLAN AMENDMENT AREA DESCRIPTION

The selected lands consist of 31 parcels of public lands located in Pinal and Gila Counties in south-central Arizona. Twenty-eight of the parcels occur in the Middle Gila River Basin between Mineral Creek to the north, the White Canyon Wilderness to the northwest, and the San Pedro River to the southeast. These 28 parcels are clustered in three areas (the Ray Complex, Copper Butte/Buckeye, and Chilito/Hayden) near Asarco's Ray Mine and the communities of Ray, Kearny, Hayden, and Winkelman, Arizona (Figure 1-1). The remaining 3 parcels are located about 50 miles west of the Ray Complex, near the community of Casa Grande in Pinal County (Figure 1-1).

The offered lands consist of 18 parcels owned by Asarco which are located in Pinal and Mohave Counties, also in Arizona (Figure 1-2). These parcels, which are treated throughout this document as five units (two single parcels and three parcel groups), include parcels along the Gila and Big Sandy Rivers, the Black Mountains, and Cerbat Mountains.



CASA GRANDE SELECTED PARCELS (Phoenix RMP)

RAY COMPLEX, COPPER BUTTE/BUCKEYE AND CHILITO/HAYDEN SELECTED PARCELS

KEY

- RM-2 RAY COMPLEX PARCELS
- CB-1 COPPER BUTTE SELECTED PARCELS
- CH-1 CHILITO/HAYDEN SELECTED PARCELS
- CG-1 CASA GRANDE SELECTED PARCELS
- – – – RESOURCE MANAGEMENT PLANNING BOUNDARY (RMP)

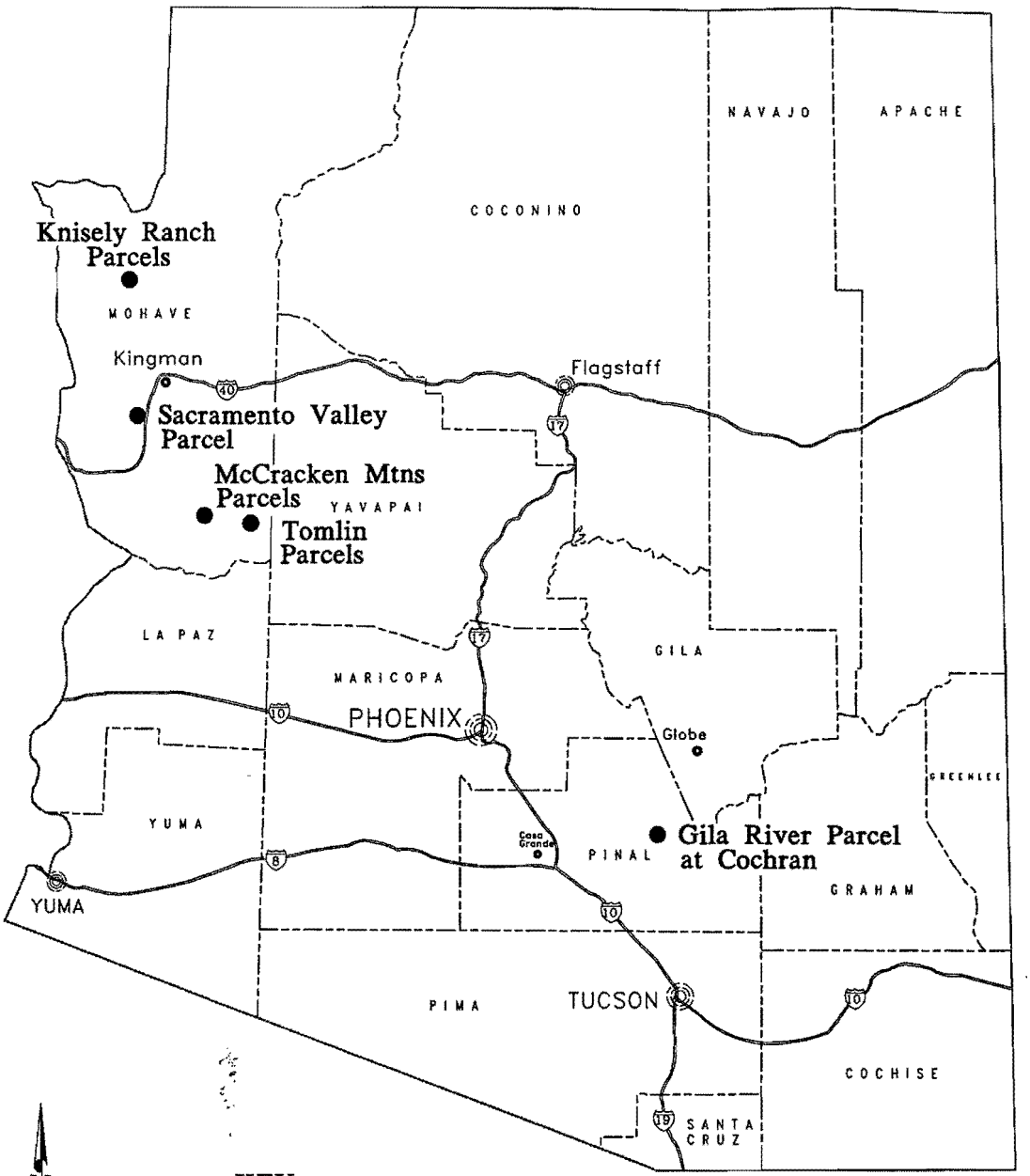
N

Scale 0 1 2 3 MILES

RAY LAND EXCHANGE/PLAN AMENDMENT EIS
Gila and Pinal County, Arizona

LOCATION MAP OF SELECTED PARCELS

FIGURE 1-1



RAY LAND EXCHANGE/PLAN AMENDMENT EIS
State of Arizona

GENERAL LOCATIONS OF OFFERED PARCELS

FIGURE 1-2

1.6 RELEVANT BLM RESOURCE MANAGEMENT PLANS AND APPLICABLE LAWS AND REGULATIONS

Table 1-3 summarizes the principal laws and regulations with which the BLM must comply in order to authorize the proposed land exchange/plan amendment.

Table 1-3. Principal Laws and Regulations Relating to the Ray Land Exchange/Plan Amendment (see Appendix E for a detailed description)

Law/Regulation	Applies to
American Indian Religious Freedom Act (AIRFA) 42 USC § §1996	Native American religious places and access
Archaeological Resources Protection Act (ARPA) 16 USC § §470	archaeological resources
Clean Air Act (CAA) 42 USC § §7401 et seq.	air quality
Clean Water Act (CWA) 33 USC §1251 et seq.	surface water quality
Endangered Species Act (ESA) 16 USC § §1531 et seq., as amended	threatened & endangered species
Federal Land Exchange Facilitation Act of 1988 (FLEFA) 43 USC §1716, §1740	federal land exchanges
Federal Land Policy and Management Act (FLPMA) 43 USC §1701	federal lands, special management areas
Mining and Mineral Policy Act of 1970	mining
Mining Law of 1872, as amended	mining claims
Native American Graves Protection and Repatriation Act (NAGPRA) 25 USC § §3001, et seq.	treatment of human remains and associated cultural items
National Environmental Policy Act (NEPA) 42 USC § §4321 et seq., as amended	federal undertakings
National Historic Preservation Act (NHPA)	archaeological and historic properties
National Materials and Minerals Policy Research and Development Act of 1980	mineral resources
Resource Conservation and Recovery Act (RCRA) of 1986, as amended	hazardous or solid waste
Superfund Amendment and Reauthorization Act of 1926 (SARA), as amended	identifies and manages superfund sites
Safe Drinking Water Act (SDWA) 42 USC § 300f et seq.	drinking water quality
Wild & Scenic Rivers Act (WSRA) 16 USC § §1271 et seq.	wild & scenic rivers
Wilderness Act (WA) 16 USC §1131 et seq.	wilderness

Table 1-3, continued. Principal Laws and Regulations Relating to the Ray Land Exchange/Plan Amendment (see Appendix E for a detailed description)

Law/Regulation	Applies to
Secretary of the Interior Order 3175	Indian trust assets
Executive Order 11593	preservation of cultural environment
Executive Order 11988	floodplain management
Executive Order 11990	wetlands, riparian zones
Executive Order 12898	environmental justice
Executive Order 13007	sacred sites

1.6.1 Conformance with Relevant Resource Management Plans

The relevant BLM RMPs for the lands involved in the proposed Ray Land Exchange/Plan Amendment are the Phoenix RMP (BLM 1988), Safford District RMP (BLM 1991, 1994b),and Kingman Resource Area RMP (BLM 1993). Approximately 10,543 acres (96%) of the selected lands are managed according to the Phoenix RMP, which identifies only 637 of these acres for disposal by exchange (Table 1-1). About 433 acres (4.0%) of the selected lands are managed according to the Safford District RMP, which identifies none of these acres for disposal by exchange. Consequently, of the total 10,976 acres Asarco would like to acquire, 10,339 acres have not been approved for disposal by exchange. A plan amendment for both RMPs is therefore needed to implement the Proposed Action.

If acquired by the BLM, the offered lands would be administered under guidance provided in the Phoenix and Kingman Resource Area RMPs. All of the offered lands have been identified as desirable for acquisition in one of these two documents. No other RMPs are applicable to the lands involved in the proposed land exchange/plan amendment.

1.6.2 Plan Amendment Authority

According to the BLM planning regulations contained in 43 CFR §1600, an amendment to an RMP is used to consider a proposal or action that is not in conformance with the plan, but warrants further consideration before the plan is revised. The regulations prescribe the process that must be followed and the format that must be used in developing a plan amendment (43 CFR §1610.5-5). Since this plan amendment has been combined with the exchange EIS, it is considered a Category 2 Plan Amendment and appropriate requirements are being followed.

1.6.3 Land Exchange Authority

The BLM is authorized to complete land exchanges under Section 206 of the Federal Land Policy Management Act of 1976 (FLPMA),[6] as amended by the Federal Land Exchange Facilitation Act of 1988 (FLEFA),[7] but only after a determination is made that the public interest will be served by the exchange. Exchange is the preferred method of public land disposal (BLM 1991); however, the BLM is not obligated to process every exchange proposal it receives. Land exchanges are considered discretionary and voluntary actions (43 CFR §2200.0-6). Objectives and criteria for federal land ownership adjustments are provided

[6] 43 USC §1701, 1716.

[7] 43 USC §2201.

in general by Section 203 of FLPMA, and specifically in the Phoenix RMP. Table 1-4 summarizes these objectives and criteria for disposing of and acquiring public lands.

Table 1-4. BLM Objectives and Criteria for Public Land Disposal and Acquisition

DISPOSAL		ACQUISITION	
Objectives	**Criteria**	**Objectives**	**Criteria**
Improve resource management efficiency and service to the public by disposing of isolated tracts of public land	Lands that are difficult or uneconomical to manage and not suitable for management by another agency	Acquire lands with high public values that complement existing management programs within special management areas	Lands containing riparian habitat or within watersheds of important riparian areas
Acquire lands with higher resource values that meet BLM management objectives	Lands no longer needed for the original purpose for which they were acquired	Consolidate ownership pattern within special management areas to improve management efficiency	Lands with high value wildlife habitat, including threatened and endangered species habitat and major migration corridors
Dispose of suitable parcels of public land to facilitate county and city needs for public purposes (parks, landfills, etc.)	Lands that will serve an important public purpose		Lands for administrative sites or developed recreational sites
			Lands providing access to public lands
			Lands containing significant cultural and paleontological properties

Source: Phoenix RMP (BLM 1988)

1.6.3.1 Determination of Public Interest

When considering the public interest, the authorized BLM officer shall give full consideration to 1) the opportunity to achieve better management of federal lands; 2) meeting the needs of state and local residents and their economies; and 3) securing important objectives, including, but not limited to, protection of fish and wildlife habitats, cultural resources, watersheds, and wilderness and aesthetic values [43 CFR §2200.0-6(b)]. The Secretary of the Interior must consider improved federal land management, the needs of state and local people, and a host of values and uses associated with the lands proposed for exchange. These values and uses include but are not limited to "...protection of fish and wildlife habitats, cultural resources, watershed, wilderness and aesthetic values; enhancement of recreational opportunities and public access; consolidation of lands and/or interests in lands, efficient management and development; accommodation of land use authorizations; promotion of multiple-use values; and fulfillment of public needs" (43 CFR §2200.0-6).

1.6.3.2 Resource Values

As required by Section 206(a) of FLPMA, the Secretary must also find that the values of, and the management objectives served by, the lands being acquired (the offered lands) are greater than or at least equal to the values of and management objectives served by the lands being disposed of (the selected lands). It can be said that, in part, the public interest is served if the values of the resources being exchanged are comparable or in the public's favor.

1.6.3.3 Monetary Values of the Selected and Offered Lands

Equalization of Monetary Values. The Federal Land Policy and Management Act (FLPMA) of 1976, as amended by the Federal Land Exchange Facilitation Act (FLEFA) and the pertinent regulations at 43 CFR 2200 require that the lands being exchanged be of equal value, meaning that the monetary value of the offered and selected lands must be equal. Any difference in monetary values, up to 25 percent of the value of the public lands leaving federal ownership (selected lands), must be equalized through a cash payment, except as provided for by 43 CFR 2201.1-1, 2201.5, and 2201.6, by the exchange. This ensures that the exchange is fair in terms of monetary value.

Appraisal Process. Regulations at 43 CFR 2201.3 address appraisals for land exchanges, including reference to the Uniform Appraisal Standards for Federal Land Acquisition (UAS) (Department of Justice, 1992). These standards stem from years of eminent domain legal action and provide guidance for all federal appraisals. Additionally, state appraisal laws implementing the Uniform Standards of Professional Appraisal Practice apply. All appraisals for the Ray Land Exchange have been completed and reviewed by professional, state-certified appraisers, either BLM staff appraisers or private appraisers working under contract for BLM.

Most of the land involved in the exchange was appraised using the sales comparison approach. This is the most common and defensible method to appraise land. It derives an indication of value from a methodical comparison between the land being appraised and several recent sales of similar land. Land is deemed similar if it is of the same highest and best use, that is, it enjoys the same probable, physical, legal, and financially productive use.

The mineral potential of the exchange lands was also considered in the appraisals. Those lands with known and quantifiable mineral resources were appraised using the income approach. This method looks to the income producing potential of the land (mineral deposit) and estimates the income and expense requirements of a typical extraction scenario for those deposits. The net income is then converted to a lump sum present value using a rate of return derived from the sales of other income producing mineral deposits and/or the anticipated rate-of-return of other mineral based investments.

1.6.3.4 Patent Application Process

BLM is currently processing a patent application, filed by Asarco in December of 1990, for approximately 387 acres of the selected lands in the Copper Butte Area. The patent application ~~is considered~~ has received a first half final certificate[8] and is pending issuance of the second half final certificate. The Secretary of the Interior is the authorizing official, who can authorize anywhere from 0 acres to 387 acres to be patented. Currently, for all federal lands, there is a moratorium issued by the Secretary of the Interior for reviewing patent applications except for those who received first half final certificates filed before September 30, 1994 ~~for all federal lands~~. Should the patent be authorized before the completion of the ROD for the EIS, these acres would be eliminated from the exchange.

1.6.4 NEPA Analysis and Other Environmental Regulatory Requirements

Federal regulations require that all land exchanges [43 CFR §2200.0-6(h)] and all Category 2 proposed plan amendments to RMPs (43 CFR §1610) be analyzed in accordance with NEPA and CEQ regulations contained in 40 CFR §1500-1508. In the case of Category 2 plan amendments, BLM must comply with NEPA by preparing an EIS (43 CFR §1610).

Under the umbrella of NEPA requirements, BLM must also coordinate with other federal, state, and local agencies whose responsibilities may include some aspects of the Proposed Action. In addition, if Asarco proceeds with its intention to develop the selected lands for mining and/or mining-related uses, Asarco would

[8] Issuance of a first half certificate ~~confirms equitable title as vested in the applicant subject to confirmation of a discovery. It certifies the applicant has met all paperwork required~~, eliminates the need for annual filings and segregates the lands from public and mineral entry. ~~and establishes the date which the discovery must be demonstrated~~.

have to comply with federal and state laws and regulations governing such activities before beginning development. Compliance would be necessary under any land ownership scenario. A list of applicable legislation and the agencies responsible for implementing the legislation relating to mining on public lands and private lands is provided in Tables 1-3 and 1-5. Three major environmental programs that regulate potential impacts of mining activities are the Clean Water Act permitting programs, the Title V Air Quality Permit Program of the Clean Air Act, and the Aquifer Protection Program under Arizona Revised Statutes (A.R.S.) Title 49. The substantive protections to natural resources provided by these programs are discussed in more detail in Appendix E.

Table 1-5. Summary of Required Permits/Approval for Asarco to Operate the Ray Complex

Permit or Approval	Authorizing Agency
Cultural Resource Mitigation	BLM and Arizona State Historic Preservation Office (SHPO)
Section 7 Consultation	USFWS
National Pollutant Discharge Elimination System (NPDES), stormwater and point source discharge permits	EPA
Section 404 Permit	COE
Aquifer Protection Permit (APP)/Spill Prevention and Countermeasure Control	ADEQ
State 401 Certification	ADEQ
Air Quality Permits	ADEQ and Pinal County Air Quality Control Division (PCAQCD)

1.6.4.1 BLM Administration of the General Mining Act of 1872

Mining on public lands is authorized under the General Mining Law of 1872 (as amended) (30 USC §§ 21-42), the Mining and Minerals Policy Act of 1970 (30 USCA § 21a), FLPMA of 1976 (as amended) (43 USCA §§ 1701-84), and the National Materials and Minerals Policy, Research and Development Act of 1980 (30 USCA §§ 1601-05). The BLM's regulatory responsibilities for oversight of mining activities on federal lands are set forth in 43 CFR §3809, which established "procedures to prevent unnecessary and undue degradation of federal lands which may result from operations authorized by the mining laws." On BLM-administered lands, a claimant ~~may file a Mining Plan of Operations (MPO) with the BLM to develop their claims.~~ must submit a Mining Plan of Operations (MPO) for BLM's approval for surface disturbances exceeding five acres. The BLM is responsible for federal review and authorization of the MPO, which includes environmental analysis under NEPA and implementing regulations (43 CFR §3809.1-6). For other specific regulatory programs, however, BLM defers to state and other federal regulatory agencies to ensure that the activities described in the MPO are in compliance with applicable environmental laws. These include, but are not limited to: the Clean Water Act, Federal Water Pollution Control Act, Clean Air Act, Solid Waste Disposal Act, and the Arizona State Aquifer Protection Program (43 CFR §3809.1-6 and §3809.2-2). These compliance responsibilities are summarized in Table 1-5. As part of their oversight responsibilities for mining on public lands, the BLM requires that federal reclamation requirements be addressed in the MPO and that adequate bonding or other financial guarantee is provided by the proponent to ensure that post-closure reclamation can be completed as proposed.

As an alternative to mine development under an MPO, claim holders on public lands may submit a patent application to the BLM to acquire title to lands for which they hold mineral claims or may complete a land exchange. Upon completion of the patent or land exchange, the lands are privately owned and the owners can proceed with their mine plans without BLM authorization. However, they must obtain exactly the same federal and state environmental permits that are required for mining on public lands—those listed in Table

1-5. And while the BLM no longer provides federal oversight of reclamation in such circumstances, a mine on private lands is still subject to state reclamation requirements.

Thus, the two major distinctions between regulatory requirements of mining activities on public versus private lands are: 1) NEPA analysis of an MPO by the BLM is required for public lands, and 2) federal reclamation requirements apply to public lands; state reclamation requirements apply to private lands. Reclamation requirements are discussed further in Appendix E.

Once public lands pass into private ownership, BLM is no longer responsible for NEPA analysis or oversight of the mine plan. However, to implement mining on private lands, specific activities in a proponent's mine plan must be authorized by the federal agencies listed in Table 1-5, and some of these approvals may constitute federal actions also subject to NEPA analysis. In those instances, a federal agency other than the BLM may conduct NEPA review of the proposed mine activity subject to its jurisdiction. Therefore, it is the loss of BLM authority in particular, and not federal authority in general, that is the consequence of the land exchange.

1.7 SUMMARY OF SCOPING ISSUES

From 1995 through 1997, five public meetings were held for the proposed Ray Land Exchange/Plan Amendment EIS. These meetings were part of a process called "scoping," which is designed to gather input from the public, government agencies, and other interested parties to identify issues that should be addressed in this EIS. Table 1-6 summarizes the issues and concerns raised during public scoping and by the BLM Interdisciplinary (ID) team.[9] A summary of the public participation plan and public scoping efforts conducted for this EIS, including coordination with state and federal agencies, is provided in Chapter 5. Measures taken by the BLM to comply with Executive Order 12898 on Environmental Justice are also discussed in Chapter 5.

1.8 ISSUES BEYOND THE SCOPE OF THIS EIS OR ELIMINATED FROM FURTHER CONSIDERATION

Several scoping comments and issues that were raised were determined by the BLM ID Team to be beyond the scope of analysis for this EIS or were eliminated from further consideration for other reasons. Specific responses to these comments/issues and the reason(s) they will not be addressed in this EIS are provided below. The comments have been categorized into four topic areas: Land Use, Mining Issues, Indian Trust, and Other. The remaining scoping issues will be carried forth for analysis in Chapter 4.

1.8.1 Land Use

Comment/Issue. How would completion of the Arizona and Great Western Trail through the selected lands be impacted? What are the economic benefits brought by motorized vehicle recreation and the Arizona and Great Western Trails?

Response. Specific planning for the Arizona and Great Western Trails will be addressed by the BLM in a separate planning analysis to be completed sometime in the future. For this EIS, the issue that is being analyzed is how would completion of these two trails through the selected lands be impacted. That is, this FEIS analyses the viability of alternative corridors through the selected lands under each of the alternatives, but it is not specifically designating trail segments through the selected lands or analyzing the economic benefits of each trail. Please see Chapter 7, general response no. 3, Arizona Trail.

[9] The ID Team consists of BLM resource specialists who oversee preparation of the EIS by the third party contractor. These individuals are identified in Chapter 6.

Table 1-6. Issues Raised for the Proposed Ray Land Exchange/Plan Amendment EIS

Resource Category	Issue(s)	Issue tracked in Sections:
Land Use	• How would **access** to public and private lands be impacted on the selected and offered lands?	3.2.4, 3.3.4, 4.4.3, 7.4.1
	• How would **recreational** opportunities—including hiking, hunting, rock hounding, and rock climbing opportunities—be impacted on the selected and offered lands?	4.4.3
	• What are the potential impacts to **grazing** on the selected and offered lands?	3.2.4, 3.3.4, 4.4.5
	• What are the potential impacts to existing **mineral rights** and/or potential development of **mineral resources** on the selected and offered lands?	3.2.3, 3.3.3, 4.3
	• How would the land exchange impact the **management of public and private lands**?	4.4.2
	• How would motorized vehicle **recreation** in the vicinity of Copper Buttes be impacted?	4.4.3
	• How would **utility rights-of-way** be impacted?	4.4.4
	• Does this land exchange conform to the Phoenix and Safford **Resource Management Plans**?	1.6
	• What are the potential impacts to **visual quality** from scenic overlooks in the Tonto National Forest and White Canyon Wilderness?	4.4.6
	• What are the cumulative impacts to public lands when **disparate acreages** are exchanged?	4.9
	• How would quality and use of the **artesian well** near White Canyon Wilderness be impacted?	4.4.3
	• How would completion of the **Great Western and Arizona Trail** through the selected land area be impacted? What are the economic benefits brought by motorized vehicle **recreation** and the **Arizona and Great Western Trail**?	1.8.1, 7.4.3
	• What are the potential impacts to the **White Canyon Wilderness**? What are the potential impacts from **noise?** What are the potential impacts from **lights** used during nighttime operations?	4.4.7
Biological Resources	• What **special status species** may occur or are known to occur on the selected and offered lands? If they do occur, how will they be impacted?	3.2.1, 3.3.1, 4.1.4, 4.1.5
	• What are the impacts to **upland and riparian habitats** on the selected and offered lands?	4.1.1, 4.1.2
	• What are the impacts to **vegetation** on the selected lands?	4.1.1, 4.1.2
	• How would **wildlife** be impacted on the selected lands?	4.1.3
	• Will offered lands **riparian habitat** values offset potential selected lands riparian habitat losses?	4.1.2

Table 1-6, continued. Issues Raised for the Proposed Ray Land Exchange/Plan Amendment EIS

Resource Category	Issue(s)	Issue tracked in Sections:
	• Will offered lands **tortoise habitat** values offset potential selected lands tortoise habitat losses?	4.1.4
	• Will the land exchange affect **bighorn sheep** reintroduction in the Dripping Springs Mountains area and Picketpost Mountain area?	4.1.3
	• How would **biodiversity** be impacted on the selected and offered lands?	4.1.7
Physical Resources	• What are the potential impacts of the exchange to **surface waters** on the selected lands?	4.2.1
	• What are the potential impacts of the exchange to **groundwater** and how will **groundwater** be protected?	4.2.2
	• What are the **water rights** associated with the selected lands and how would these be impacted?	4.2.3
	• Are there existing **water rights** associated with the offered lands, and would these be conveyed to the public in the proposed exchange?	3.3.2, 4.2.3
	• What are the cumulative impacts to the **Gila River Watershed** from current, proposed, and likely mining operations?	4.7.2.2
	• What are the potential impacts of the exchange to **air quality**?	4.2.4
	• What are the potential impacts to **soils** on the selected lands?	4.2.5
	• What are the potential impacts to active mineral rights (i.e., mining claims, mineral leases and mineral material contracts)?	4.3.2
Cultural Resources	• What are the potential impacts to **archaeological resources** on the selected and offered lands?	4.5.1
	• What are the potential impacts to ~~**traditional cultural properties**~~ places of traditional importance on the selected and offered lands?	4.5.2
Socioeconomic Resources	• What are the potential impacts of the exchange to the **local tax base**?	4.6.2.3
	• What are the potential impacts of the exchange to the **tax bases of counties in which the selected and offered lands are located**?	4.6.2.3
	• What are the economic benefits brought by **mining related revenues** and employment in the selected lands area?	4.6.2.1
	• What are the potential impacts of the exchange on the **population and demographics** (including minorities)?	4.6.1
	• What are the potential impacts of the exchange on the **local economy** (employment, income and taxes)?	4.6.2

Table 1-6, continued. Issues Raised for the Proposed Ray Land Exchange/Plan Amendment EIS

Resource Category	Issue(s)	Issue tracked in Sections:
	• What are the potential impacts of the exchange on **minority populations**?	4.6.1, 7.4.5
Mining Issues	• A **Mine Plan of Operations (MPO)** should be filed with the land exchange and considered as an alternative.	1.8, 2.3.4
	• How will **mining development** occur on the selected lands?	1.8.2, 2.2
	• An alternative analysis for Copper Butte/Buckeye should be constructed to determine an **alternate ore source** that is less environmentally damaging.	1.8
	• What are the plans to monitor **groundwater movement**? Are there plans to divert stormwater (100-500 year floods) around tailings?	1.8
	• Why would BLM allow a **large-scale mining operation** west of Highway 177? How is this prudent to public interest when over 50 years of ore exists at the Ray Mine?	1.8
Indian Trust	• Does the exchange conform with the BLM's **Indian trust** responsibilities toward Native Americans?	1.8
Hazardous Materials	• Are there **hazardous materials** on the selected lands?	~~3.3.7~~ 4.9

Comment/Issue. Would it be possible for the "Coke Ovens" to be used as offered lands for the proposed land exchange?

Response. The land exchange under analysis in this EIS was proposed by Asarco, who identified the federal lands (selected lands) they wish to acquire and the private lands (offered lands) they are willing to trade to the federal government. The offered lands included in this proposed exchange are parcels within various special management areas that have been identified for public acquisition through statewide prioritization efforts by BLM. These lands remain high priority acquisition targets that meet the BLM acquisition objectives expressed in the appropriate RMPs. Because the Coke Ovens have not been identified as property that BLM would like to acquire and manage, they are not on the statewide acquisition list.

Comment/Issue. Why doesn't the BLM acquire offered lands in the county where the selected lands are located?

Response. See response to previous comment.

1.8.2 Mining Issues

Comment/Issue. How will mining development occur on the selected lands?

Response. Under the proposed land exchange, mining development would be implemented on the selected lands after Asarco acquired title to the lands; secured the necessary environmental permits to implement those uses; and complied with all other federal, state, or local permitting requirements. At this time, only conceptual mining development plans are available through the foreseeable use plans provided by Asarco (SWCA 1997a). How mining development would occur (i.e., facility footprints, specifications, and layouts) is unknown, especially for long-term mining prospects.

Comment/Issue. An alternate ore source for Copper Butte/Buckeye should be explored that is less environmentally damaging.

Response. The current regulations applicable to the proposed project at hand, a land exchange, require no such analysis. If and when Asarco applies for a Clean Water Act (CWA) Section 404 permit, they may be required to conduct an analysis of alternatives under the 404(b)(1) guidelines of the Act to identify the least environmentally damaging practicable alternative.

Comment/Issue. What are the plans to monitor groundwater movement? Are there plans to divert stormwater (100- to 500-year floods) around tailings?

Response. There are currently no plans to monitor groundwater movement as the Proposed Action at this time is only for a land exchange/plan amendment. Although only conceptual plans for the foreseeable mining uses of the selected lands are available, CWA regulations will apply to mining development whether the selected lands remain under public management or become privately owned. These regulations require that impacts to the quantity or quality of waters of the United States be avoided, if possible, then minimized if avoidance is not possible. Although no specific mine plan has been developed at this time, Asarco will need to construct stormwater diversions around all process-related facilities such as leach pads, stockpiles, and tailings impoundments in order to comply with the CWA, and ground water monitoring wells may be required.

Comment/Issue. Why would BLM allow a large-scale mining operation west of Highway 177? How is this prudent to public interest when over 50 years of ore exists at the Ray Mine?

Response. BLM's multiple-use mandate and management responsibilities include implementing federal laws and regulations pertaining to public lands under their jurisdiction. These laws include the General Mining Law of 1872; Federal Land Policy and Management Act (FLPMA) of 1976; the Mining and Mineral Policy Act of 1970; and the National Materials and Minerals Policy, Research, and Development Act of 1980—all of which were enacted, either in whole or part, to encourage mineral development on public lands. Asarco has existing mining claims on public lands west of Highway 177 that were filed under the auspices of the General Mining Law. By law (and not as a matter of public interest), Asarco has the right to develop these claims, regardless of ore reserves it may or may not have at other locations.

Comment/Issue. A Mining Plan of Operations (MPO) should be filed with the land exchange and considered as an alternative.

Response. Asarco has not filed a mining plan of operations (MPO)[10] with BLM which meets the requirements of 43 CFR § 3809; therefore, this alternative does not exist and cannot be evaluated in this EIS. In the absence of a fully developed and engineered MPO, a foreseeable use plan was developed as the basis for analyzing the foreseeable mining activities. The U.S. Army Corps of Engineers (COE) has indicated that they will likely require preparation of an EIS after the land exchange should Asarco submit a 404 permit application to implement the foreseeable mining activities on the selected lands. At that time, alternative mining plans might be considered as part of that EIS or other environmental analysis. Also please see Section 7.4.5 in Chapter 7.

Comment/Issue. In accordance with 40 CFR 1502.14, the EIS should "present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decision maker and the public. We [Environmental Protection Agency (EPA)], therefore, urges BLM to include the following information in the EIS:

- Geochemistry Report. The EIS should include waste rock characterization, acid-base accounting (and follow-up kinetic test results, if necessary), modeling of pit lake chemistry and geochemical characterization, including leach tests of the following: 1) barren waste rock (no copper- but may have sulfide and/or toxic leachable constituents); 2) run of mine ore (ROM) which is low grade ore,

[10] Asarco operates the Ray Mine under an existing MPO and proposed modifications in 1993 and 1994.

both oxide and sulfide, that they plan to leach without any crushing or prep (but they may add acid); 3) oxide ore, most of which will be crushed and agglomerated (what percentage?); and 4) tailings. The characterization of the interstitial fluids in the tailings should also be provided along with any Aquifer Protection Program (APP) data or Clean Water Act violation-related data with regard to the existing tailings facilities.

- Groundwater Modeling Report. The EIS should provide the hydrogeologic parameters and character of fracture permeability in the affected area; groundwater modeling for baseline conditions, future conditions, and ultimate equilibrium conditions; include cone of depression, transport and fate of leachate from "waste rock" (leachable or potentially leachable material) deposition areas under Best Available Demonstrated Control Technology (BADCT) conditions; prediction of pit lakes at Ray and Copper Butte; affects of groundwater flow direction near the Ray pit on groundwater supply to the Gila River.

- APP studies and application. The EIS should describe facilities that would be lined, to what extent, and what general liner thickness and construction procedures would most likely be followed.

- Projections of Ray and Copper Butte area needs over mine life. The EIS should provide estimations of tonnage as well as acreage needed for deposition areas in order to comply with the Clean Water Act Section 404. Alternatives to place mined material in Mineral Creek and how much material they expected to have over the mine life and what acreage should be included in the EIS. Specifically, what alternatives exist for keeping fill out of Mineral Creek and preventing the mine material on the slopes of Mineral Creek from leaching into the creek. An estimated material tonnage and the acreage needed to accommodated in conjunction with complying with the Clean Water Act Section 404 should also be included.

- Description of deposition areas and other areas needs. The EIS should discuss areas already owned by Asarco that could be alternatives to selected lands for deposition and other operations. Provide clear definitions of "waste rock deposition areas" along with a discussion of whether areas can be assigned for different kinds of rock (e.g., leachable sulfidic waste rock, non-leachable sulfidic waste rock, non-leachable oxide waste rock, potentially leachable ROM, oxide ore to be leached, etc.) and whether this would make a difference in the potential impacts to surface water and groundwater.

- Discussion of waters of the U.S. and Clean Water Act Section 404 process. The EIS should include the delineation of waters of the U.S. at the time of Section 404 permitting including definitions of ordinary high water, wetland boundary, and the lateral extent of waters. The EIS should include information on maximal areas of waters of the U.S. that Asarco could need in the future, including a discussion of waters and wetlands in Mineral Creek below Big Box Dam. Define concepts such as "least environmentally damaging practicable alternative," "avoidance," "minimization," "compensatory mitigation," "in-kind mitigation," "functions and values," "ESA Section 7 Consultation," "106 co-ordination," and "401 certification". The EIS should also include a functional assessment of the waters found on the various parcels using the Cowardin system that would facilitate habitat types, functions, water quality functions and flood flow characteristics.

- Calculations of air emissions. The EIS should include calculations of air emissions for concurrent activities at Ray Complex and Copper Butte including hauling, blasting, excavation, and processing. Haul distances should be calculated, and the EIS should describe the revised area of impact (i.e., operations would include Copper Butte three miles away, so affected area would be different from current affected environment).

Response. In considering EPA's comment, BLM agrees that the Ray Land Exchange/Plan Amendment EIS should present the environmental impacts of the proposal and its alternatives. In determining the appropriate scope of analysis for the EIS, BLM applied the definition of "scope" provided in CEQ regulations at 40 CFR 1508.25. Determining the scope of an EIS requires the responsible agency to consider three types of alternatives, three types of impacts, and three types of actions.

The three types of alternatives are the 1) No Action alternative; 2) Proposed Action alternative; and 3) other reasonable action alternatives. The development of alternatives within an EIS is based upon the project's purpose and need, which for this project, is to consolidate Asarco's land holdings within and adjacent to areas of ongoing mineral development and to use the selected lands to support and expand current mining-related operations. Through the exchange, BLM has an opportunity to achieve several public lands management objectives: 1) improve resource management efficiency by disposing heavily encumbered, isolated and difficult to manage public lands; 2) acquire lands that will consolidate ownership patterns within wilderness and special management areas; and 3) acquire lands with fewer encumbrances and higher resource values. The Proposed Action is the proposed Ray Land Exchange/Plan Amendment; the Buckeye and Copper Butte alternatives are land exchanges/plan amendments with a modified selected lands package; and the No Action alternative is no exchange of public for private lands with Asarco. The proposal being analyzed by BLM is a land exchange and not a mining plan of operations, as Asarco has not submitted one and is not required to do so for a land exchange proposal.

CEQ also requires that BLM consider three types of impacts that could potentially result from implementing the alternatives under considerations in this EIS: direct, indirect, and cumulative. The definitions of indirect impacts (40 CFR 1508.8) and cumulative impacts (40 CFR 1508.7) require that the impacts of reasonably foreseeable actions of the proposal be analyzed. Use of the selected lands for mining purposes is reasonably foreseeable under all the alternatives, including the No Action alternative. This is because Asarco has filed mining claims to nearly all of the selected lands and has indicated its intent to pursue mining activities on these lands regardless of the outcome of the land exchange. The analysis of impacts related to foreseeable mining uses even through only at the conceptual planning stage, is therefore within the scope of analysis for this EIS. However, the depth and extent of impact analysis of foreseeable uses is really the central issue of EPA's comment.

Analysis of impacts of foreseeable uses requires using the "best available data" (46 FR 18026, March 23, 1981). When data regarding foreseeable uses are limited or uncertain, "the agency has the responsibility to make an informed judgment, and to estimate future impacts on that basis (46 FR 18026, March 23, 1981). In order to implement the foreseeable uses, Asarco will be required to secure federal permits under the Clean Water Act of 1972 from EPA (National Pollutant Discharge Elimination System) and the Army Corps of Engineers (Section 404) *regardless of the land exchange*. Since issuance of these permits constitutes a federal action subject to environmental analysis under NEPA, the EPA and COE will be required to analyze the specific impacts of these foreseeable mining uses when Asarco applies for its NPDES and Section 404 permits.

The analyses and information that EPA has requested (e.g., acid-base accounting, pit lake chemistry modeling, groundwater modeling, aquifer protection permit studies and application, ore and overburden production projections, delineation of waters of the U.S, etc.) are analyses related to specific mining activities. Detailed mine planning has either not begun or is years in the future. The land exchange and specific mining activities that will require Clean Water Act permits are not connected, cumulative, or similar actions, as defined by CEQ (40 CFR 1508.25). BLM has determined that analysis of the impacts of the land exchange and the foreseeable uses of the selected lands does not require analysis of the studies and information requested by EPA.

Until a detailed mine plan is prepared by Asarco, BLM's attempt at describing anticipated detailed mining activities, suitable for a specific analysis, would be highly speculative. If the No Action Alternative is selected by BLM, and no exchange occurs, BLM would require a detailed MPO be prepared by Asarco and analyzed under NEPA prior to work on those parcels.

1.8.3 Indian Trust

Comment/Issue. Does the exchange conform with the BLM's federal trust responsibilities toward Native Americans?

Response. All federal agencies, including the BLM, have a responsibility to protect and maintain Indian Trust Assets (also known as Indian trust resources). Secretarial Order 3175 mandates that agencies, "when engaged in the planning of any proposed project or action, will ensure that any anticipated effects on Indian

trust resources are explicitly addressed in the planning, decision, and operational documents...that are prepared for that project" (BLM 1994b). As part of this responsibility, agencies are required to consult with the recognized tribal government with jurisdiction over the trust property that the proposal may affect, the appropriate office of the Bureau of Indian Affairs, and the Office of the Solicitor if their evaluation reveals impacts to Indian trust resources.

Indian trust assets are "legal interests in property held in trust by the United States for Indian tribes or individuals" (BOR 1993). Assets are further defined as "anything owned that has monetary value...[such as] real property, physical assets or intangible property rights" (ibid.). Trust status is derived from rights reserved by or granted to Indian Tribes or individuals by treaties, statutes, and executive orders. Examples of things which could be trust assets are lands, minerals, hunting and fishing rights, and water rights. Trust assets cannot be sold, leased, or otherwise alienated without the approval of the United States.

No Indian trust assets are affected by the land exchange. The closest assets are the Gila River Indian Community's water rights for approximately 1.6 million af/yr of water from the Gila River (Eden and Wallace 1992). Selected lands within the Ray Complex area as well as the Gila River Parcel at Cochran (offered lands) are located in the Gila River watershed. The land exchange does not affect any existing water rights or create any new water rights. There are no additional Indian trust lands, minerals, hunting or fishing rights, or other Indian trust assets in or on the selected or offered lands.

1.8.4 Other Issues

Comment/Issue. It appears that Asarco and BLM are in collusion.

Response. The Ray Land exchange is going through a very extensive public review process to ensure that the decision reached considers the myriad of public interests involved and is consistent with BLM policy and procedures.

Comment/Issue. What are Asarco's current management practices? Past environmental compliance practices?

Response. The current and past environmental practices of Asarco, relative to current or past standards, is beyond the scope of this EIS and will not be analyzed in this EIS. Asarco's ability to implement the foreseeable mining-related uses on the selected lands will require that they demonstrate their ability to meet the environmental standards of the day to the applicable regulatory authorities. Such standards for mining operations are defined by a variety of environmental regulations (federal, state, and local) that are applicable to mine-related activities. In order to implement planned mining-related uses, Asarco must demonstrate compliance with numerous environmental regulations such as the Clean Water Act, as amended; Clean Air Act; Toxic Substance Control Act; Arizona's Aquifer Protection Permit program; and numerous other laws and regulations as listed in Table 1-3 in this chapter. It is the responsibility of several federal and state agencies, such as the U.S. Army Corps of Engineers; U.S. Environmental Protection Agency; U.S. Fish and Wildlife Service; Arizona State Historic Preservation Officer; and Arizona Department of Environmental Quality, and others, to ensure compliance with these laws and regulations. It is through these permitting requirements for mine-related activities, rather than through the land exchange analysis process, that Asarco must demonstrate its ability to comply with applicable environmental regulatory requirements.

Comment/Issue. How will the plan amendment avoid costly environmental studies in the future?

Response. The proposed plan amendment, in and of itself, will not prevent the need for future environmental studies. The plan amendment is necessary to ensure that any proposed land exchange alternatives for the Ray Exchange are in conformance with applicable and relevant resource management plans (RMPs), a requirement of the Federal Land Policy and Management Act (FLPMA) and BLM policy. The plan amendment, if approved, would authorize BLM to consider disposing of the selected lands by one or more means, including exchange. If a land trade were to take place, the change from public to private land ownership would remove BLM's responsibility to complete an environmental analysis under NEPA for any future mining activities only on those selected lands. Other agencies contemplating actions (e.g.,

permits) in the same geographic area can adopt or supplement this EIS as relevant to the action being proposed and analyzed.

CHAPTER 2

ALTERNATIVES CONSIDERED

Four alternatives are analyzed in this EIS: the Proposed Action, Buckeye Alternative, Copper Butte Alternative, and No Action Alternative. The first three are land exchange alternatives that meet the purpose of and need for action. The last, the No Action alternative, is a NEPA requirement. This chapter describes each alternative, then identifies actions common to them all. Alternatives that were considered by the BLM ID Team but not studied in detail are also presented, along with the reason(s) for their elimination. A summary table of the potential environmental impacts associated with each alternative is presented at the end of this chapter.

2.1 ALTERNATIVES INCLUDING NO ACTION

2.1.1 Proposed Action (Agency Preferred Alternative)

The Proposed Action consists of two connected actions: a land exchange between BLM and Asarco and corresponding plan amendments to BLM's Phoenix and Safford District RMPs that would allow for the disposal by exchange of the selected lands. The BLM's preferred alternative is the Proposed Action alternative. This alternative would allow the BLM to achieve its objectives for public lands management and land tenure adjustments as stated in the Phoenix and Safford RMPs, as amended, while still meeting the purpose and need for the proposed land exchange. Under this alternative, Asarco has committed (letter dated July 8, 1996), that if Asarco were to purchase Section 24 (T3S, R12E)[11] from the State of Arizona, Asarco would donate approximately three-quarters (480 acres) to BLM, which would become part of the White Canyon ACEC. In addition, Asarco has also agreed to maintain existing access to the White Canyon Wilderness. Although the selected lands would become privately owned by Asarco under this alternative, potential future mining projects on these lands would still be subject to the COE and/or EPA's federal jurisdiction through their respective permitting authorities under the Clean Water Act. Furthermore, other federal laws such as the Clean Air Act would also likely trigger federal involvement in such future activities.

2.1.1.1 Ray Land Exchange

As proposed in the Agreement to Initiate (ATI) a land exchange between Asarco and BLM, Asarco seeks to acquire from BLM approximately 10,976 acres of public lands (the selected lands) in 31 parcels in Pinal and Gila Counties. In addition, because Asarco would use Battle Axe Road under the Proposed Action, and this road currently provides public access to the White Canyon Wilderness, artesian well, and Coke Ovens, the Proposed Action includes alternative access routes. BLM is analyzing two routes in this document (Route #1 and Route #2), which are discussed in more detail in Section 4.4.3. In March 1999, the BLM Interdisciplinary Team (ID Team) discussed these two routes (Figure 4-1) and decided to select the Route #2 (Battle Axe Road) alignment as the preferred access route from Highway 177 to the White Canyon Wilderness. Impacts associated with this route were considered much less than Route #1, which was too close to the White Canyon Wilderness and Silver Creek community. Access is also addressed under general response no. 1, in Chapter 7.

In exchange for the selected lands, Asarco is offering to BLM approximately 7,300 acres of private property consisting of two individual parcels and three parcel groups (18 parcels total) located within Mohave and Pinal Counties. These offered lands possess resource qualities considered to be of significant value to the public. These parcels or types of resources have been identified for acquisition by BLM. The offered lands

[11] As of June 1999, Asarco's application for purchase of Section 24 is still being processed by the State and it is unknown when a decision by the State will be made.

are private inholdings within the jurisdictional boundaries of the Tucson and Kingman Field Offices of BLM. Table 2-1 summarizes the acreage involved in the proposed Ray Land Exchange.

Table 2-1. Summary of Selected and Offered Lands Parcels

	Number of Parcels	Full Estate Acreage	Splite-estate Acreage	Location
Selected Lands	31	8,196 acres (parcels range from <1 acre to >2,001 acres)	Subsurface Estate Only: 2,780 acres (parcels range from 30 acres to 595 acres)	28 parcels in Pinal County; 3 parcels in Gila County
Offered Lands	5 (2 parcels and 3 parcel groups)	6,940 acres (Tomlin Parcels, McCracken Mtns Parcels, portions of Gila River Parcel at Cochran and Knisely Ranch Parcels	Surface Estate Only: 360 acres (160 acres of Gila River Parcel at Cochran; 80 acres of Knisely Ranch Parcels; 120 acres of Sacramento Valley)	1 parcel in Pinal County, 4 parcel groups in Mohave County

Selected Lands. Of the 31 parcels of selected lands, 28 are located near Asarco's Ray Mine operations in southwestern Gila County and northeastern Pinal County. Parcels of selected lands are grouped into three areas of existing or planned mine-related development: Ray Complex, Copper Butte/Buckeye, and Chilito/Hayden. The remaining three parcels of selected lands lie just west of Casa Grande in western Pinal County (Figure 1-1). The 31 parcels of selected lands are labeled as shown in Table 2-2.

Table 2-2. Selected Lands Parcels and Corresponding Parcel Numbers

Area	Parcel Numbers
Ray Complex	RM-1 through RM-18
Copper Butte/Buckeye	CB-1 through CB-5
Chilito/Hayden	CH-1 through CH-5
Casa Grande	CG-1 through CG-3

Seven of the 31 selected land parcels (RM-2 to RM-6, and RM-9) are isolated fragments of public lands remaining after mineral claims were patented. Six of the seven parcels are five acres or less in size; the remaining parcel is 30 acres. Each of these seven parcels is adjacent to or surrounded by Asarco's private land. The remaining 24 parcels range in size from approximately 8 to 2,001 acres.

The selected lands include 8,196 acres of full estate public lands (surface and subsurface mineral estates) and 2,780 acres of splite-estate land (subsurface mineral estates only). The surface estates of the splite-estate parcels are owned by either Asarco (approximately 1,638 acres) or the State of Arizona (approximately 1,142 acres). Asarco has filed applications to purchase the surface estates from the State.

Offered Lands. The approximately 7,300 acres of private lands offered by Asarco in exchange for the selected lands have been grouped into five geographic areas as described below. All the offered lands are full estate lands owned by Asarco, except as noted.

Section 206 of FLPMA and 43 CFR §2200.0-6 mandate that all lands acquired by exchange within the boundaries of a National Park, Wildlife Refuge, Wild and Scenic River, or any other system established by an Act of Congress, be managed by the laws, regulations, and rules applicable to that system. Additionally,

43 CFR §2200.0-6 extends this coverage to include public lands covered by BLM Resource Management Plans (RMPs) and the administrative designations. In part, these regulations state that:

> *"lands acquired by an exchange within a Bureau of Land Management District shall automatically become public lands as defined in 43 USC §1702 and shall become part of that district. The acquired lands shall be managed in accordance with existing regulations and provisions of applicable land use plans and plan amendments. Lands acquired by exchange that are located within boundaries of Areas of Critical Environmental Concern or any other area having an administrative designation established through the land use planning process shall automatically become part of the unit or area within which they are located."*

Two RMPs apply to managing the offered lands: the Phoenix RMP for the Gila River Parcel at Cochran, and the Kingman RMP for the remainder. Refer to Appendix H for additional information on management objectives and prescriptions for parcels. The general management guidelines for RMPs has not been reprinted herein but provides additional information.

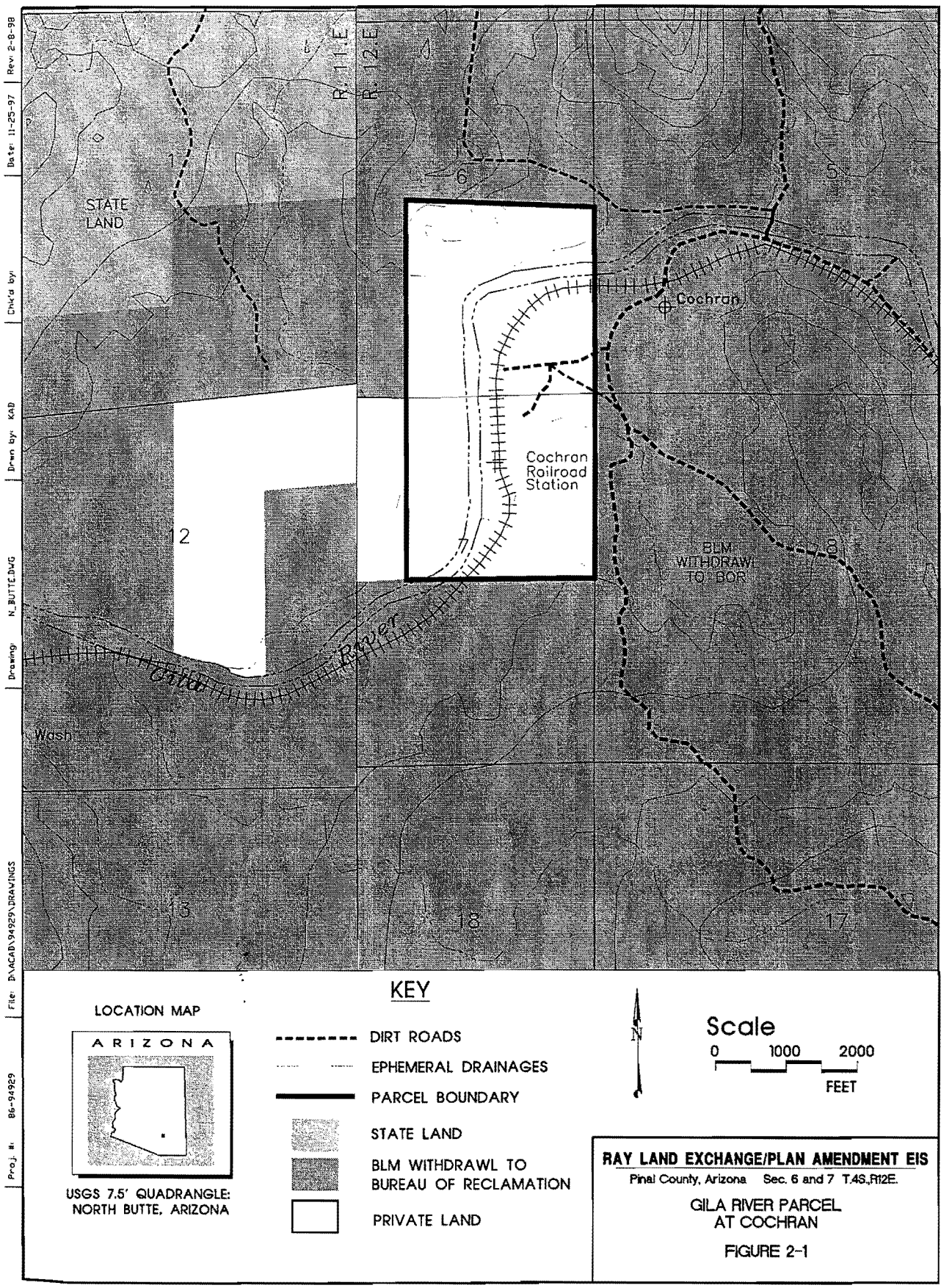
Gila River Parcel at Cochran. The 320-acre Gila River Parcel at Cochran is located in Pinal County, Arizona, and is within the White Canyon Resource Conservation Area (RCA) (Figure 2-1). This parcel contains a segment of the Gila River Riparian Management Area (GRRMA) and is within the Middle Gila Cultural Resource Management Area (MGCRMA) (Appendix H). Riparian habitat on this parcel appears suitable for two federally endangered species: the southwestern willow flycatcher and the cactus ferruginous pygmy-owl.

In this alternative the title to the split-estate portions of Sections 6 and 7 of T4S, R12E and the remaining full estate would be transferred and managed for multiple use resource values per the management objectives of the Phoenix RMP (Appendix H) as well as requirements under the Endangered Species Act (ESA). In addition, BLM would petition to withdraw this parcel from mineral entry even though the potential for metallic minerals is low.

Sacramento Valley Parcel. This 120-acre parcel is located in Mohave County, Arizona, adjacent to the Warm Springs Wilderness (Figure 2-2). Under the Proposed Action, BLM would acquire the surface estate of this parcel and manage its important desert tortoise and bighorn sheep habitat values according to the Kingman Resource Area RMP (Appendix H). This parcel will be open to mineral entry even though the potential for metallic minerals is low.

Tomlin Parcel Group. The three Tomlin Parcels, totaling approximately 320 acres, are located in the southern foothills of Groom Peak in the Hualapai Mountains, Mohave County, Arizona (Figure 2-3). These offered lands fall within the Big Sandy Herd (wild burros) Management Area, while the 120-acre Parcel #4 encompasses the Big Sandy River and its riparian corridor. In a recent Arizona Wild and Scenic River study, this segment of the Big Sandy River was determined as eligible for wild and scenic river status; however, BLM determined it to be "non-suitable" for wild and scenic river status and released it from further consideration. In this alternative, the Tomlin parcels would be managed according to the Kingman Resource Area RMP. Although none of the parcels exhibit a high potential for mineral occurrence, BLM would file a petition to withdraw Tomlin Parcel #4 from mineral entry especially for riparian objectives (Appendix H).

McCracken Mountains Parcel Group. The ten McCracken Mountains Parcels, totaling approximately 6,384 acres, are located in Mohave County, Arizona within the McCracken Desert Tortoise Habitat ACEC (Figure 2-4). These parcels would consolidate the checkerboard land ownership within the McCracken Mountains, which would facilitate management of wildlife and wildlife habitats in the area in accordance with the Kingman Resource Area RMP. The McCracken parcels exhibit low potential for mineral occurrence (moderate only in Section 25). No mineral closures are planned if parcels are acquired (Appendix H). Additional portions of the McCracken Mountains are also being considered for acquisition by the BLM in the proposed Hualapai Mountain Land Exchange, and when combined with the Ray Land Exchange, these projects would complement one another by allowing additional opportunities for wildlife habitat management across the landscape.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R. 11 E.
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STATE LAND
Cochran
Cochran Railroad Station
BLM WITHDRAWL TO BOR
Gila River
Wash
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5
1
12
8
13
18
17
KEY
LOCATION MAP
ARIZONA
USGS 7.5' QUADRANGLE: NORTH BUTTE, ARIZONA
DIRT ROADS
EPHEMERAL DRAINAGES
PARCEL BOUNDARY
STATE LAND
BLM WITHDRAWL TO BUREAU OF RECLAMATION
PRIVATE LAND
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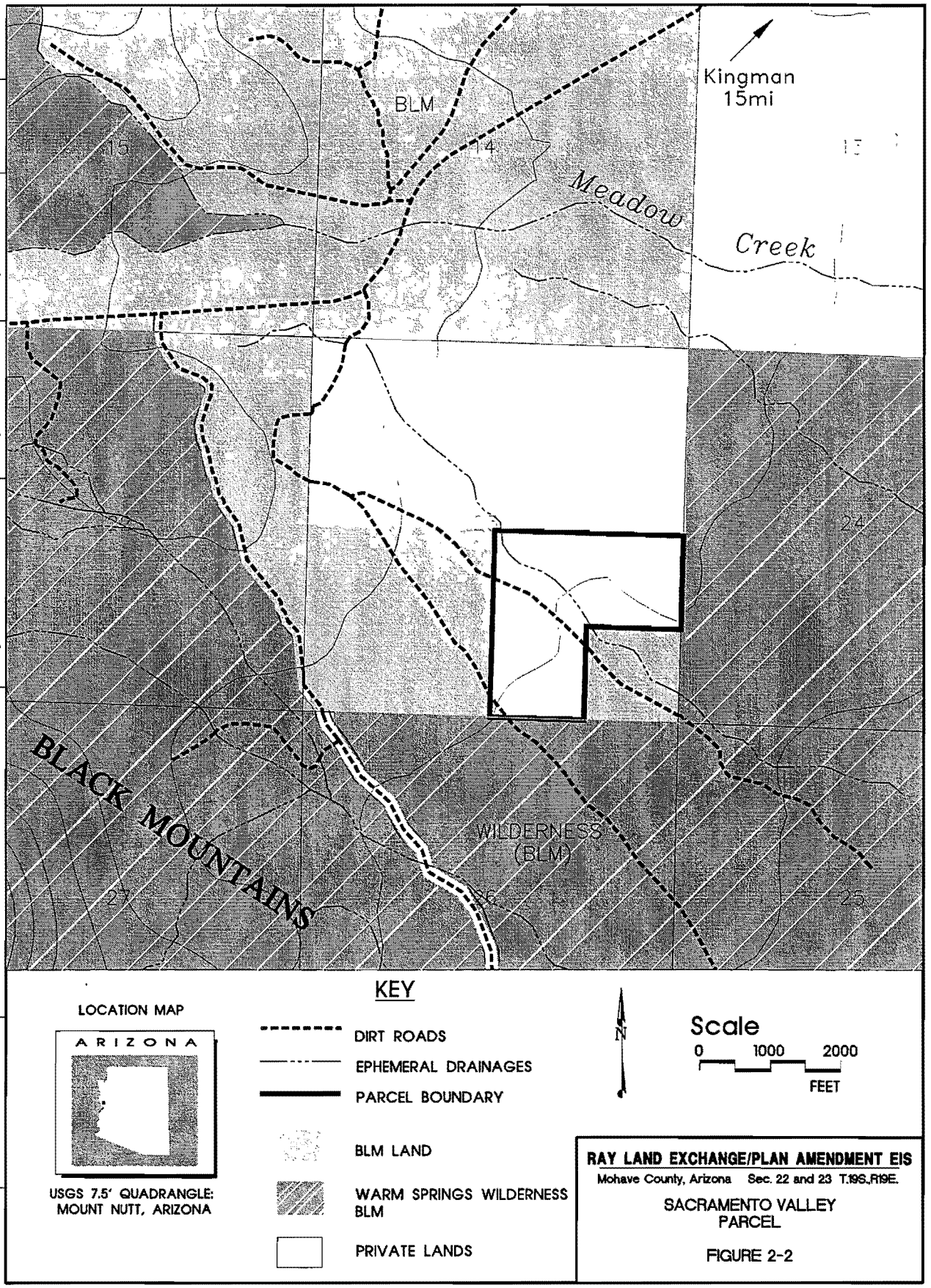
Scale
0 1000 2000
FEET
RAY LAND EXCHANGE/PLAN AMENDMENT EIS
Pinal County, Arizona Sec. 6 and 7 T.4S.,R12E.
GILA RIVER PARCEL AT COCHRAN
FIGURE 2-1


Kingman
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BLM
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14
13
Meadow
Creek
24
25
26
23
BLACK MOUNTAINS
WILDERNESS
(BLM)
KEY
LOCATION MAP
ARIZONA
USGS 7.5' QUADRANGLE:
MOUNT NUTT, ARIZONA
DIRT ROADS
EPHEMERAL DRAINAGES
PARCEL BOUNDARY
BLM LAND
WARM SPRINGS WILDERNESS
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PRIVATE LANDS
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RAY LAND EXCHANGE/PLAN AMENDMENT EIS
Mohave County, Arizona Sec. 22 and 23 T.19S.,R19E.
SACRAMENTO VALLEY
PARCEL
FIGURE 2-2
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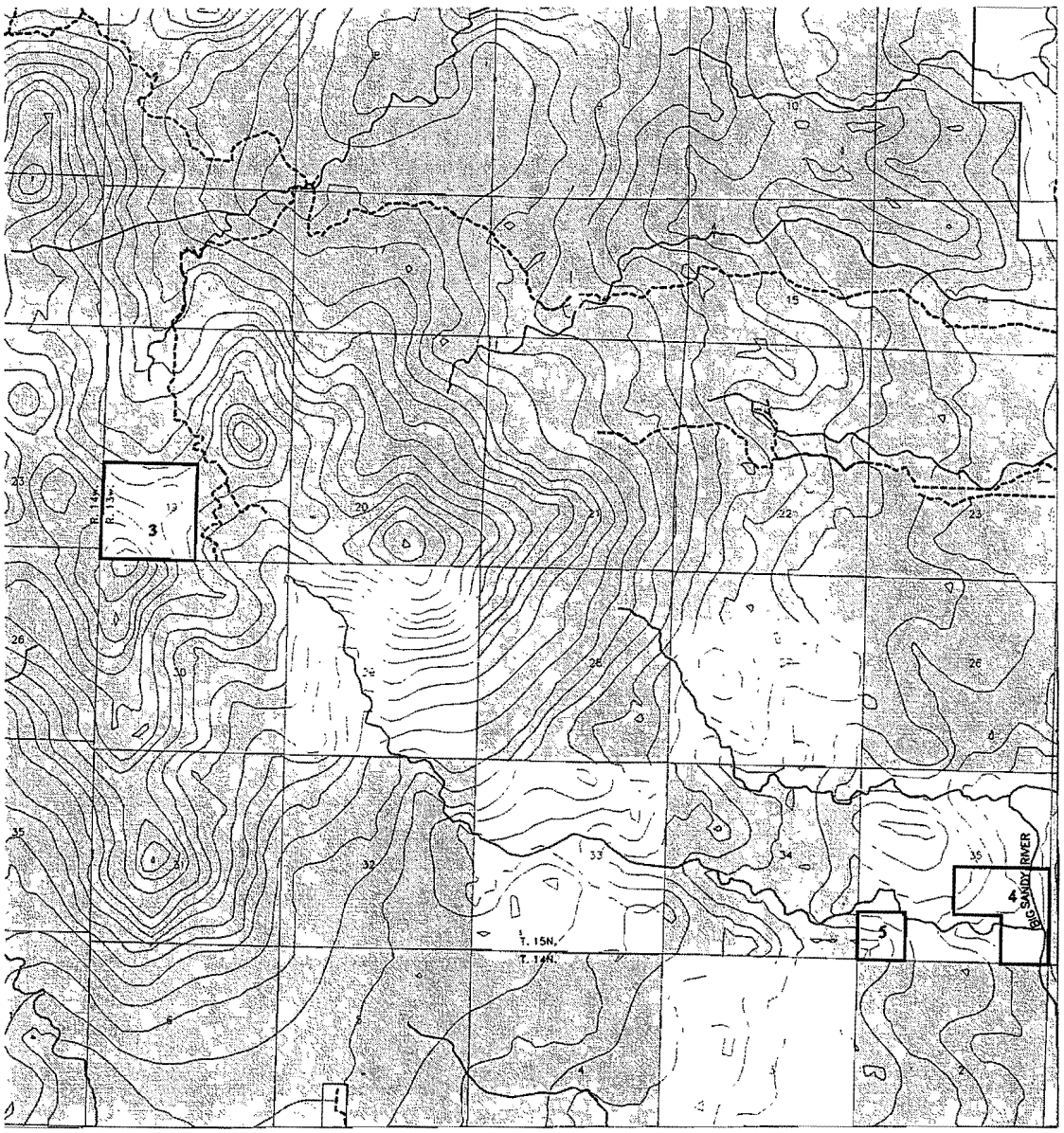
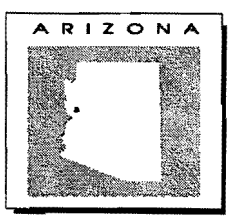
Date: 11-25-97
Rev: 7-2-98



KEY

LOCATION MAP



USGS 7.5' QUADRANGLE:
GREENWOOD PEAK, ARIZONA

DIRT ROADS

EPHEMERAL DRAINAGES

PARCEL BOUNDARY

BLM LAND

PRIVATE LAND

N

Scale
0 2500 5000
FEET

RAY LAND EXCHANGE/PLAN AMENDMENT EIS
Mohave County, Arizona Sec. 19, 29, 33, 27 and 35 T.15N.,R13W.

TOMLIN PARCELS
#3, 4, AND 5

FIGURE 2-3

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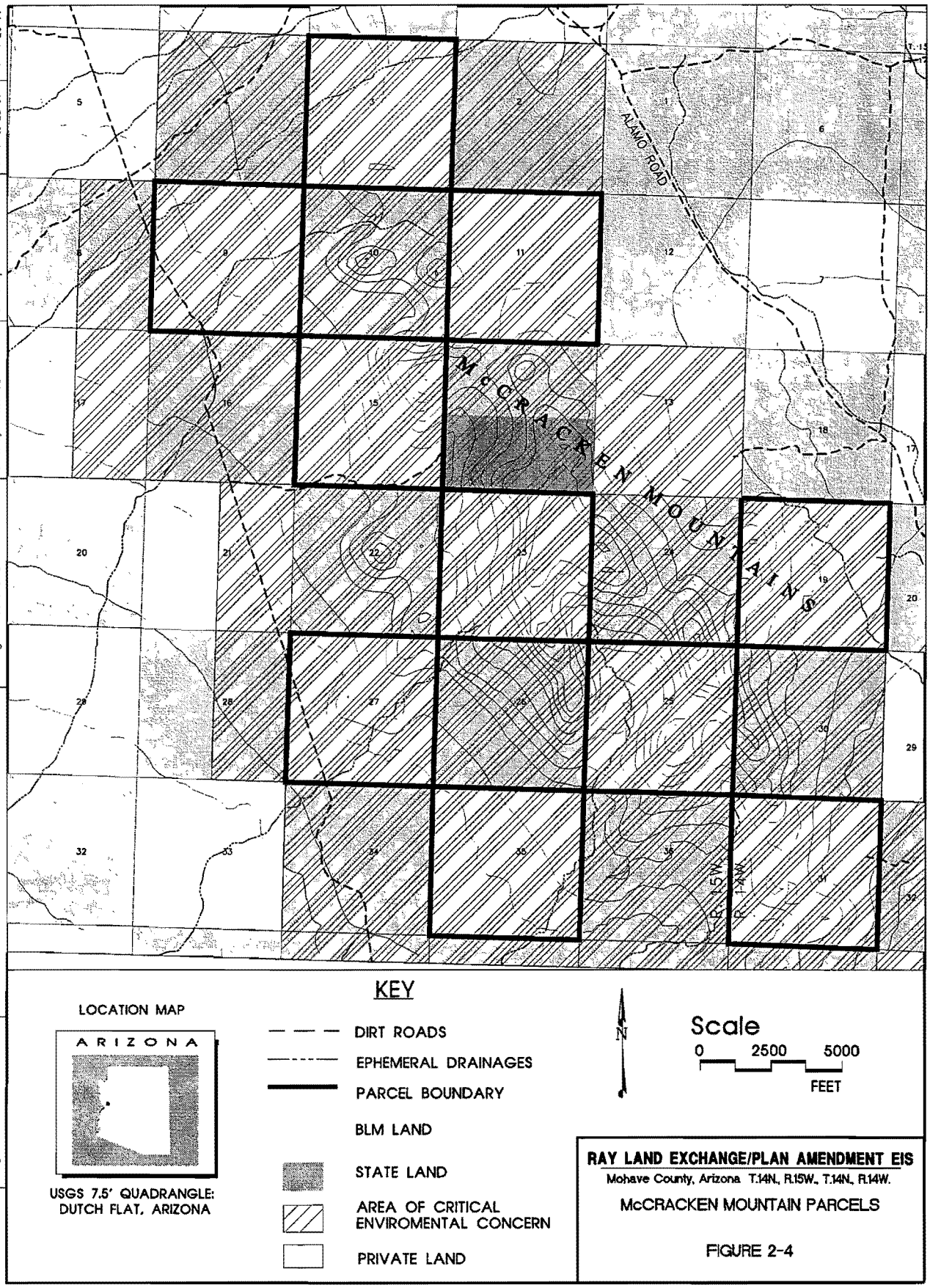

ALAMO ROAD
McCRACKEN MOUNTAINS
T.14N.
R.15W.
R.14W.
KEY
LOCATION MAP
ARIZONA
USGS 7.5' QUADRANGLE:
DUTCH FLAT, ARIZONA
DIRT ROADS
EPHEMERAL DRAINAGES
PARCEL BOUNDARY
BLM LAND
STATE LAND
AREA OF CRITICAL
ENVIROMENTAL CONCERN
PRIVATE LAND
N
Scale
0 2500 5000
FEET
RAY LAND EXCHANGE/PLAN AMENDMENT EIS
Mohave County, Arizona T.14N., R.15W., T.14N., R.14W.
McCRACKEN MOUNTAIN PARCELS
FIGURE 2-4

Knisely Ranch Parcel Group. The three Knisely Ranch parcels total 160 acres and are private inholdings located within the 30,208-acre Mount Tipton Wilderness in Mohave County, Arizona (Figure 2-5). In this alternative, the title to the split-estate of Section 17 of T25N, R18W would be transferred with the remaining full estate. No mining claims currently exist and under the 1990 Arizona Desert Wilderness Act, no new claims can be filed within the Mount Tipton Wilderness. Two of the Knisely Ranch parcels contain springs, which provides water to cattle. These parcels would be managed for their wilderness values per the management objectives in the Kingman Resource Area RMP.

While all the offered lands parcels possess resource qualities considered to be of significant value to the public, some resources are considered more valuable than others in the fulfillment of BLM multiple-use management objectives. Table 2-3 lists the parcels in order of priority for acquisition and reasons for priority.

Table 2-3. Offered Land Parcels for Acquisition by the BLM and Descriptions

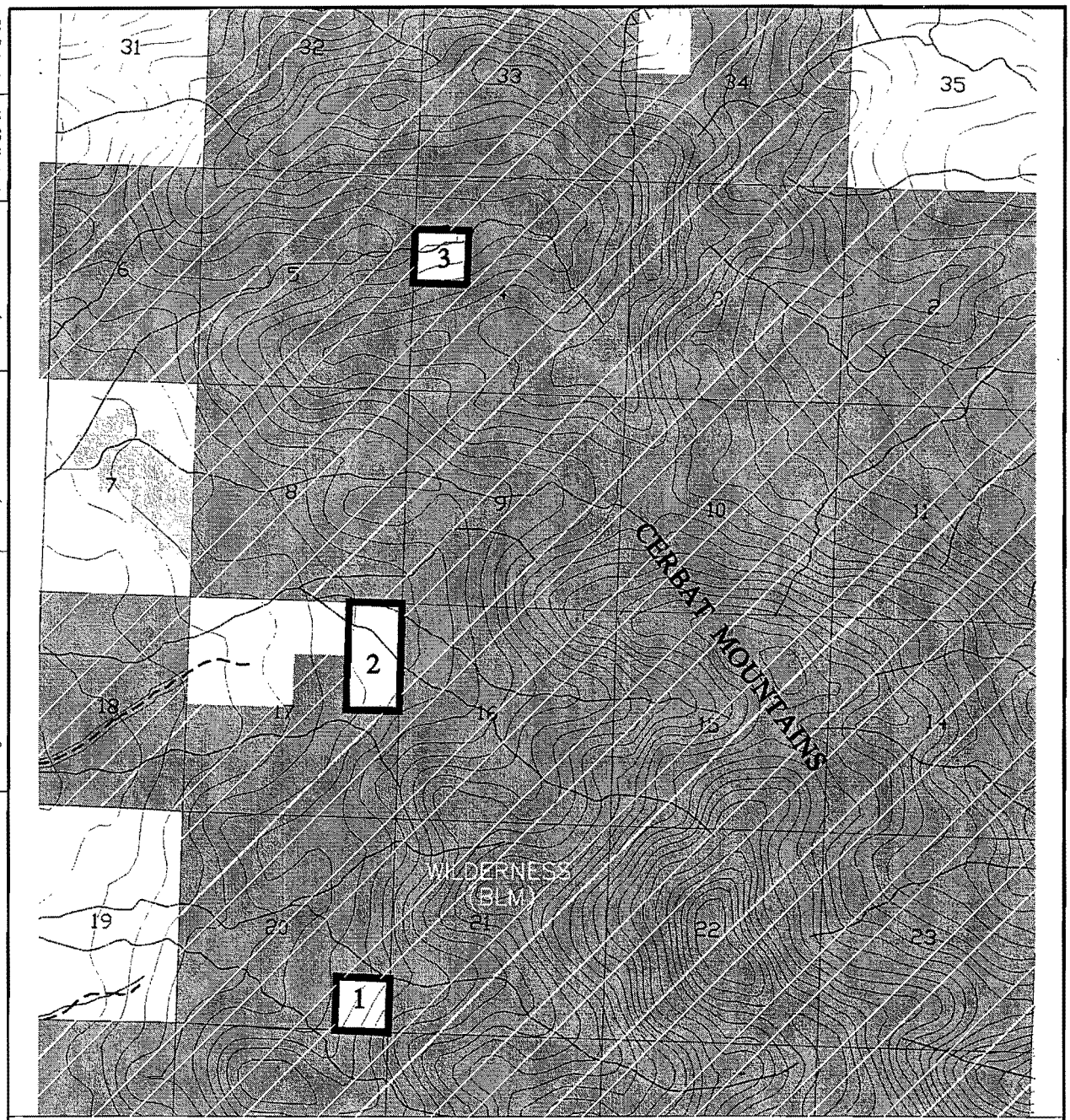
PARCELS	DESCRIPTION
Knisely Ranch Parcel Group	Knisely Ranch Parcel Group are inholdings within the Mount Tipton Wilderness
Gila River Parcel at Cochran	Gila River Parcel at Cochran provides high value wildlife habitat for special status species including the southwestern willow flycatcher and contains a segment of the Gila River Riparian Management Area (GRRMA)
Tomlin Parcels #3, #4, #5	Tomlin #4 lies within " Segment A" of the Big Sandy River and was subject to a wild and scenic rivers study and all parcels contain Category II Desert Tortoise Habitat
Sacramento Valley Parcel	Sacramento Valley Parcel is an inholding within the Black Mountains Herd Management Area and has high value Category I desert tortoise habitat
McCracken Mountains Parcel Group	McCracken Mountains Parcel Group are inholdings within the McCracken Desert Tortoise Habitat ACEC (Category I)

2.1.1.2 Plan Amendment

The plan amendment in the Proposed Action alternative would amend the current land tenure decisions in the approved Phoenix and Safford District RMPs. Specifically, the Phoenix RMP would be amended to allow disposal by exchange of approximately 7,841 acres of full estate public lands and 2,702 acres of mineral estate public lands presently classified for retention and management under BLM's multiple-use mandate (see Table 1-2, Figure 2-6). Similarly, the Safford District RMP would be amended to allow disposal of 355 acres of full estate public lands and 78 acres of mineral estate public lands. No change in land tenure classification is necessary for the 637 acres of public mineral estate land near Casa Grande as these lands have already been identified for disposal by exchange in the approved Phoenix RMP.

2.1.2 Buckeye Alternative

This land exchange alternative was developed in response to issues raised in public scoping comments over the proposed disposal of Sections 25 and 26, T3S, R12E near Walnut Creek. These sections are in selected lands Parcel CB-1 in the Copper Butte/Buckeye Area (Figure 2-6).


31
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CERBAT MOUNTAINS
WILDERNESS
(BLM)
Rev: 7-2-98
Date: 11-25-97
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LOCATION MAP
ARIZONA
USGS 7.5' QUADRANGLE:
Mt. TIPTON, ARIZONA
KEY
DIRT ROADS
EPHEMERAL DRAINAGES
PARCEL BOUNDARY
BLM LAND
MOUNT TIPTON WILDERNESS
BLM
PRIVATE LAND
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Scale
0
2000
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FEET
RAY LAND EXCHANGE/PLAN AMENDMENT EIS
Mohave County, Arizona Sec. 4, 17 and 20 T.25N.,R18W.
KNISELY RANCH PARCELS
FIGURE 2-5

2.1.2.1 Buckeye Land Exchange

Selected Lands. The Buckeye Land Exchange involves reducing the total acreage of the selected lands from approximately 10,976 acres to approximately 10,176 acres by excluding about 800 surface and subsurface acres of Parcel CB-1 in Sections 25 and 26. About 320 acres of Parcel CB-1 in the eastern quarter would remain in the land exchange proposal (Figure 2-6).

Offered Lands. Under this alternative, all offered lands would be included with the exception of Section 9 of the McCracken Mountains Parcels (640 acres, T14N, R15W, Appendix A), resulting in a total offered lands package of approximately 6,659 acres.

2.1.2.2 Plan Amendment

The plan amendment in this alternative would correspond to the reduced acreage of selected lands in the Buckeye Land Exchange. The Phoenix and Safford District RMPs would be amended to change the land tenure decision for 9,539 acres of public lands from retention to disposal by exchange. The land tenure decision in the Phoenix RMP for the 800 acres of Parcel CB-1 in Sections 25 and 26 excluded from the Buckeye Land Exchange would not be changed; it would remain in retention.

2.1.3 Copper Butte Alternative

This land exchange alternative was developed in response to scoping issues regarding access and recreation to the White Canyon Wilderness through the Copper Butte Area. The Copper Butte Area selected lands Parcels CB-1 to CB-5 lie adjacent to the White Canyon Wilderness, east of Highway 177 (Figure 2-6).

2.1.3.1 Copper Butte Land Exchange

Selected Lands. The Copper Butte Land Exchange involves reducing the total acreage of the selected lands from approximately 10,976 acres to approximately 9,161 acres by excluding surface and subsurface acres of Parcels CB-1 (1,120 acres), CB-2 (615 acres), and portions of Parcel CB-3 (80 acres) for a total of 1,815 acres. About 652 acres of Parcel CB-3 and all of Parcel CB-4 would remain in the land exchange proposal (Figure 2-6).

Offered Lands. Under this alternative, all offered lands would be included with the exception of Section 9 (640 acres, T14N, R15W), Section 3 (638 acres, T14N, R15W), and a portion of Section 19 (420 acres, T14N,) of the McCracken Mountains Parcels, resulting in a total offered lands package of approximately 5,601 acres.

2.1.3.2 Plan Amendment

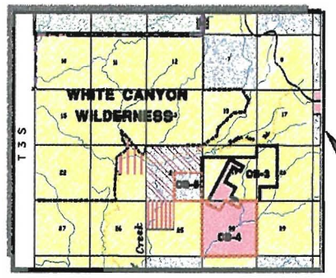
The plan amendment in this alternative would correspond to the reduced acreage of selected lands in the Copper Butte Land Exchange. The Phoenix and Safford District RMPs would be amended to change the land tenure decision for 9,161 acres of public lands from retention to disposal by exchange. The land tenure decision in the Phoenix RMP for the 1,815 acres of Parcels CB-1, CB-2, and portions of CB-3 that are excluded from the Copper Butte Land Exchange would not be changed; these lands would remain in retention.

2.1.4 No Action Alternative

Selected Lands. Under this alternative, no lands would be exchanged, and no plan amendment would be required. The selected lands would remain in public ownership and would continue to be managed by BLM according to the multiple-use management directives in FLPMA and the current Phoenix and Safford District RMPs. Under the No Action alternative, future management actions by BLM are expected to include processing multiple mining MPO or NOI proposals (under 43 CFR §3809) for individual actions as submitted, and/or processing applications from Asarco to patent their existing claims on the selected lands.

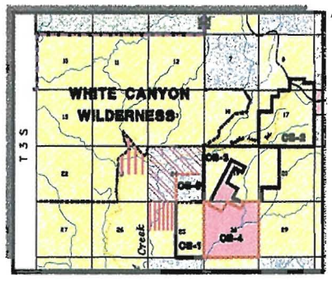
COPPER BUTTE ALTERNATIVE:

SAME AS PROPOSED ACTION EXCEPT PARCELS CB-1, CB-2 AND PORTIONS OF CB-3 ARE EXCLUDED FROM THE EXCHANGE



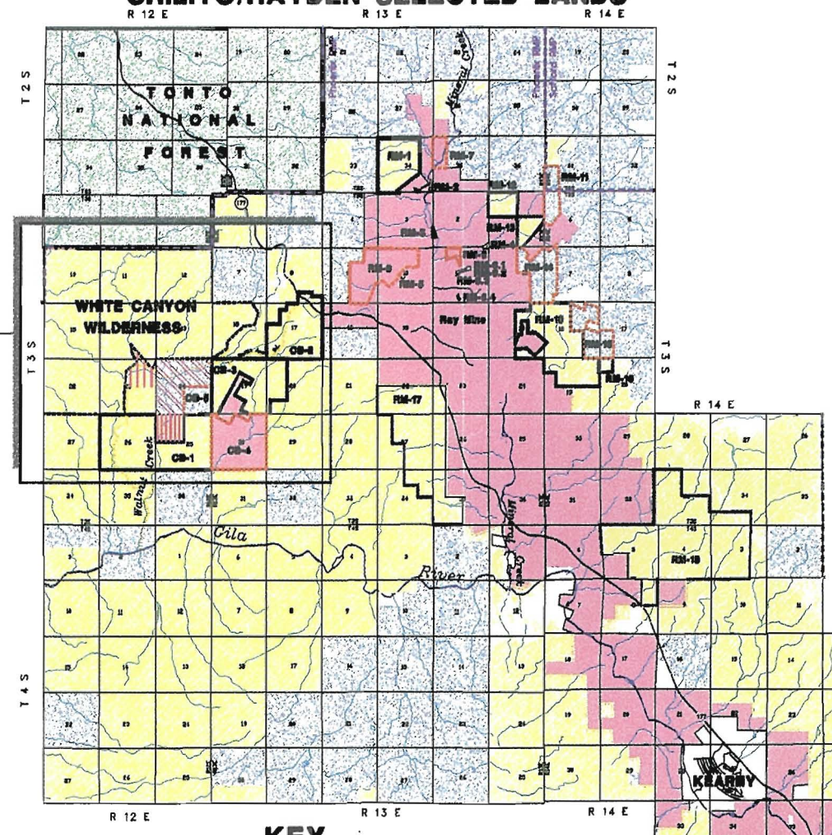
BUCKEYE ALTERNATIVE:

SAME AS PROPOSED ACTION EXCEPT PARCEL CB-1 IS REDUCED IN SIZE

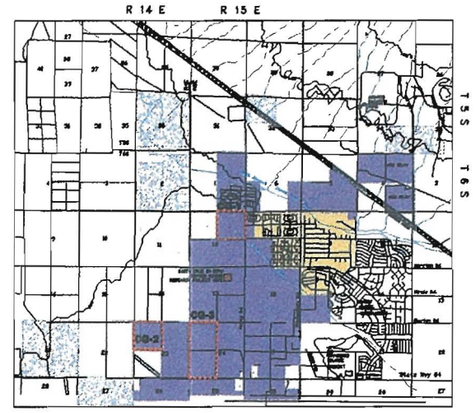


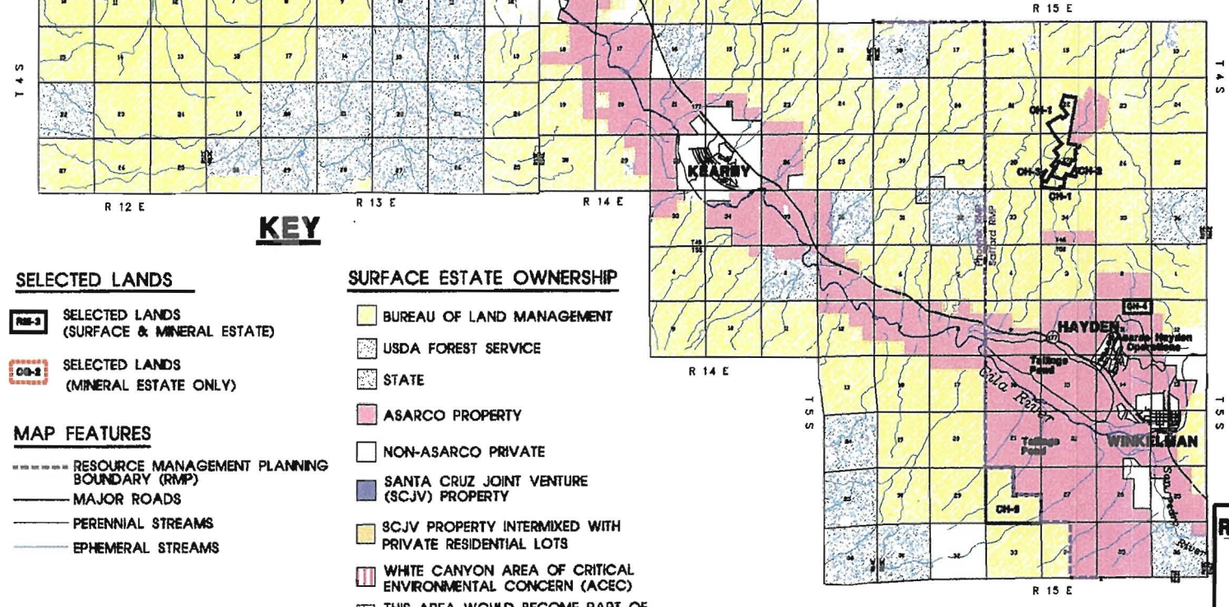
PROPOSED ACTION:

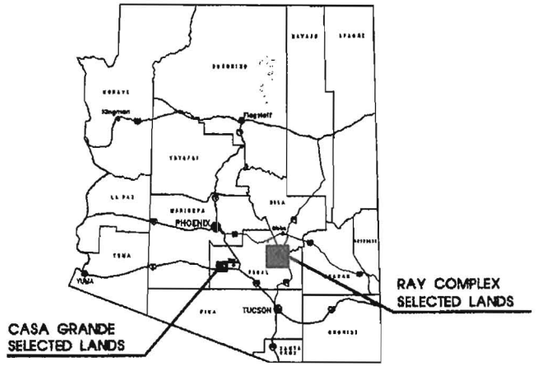
RAY COMPLEX, COPPER BUTTE/BUCKEYE, AND CHILITO/HAYDEN SELECTED LANDS



CASA GRANDE SELECTED LANDS







KEY

SELECTED LANDS

- RM-2 — SELECTED LANDS (SURFACE & MINERAL ESTATE)
- CB-2 — SELECTED LANDS (MINERAL ESTATE ONLY)

MAP FEATURES

- RESOURCE MANAGEMENT PLANNING BOUNDARY (RMP)
- MAJOR ROADS
- PERENNIAL STREAMS
- EPHEMERAL STREAMS

SURFACE ESTATE OWNERSHIP

- BUREAU OF LAND MANAGEMENT
- USDA FOREST SERVICE
- STATE
- ASARCO PROPERTY
- NON-ASARCO PRIVATE
- SANTA CRUZ JOINT VENTURE (SCJV) PROPERTY
- SCJV PROPERTY INTERMIXED WITH PRIVATE RESIDENTIAL LOTS
- WHITE CANYON AREA OF CRITICAL ENVIRONMENTAL CONCERN (ACEC)
- THIS AREA WOULD BECOME PART OF THE ACEC ONCE BLM AQUIRES THIS LAND

Scale
0 — 15,000
FEET

RAY LAND EXCHANGE/PLAN AMENDMENT EIS
Pima County, Arizona and Gila County, Arizona
LAND OWNERSHIP AND ALTERNATIVE CONFIGURATIONS
FIGURE 2-6

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Date: 3-2-98
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Drawing:
Proj. #: 51-61780

Offered Lands. Under the No Action alternative, the offered lands would remain in Asarco ownership and would most likely be marketed, with the assumption that they would be sold and divided into smaller parcels (Genesis 1997). The foreseeable uses of the offered lands should the No Action alternative be selected are presented in Table 2-4.

Table 2-4. Potential Disposition of the Offered Lands by Asarco Should the No Action Alternative be Selected

Private Parcel	Reserve Parcel for Mitigation?	Sell for Development Purposes?
Gila River Parcel at Cochran	likely	unlikely
Sacramento Valley Parcel[12]	possible	likely
Knisely Ranch Parcels	possible	possible
Tomlin Parcels	unlikely	likely
McCracken Mountains Parcels	unlikely	likely

Source: Genesis 1997

2.2 ACTIONS COMMON TO ALL ALTERNATIVES

This section describes actions that are common to all alternatives; that is, activities that would occur regardless of which alternative is selected. In developing alternatives, BLM concluded that foreseeable mining-related uses of the selected lands are actions common to all alternatives; that is, mining/mine-support uses would likely occur whether any one of the land exchange alternatives were selected or the No Action alternative was selected. This is because a land exchange is not required for mining-related activities to take place on the selected lands. Asarco currently holds the vast majority of the mining claims on the public lands selected for exchange, and through these mining claims, Asarco has the right to pursue development on the selected lands for mining or mining-related uses. The regulatory basis for this determination is found in the General Mining Law of 1872, the Mining and Minerals Policy Act of 1970, FLPMA, and the National Materials and Minerals Policy Research and Development Act of 1980. As a component of its multiple resource management objectives, BLM is charged with implementing these laws, which were enacted to encourage the development of mineral resources on public lands by the private sector.

To develop its claims on public lands, Asarco (the project proponent in this case) must first file an Mine Plan of Operations (MPO) with BLM if five acres or more of public lands would be disturbed or if any acres within an ACEC would be disturbed. Filing of such documents invokes plan approval procedures under 43 CFR 3809 regulations. Under these procedures, BLM is required to conduct a separate environmental analysis of the planned mining activities, to ensure that no unnecessary or undue degradation[13] would result from the proposed mining operations, and that the proponent complies with other applicable environmental regulations. If BLM finds no evidence of undue and unnecessary degradation, and the project proponent has obtained all required permits, BLM must authorize the planned mining operations. Asarco has already indicated that in the future it would submit an MPO for the selected lands if the No Action alternative were approved.

[12] This parcel would likely be marketed either as a single large parcel with possible future exchange possibilities or in smaller parcels (Genesis 1997).

[13] Unnecessary or undue degradation means surface disturbance greater than what would normally result when an activity is being accomplished by a prudent operator in usual, customary, and proficient operations of similar character and taking into consideration the effects of operations on other resources and land uses, including those resources and uses outside the area of operations [43 CFR 3809.0-6(k)].

2.2.1 Access to Public Lands

As agreed to by Asarco, BLM is considering alternative access routes that would ensure continued physical and legal access to the White Canyon Wilderness and other public lands, the artesian well, Gila River, and Coke Ovens. Currently, physical access exists along a dirt track, but legal access is not available. BLM is considering these routes because, under any EIS alternative and including the foreseeable use, the existing Battle Axe Road would be used for hauling to Copper Butte by Asarco, creating public access problems to the Wilderness. To solve this problem, BLM and Asarco are considering two alternative routes to maintain physical and legal access to these public lands. These are labeled Route #1 and Route #2 on Figure 4-1 and are discussed in more detail in Section 4.4.3. Physical public access would be maintained on Parcels CB-2, CB-3, CB-1 and adjacent BLM lands equivalent to the type of access that exists today. To ensure public access, the following would apply under all alternatives:

- If Parcel CB-1 is exchanged, an easement will be issued to BLM, and a new road segment will be engineered and constructed by Asarco to ensure public access within Section 26 (see Segment #3 on Figure 3-15). This will connect the existing White Canyon public access through the northwest corner of Section 26 into Section 27 connecting with the existing track. This access will be equal to or slightly improved over the existing road conditions but suitable for back country driving or routine administrative needs by the BLM.

- If Parcels CB-2 and CB-3 are exchanged, Asarco will be required to engineer and construct alternative Route #2 and implement the following: 1) obtain permits from other agencies including ADOT, COE (as suitable); 2)undertake appropriate NEPA analysis should the road extend outside of Parcels CB-2 and 3; and 3) design Route #2 according to BLM specifications prior to construction.

  Alternative Route #2 is BLM's preferred access route to replace the existing Battle Axe Road and would require the above mitigation. Route #1 would require the above mitigation as well as the following: 1) ADOT approved ingress/egress design from Highway 177; 2) protection of the existing Walnut Creek watercourse; 3) protection of the existing waterline and well for Silver Creek community; 4) road construction with berming; 5) possible paving or other design to reduce dust and erosion for local Silver Creek residents; and 6) appropriate signing and safety barricades to the White Canyon Wilderness.

2.2.2 Foreseeable Uses of the Selected Lands

As explained above, foreseeable uses of the selected lands are assumed to be the same for all alternatives. These foreseeable uses can be classified into five major categories:

- **Existing Mining (EXIST)**: If surface disturbance has already occurred due to mining activity in or adjacent to the Ray Mine, the affected lands are classified as existing mining. Areas of existing mining total approximately 272 acres (2%) of the selected lands. The parcels in this category are all located in the Ray Mine portion of the Ray Complex Area.

- **Production Operations and Support Areas (POS)**: Areas classified as Production Operations and Support would be subject to substantial disturbance (25 to 100 percent) of the land surface. These areas comprise an estimated 3,614 acres (33%) of the selected lands. Potential foreseeable mining uses include, but are not limited to, expansion of open pits, haul roads, solution-extraction rock deposition areas, and overburden deposition areas. Most of the selected lands parcels in this category are located in the Ray Mine and Copper Butte/Buckeye portions of the Ray Complex Area.

- **Transition (TRANS)**: Transition areas would be subject to less intensive mining-related activities, resulting in 5 to 25 percent surface disturbance. An estimated 875 acres (8%) of the selected lands fall into this category. Potential foreseeable mining uses include, but are not limited to, raveling areas around overburden and leach rock deposition areas, access roads, storm water diversion ditches, rights-of-way, and administrative facilities.

- **Intermittent Use (INTER)**: These areas would not be subject to direct mining activity, resulting in less than five percent surface disturbance. Potential intermittent uses, which would affect an estimated 4,481 acres (41%) of selected lands, include, but are not limited to, consolidation of Asarco ownership and buffering neighboring land owners from mining operations.

- **Long-Range Prospect (LRP)**: Selected lands in this category could potentially be used for mine development and associated support facilities at some point in the future, but no conceptual mine planning has begun. Because future mining uses of these lands are unknown, the degree of surface disturbance resulting from such mining activity cannot be projected. Approximately 1,733 acres (16%) of the selected lands belong to this category.

These categories reflect differences in the timing of mining activity; the degree of certainty about the activity (i.e., the current stage of planning); and the nature and extent of anticipated surface disturbance resulting from the activity. None of these categories include assumptions about land ownership or administrative responsibilities. Tables 2-5 and 2-6 summarize the foreseeable mining uses by parcel, and vice versa. Figures 2-7, 2-8, and 2-9 present this information graphically.

2.3 ALTERNATIVES CONSIDERED BUT NOT STUDIED IN DETAIL

This section describes project alternatives that were initially considered for analysis in the EIS but were subsequently eliminated for the reason(s) stated below. If any of these alternatives were to be considered again in the future, implementation would require environmental analysis in compliance with NEPA.

2.3.1 Expanded Plan Amendment Alternative

No public lands in the Ray Complex Area are currently identified for disposal by exchange in the Phoenix and Safford District RMPs. These public lands are located within the White Canyon RCA, or within an LTMA where public lands are to be retained. Asarco has identified all the parcels they would like to acquire. Other BLM parcels in the Ray Complex Area; however, may meet the criteria for disposal. The purpose of this alternative was to identify and designate additional BLM parcels for disposal in order to improve management efficiency of public lands in the Ray Complex Area.

The BLM rejected further consideration of this alternative because the process to identify and elect to dispose of additional parcels (other than those desired by Asarco) is not a management priority for the Tucson BLM Field Office at this time. The BLM did not want to invest its limited resources into studying additional scattered parcels for the following reasons: many of the scattered, smaller parcels are encumbered by mining claims; there is no likely proponent (for exchange) since Asarco has fully identified future needs; and additional archaeological and biological evaluations or other inventories would need to be conducted. In summary, identifying parcels for future disposal and associated actions when the likelihood of disposal is low would not alleviate long-term management problems for BLM.

2.3.2 Long-Range Prospect Alternative

In this land exchange alternative, Asarco would reconfigure the selected lands to exclude property classified in the Long-Range Prospect foreseeable mining use category (1,733 acres, orange colored parcels on Figure 2-7). The total acreage of selected lands would drop from 10,976 acres to 9,243 acres. The BLM has rejected further consideration of this alternative because not all of the Long-Range Prospect selected lands are of public concern or have resource values which may warrant consideration for retention. The only long-range prospect which has resource considerations and which received public comment during scoping was the Buckeye long-range prospect. Therefore an alternative was developed and considered in detail that excludes a large portion of Parcel CB-1.

Table 2-5. Summary of Existing Mining and Foreseeable Uses of Selected Lands

Parcel	Name	EXIST (acres)	POS (acres)	TRANS (acres)	INTER (acres)	LRP (acres)	SURF & MIN (acres)	MIN ONLY (acres)
RM-1	Ray Area 1	-	73	26	324	-	423	-
RM-2	Red Bluff[14]	-	~~2.3~~	~~2.7~~	~~5~~	-	5	-
RM-3	Red Hills Fraction	5	-	-	-	-	5	
RM-4	Copper Zone 8/Combination	2	-	-	-	-	2	-
RM-5	Section 10 Fragment	< 1	-	-	-	-	<1	-
RM-6.1-3	Copper Era 1 - Tracts A,B,C	< 1	-	-	-	-	< 1	-
RM-6.4	Wedge Lode	< 1	-	-	-	-	< 1	-
RM-7	Section 35 Fragment	-	-	-	80	-	-	80
RM-8	Section 9/10 Mineral	211	205	54	12	-	-	483
RM-9	Section 11 Fragment	30	-	-	-	-	-	30
RM-10	Limestone Quarry	21	116	31	-	694	862	-
RM-11	Rustlers Gulch	-	16	21	122	-	-	159
RM-12	Rustlers Gulch	-	160	-	-	-	160	-
RM-13	Rustlers Gulch	-	118	-	-	-	118	-
RM-14	East Side	-	166	31	153	-	-	350
RM-15	Limestone Quarry	2	-	-	-	284	-	286
RM-16	Limestone Quarry	-	-	-	-	40	40	-
RM-17	Tortilla Foothills	-	649	60	611	-	1320	-
RM-18	Hackberry Gulch	-	1286	186	529	-	2001	-
	RAY MINE SUB-TOTAL	**272**	**~~2,789~~ 2791**	**~~409~~ 412**	**~~1,836~~ 1,831**	**1,018**	**4,937**	**1,388**
CB-1	Copper Butte 1	-	-	-	757	363	1,120	-
CB-2	Copper Butte 2	-	-	110	505	-	615	-
CB-3	Copper Butte 3	-	279	119	294	-	692	-
CB-4	Copper Butte 4	-	64	66	465	-	-	595
CB-5	Copper Butte 5	-	2	11	147	-	-	160
	COPPER BUTTE/BUCKEYE SUB-TOTAL	**-**	**345**	**306**	**2,168**	**363**	**2,427**	**755**
CH-1	Chilito 1	-	-	-	-	262	262	-
CH-2	Chilito 2	-	-	-	-	8	8	-
CH-3	Chilito 3	-	-	-	-	2	2	-
CH-4	Administration	-	-	-	-	80	80	-
CH-5	Hayden D	-	480	-	-	-	480	-
	CHILITO/HAYDEN SUB-TOTAL	**-**	**480**	**-**	**-**	**352**	**832**	**-**

[14] The change in acreage for this parcel (POS and Trans) is under five acres and therefore, acreage calculations in Chapter 4 were not re-calculated.

Table 2-5, continued. Summary of Existing Mining and Foreseeable Uses of Selected Lands

Parcel	Name	EXIST (acres)	POS (acres)	TRANS (acres)	INTER (acres)	LRP (acres)	SURF & MIN (acres)	MIN ONLY (acres)
CG-1	Casa Grande 1	-	-	-	157	-	-	157
CG-2	Casa Grande 2	-	-	-	160	-	-	160
CG-3	Casa Grande 3	-	-	160	160	-	-	320
	CASA GRANDE SUB-TOTAL	-	-	160	477	-	-	637
	TOTAL	272	~~3,614~~ 3,616	~~875~~ 878	~~4,481~~ 4,476	1,733	8,196	2,780

Abbreviation Key: EXIST=Existing Mining; POS=Production Operations and Support; TRANS=Transition; INTER=Intermittent; LRP=Long-Range Prospects; SURF & MIN=surface and subsurface mineral estate; MIN=subsurface mineral estate

Table 2-6. Mining Activities Expected to Occur Within Each Foreseeable Mining Use Category

FORESEEABLE MINING USE	PARCELS
Production Operation and Support	
Ray pit, Ray Mine waste rock deposition areas, Ray Mine overburden and leach rock deposition areas, Ray Mine tailings deposition areas, Copper Butte pit,	▸ RM-1, RM-2, RM-10, RM-11, RM-12, RM-13, RM-14, RM-17, RM-18
Copper Butte waste rock deposition areas, stormwater	▸ CB-3, CB-4, CB-5 ▸ CH-5
Transition	
rights-of-way, haul/access routes, pipeline, Copper Butte catchment pond, raveling areas around overburden and leach rock deposition areas	▸ RM-2, RM-17 ▸ CB-2, CB-3, CB-4, CB-5 ▸ CH-2, CH-3
Intermittent	
consolidate holdings, buffer zone, existing road	▸ All selected lands
Long-Range Prospect	
Buckeye copper mine, copper/silica flux development, refuse dump, quarry limestone	▸ RM-10, RM-15, RM-16 ▸ CB-1 ▸ CH-1, CH-4

Source: SWCA 1997a

2.3.3 Split-Estate Alternative

In this land exchange alternative, Asarco would modify the configuration of the selected lands to exclude approximately 2,142 acres of split-estate parcels for which the Arizona State Land Department (ASLD) manages the surface. Under current policy, BLM is unable to complete the exchange of a mineral estate unless the person who acquires the land controls the surface estate. Asarco has initiated the process for

acquiring the surface from the ASLD. Should an exchange of the mineral estate be allowed in a Record of Decision (ROD), and Asarco does not control the surface at that time, then BLM will have to hold the mineral estate parcels in escrow until such time when Asarco has completed acquisition of the surface. Since this would be accomplished in the ROD, there is no need for a separate alternative.

2.3.4 Mining Plan of Operations Alternative

Under this alternative, Asarco would submit an MPO, as described in federal regulations governing mining operations on federal public lands (43 CFR § 3809.1-5). The BLM rejected this alternative from further consideration because Asarco has not submitted a MPO to BLM suitable for approval, and BLM cannot require a MPO from Asarco for the selected lands in question to process a land exchange proposal. In addition, several MPOs would be required since Asarco has only conceptual plans for parcels, which include short term as well as long term plans. Overall, BLM would likely be required to process several MPOs.

2.3.5 Hackberry Alternative

Under this land exchange alternative, approximately 1,530 acres of Parcel RM-18 (Hackberry) would be retained in federal ownership. The quantity of offered lands would have to be reduced, and a plan amendment would still be required for the remainder of the selected lands. The purpose of this alternative was to retain in federal ownership a substantial number of archaeological sites, several intermittent springs, and Category II desert tortoise habitat. BLM and Asarco studied this alternative in detail and determined that Asarco would have to immediately file an MPO for the remainder of the parcel to match its foreseeable use plan. Thus, the resources that the alternative sought to protect would likely be impacted through implementation of an MPO and require similar mitigation regardless of ownership. Although Intermittent and Transition Use areas are not subjected to direct mining activity, these lands are proposed to have many necessary facilities which support mining. Therefore Asarco would have to seek BLM permission (through an MPO, NOI, ROW, or other conveyance mechanism) and BLM would still have a regulatory role in mining at the Ray Complex. This alternative would also require BLM to administer 43 CFR 3809 since the parcel would still be encumbered by mining claims. Therefore, this alternative has been eliminated from further consideration.

2.3.6 Production Lands Alternative

This alternative was an attempt to configure the land exchange around lands that would be subjected to active mining and receive direct impacts. Under this land exchange alternative, approximately 7,090 acres of selected lands would be retained in federal ownership. These lands are located in Long-Range Prospect, Intermittent, and Transition Use Areas. The quantity of offered lands would have to be reduced and a plan amendment would still be required for the remainder of selected lands located in Production, Operation and Support and Existing Disturbed areas.

The BLM has eliminated this alternative from further consideration because the alternative does not meet the purpose and need of the project. Under this alternative, BLM would retain lands which are encumbered by mining claims and impacted and impaired by mining activity and Asarco would not acquire all of the lands it needs to conduct mining activity. Although Intermittent and Transition Use areas are not subjected to direct mining activity, these lands are proposed to have many necessary facilities which support mining. Therefore Asarco would have to seek BLM permission (through an MPO, NOI, ROW, or other conveyance mechanism) and BLM would still have a regulatory role in mining at the Ray Complex.

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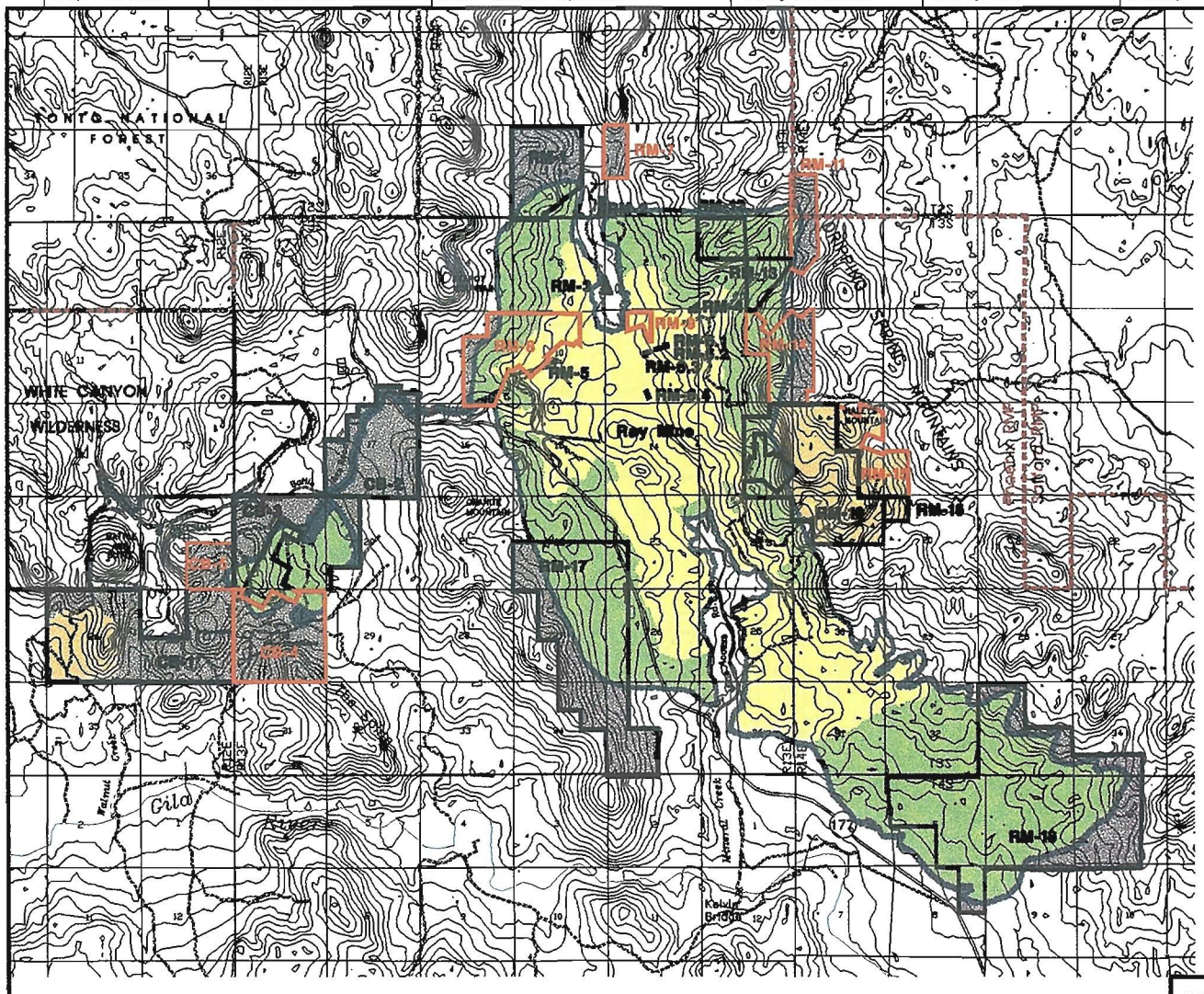


KEY

FORESEEABLE MINING USE AND EXISTING MINING DISTURBANCE

- INTERMITTENT USE (INTER)
- TRANSITION USE (TRANS)
- PRODUCTION OPERATION AND SUPPORT (POS)
- LONG RANGE PROSPECT (LRP)
- EXISTING MINING DISTURBANCE (EXIST)

SELECTED PARCEL

RESOURCE MANAGEMENT PLANNING BOUNDARY (RMP)

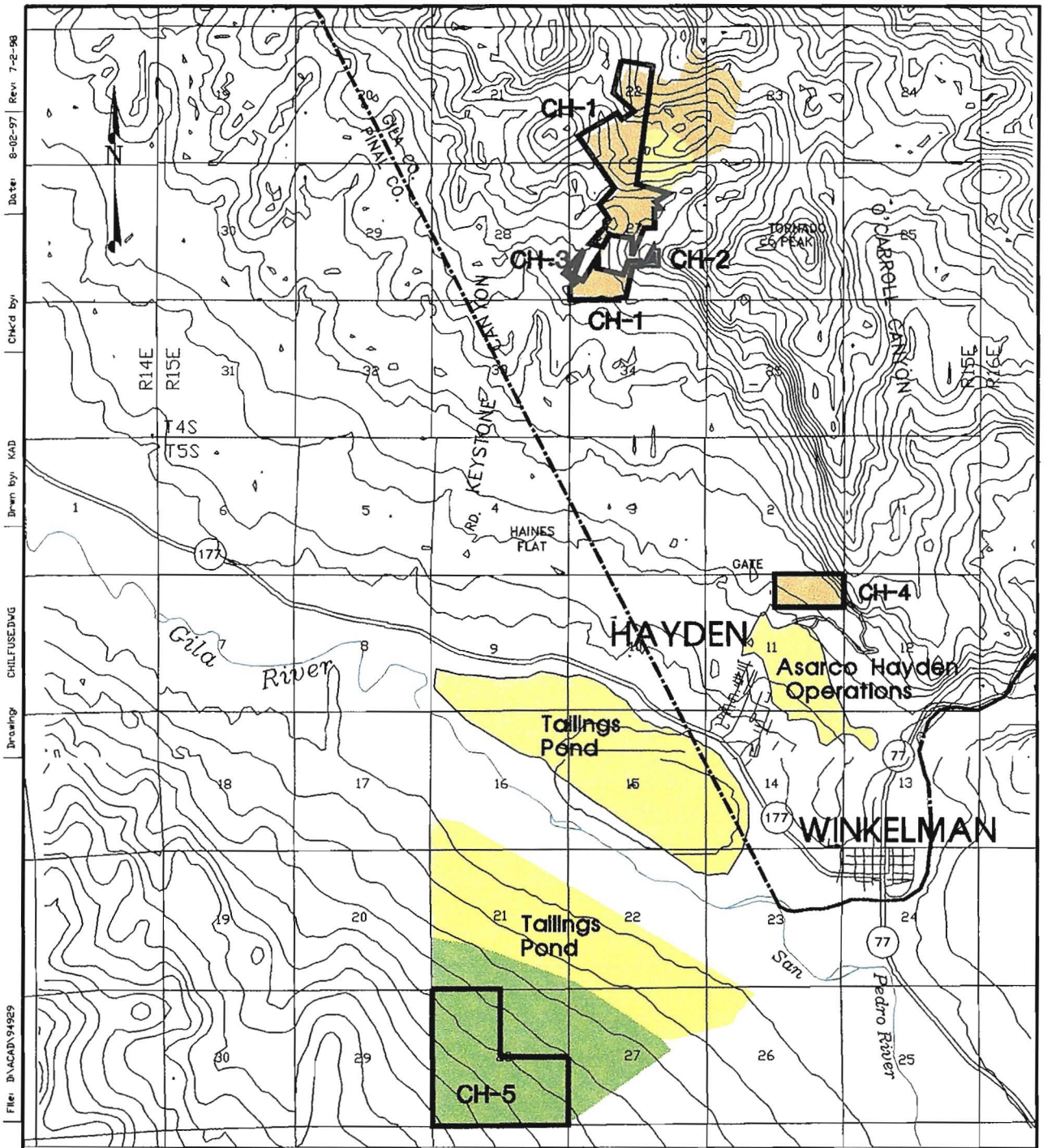
N

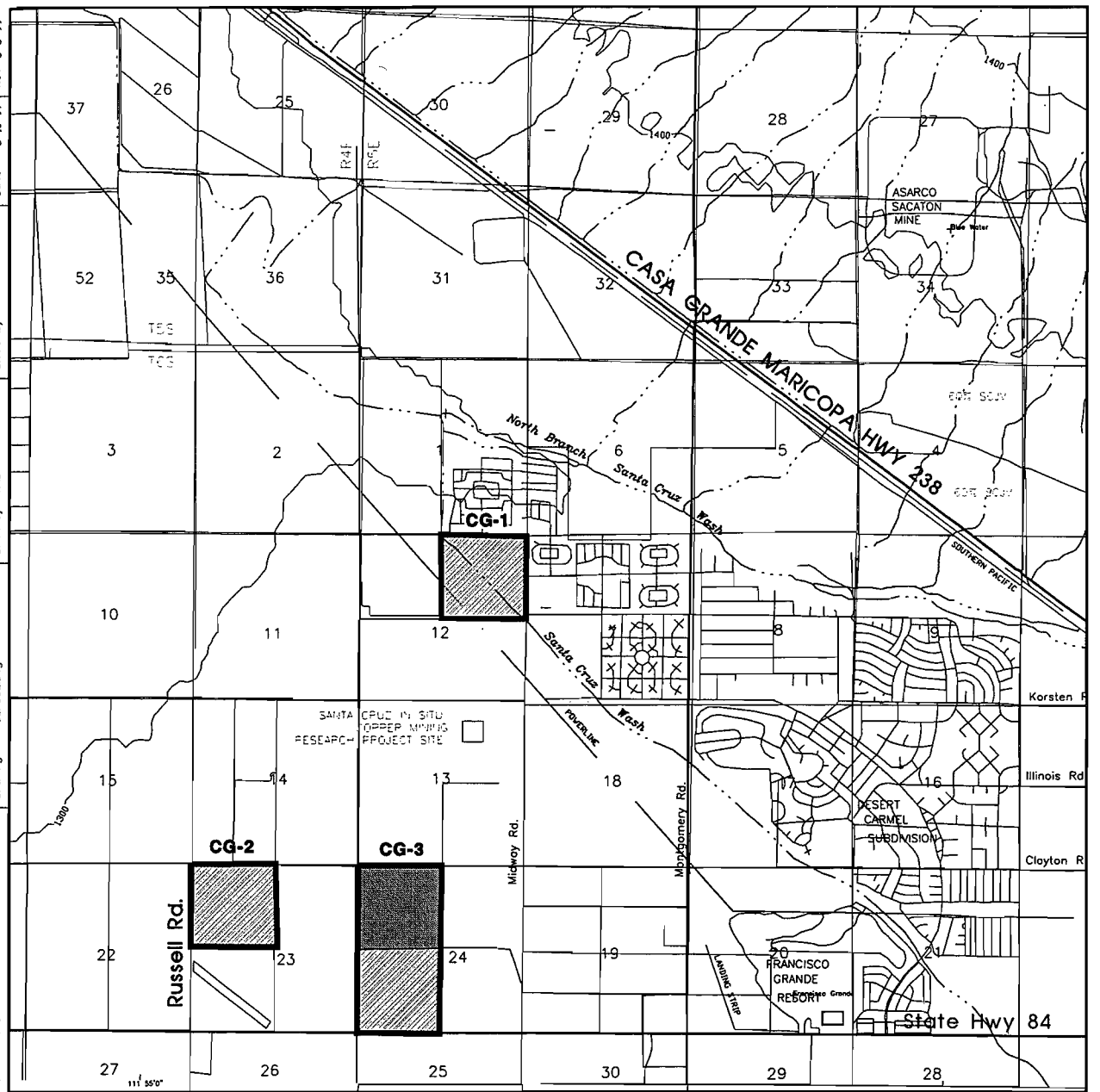
RAY LAND EXCHANGE/PLAN AMENDMENT EIS

Pinal County, Arizona

FORESEEABLE MINING USES WITHIN THE RAY COMPLEX AREA

FIGURE 2-7


CH-1
CH-2
CH-3
CH-4
CH-5
GILA CO.
PINAL CO.
KEYSTONE
HAINES FLAT
GATE
HAYDEN
Asarco Hayden Operations
Tailings Pond
Tailings Pond
WINKELMAN
Gila River
San Pedro River
TORNADO PEAK
CABROLL CANYON
R14E
R15E
R15E
R16E
T4S
T5S
177
77
N
FORESEEABLE MINING USE AND EXISTING MINING DISTURBANCE
PRODUCTION OPERATION AND SUPPORT
LONG RANGE PROSPECT
EXISTING MINING DISTURBANCE
SELECTED PARCELS (SURFACE & MINERAL ESTATE)
Scale 0 3000 6000 FEET
RAY LAND EXCHANGE/PLAN AMENDMENT EIS
Pinal and Gila County, Arizona T.4S.R.15E., T.5S.,R.15E.
FORESEEABLE MINING USES OF CHILITO/HAYDEN PARCELS
FIGURE 2-8



KEY

SELECTED PARCELS (MINERAL ESTATE ONLY)

FORESEEABLE MINING USE

INTERMITTENT

TRANSITION USE

Scale

0 1/2 1

MILE

CONTOUR INTERVAL 100 FEET

RAY LAND EXCHANGE/PLAN AMENDMENT EIS

Pinal County, Arizona T.6S.R.4E., T.6S.,R.5E.

FORESEEABLE MINING USES WITHIN THE CASA GRANDE AREA

FIGURE 2-9

2.3.7 No Mining Election Alternative (Errata 2.1.5 in DEIS)

Should the land exchange not take place, a "no mining" election could occur, if: (1) the mining claimant[15] of record elects not to mine any portion of the selected public lands presently encumbered by mining claims; or (2) the mining claimant is barred from mining because its plan of operations is not approved or the claims are determined to be invalid. Even with the exchange, the same election could occur should the proponent elect not to mine or if the proponent was unable to secure the state and federal permits needed for mine operation.

Under the "no mining election," the minerals found within the claims would not be developed, and none of the actions contemplated under the Proposed Action, Copper Butte, Buckeye, or No Action alternatives would occur. The site would remain in its present state, and expansion of existing mining operations from adjoining lands would not take place. Surface disturbances created by mineral exploration and historic mining activities would remain to the extent not otherwise reclaimed.

The selected public lands would continue to be subject to the pressures of mineral development, given favorable economic circumstances, and would be available for future mine development attempts or other uses within the limits of applicable state and federal laws and regulations. Should there be no mining, certain employment and economic benefits would not accrue to the local and regional communities.

Given the prevailing circumstances, the likelihood of a no mining election is essentially nil and cannot be considered a reasonably foreseeable possibility under any of the alternatives, including the No Action Alternative.

2.4 COMPARATIVE SUMMARY OF ENVIRONMENTAL IMPACTS

Table 2-7 summarizes and compares the environmental impacts between the Proposed Action, Buckeye, Copper Butte and No Action Alternatives. Impacts resulting from the foreseeable uses, which are common to all alternatives and are likely to occur with or without a land exchange, are also identified in this table. Detailed analysis of impacts is provided in Chapter 4.

[15] As noted at Section 3.2.2.2, the selected lands are encumbered by a total of 751 mining claims. Each of the 31 parcels constituting the selected lands are encumbered by mining claims, except one (Parcel CH-5). Of these 751 claims, 747 (99.5 percent) are held by Asarco, and 4 (0.5%) are held by a third party (Parcel CH-1). Thus, references to "mining claimant" as a practical matter, refer to Asarco.

Table 2-7. Comparative Summary of Anticipated Environmental Consequences of the Proposed Action, Buckeye, Copper Butte and the No Action Alternatives, and Impacts Common to All Alternatives (the foreseeable mining uses) *Foreseeable Mining Use categories include: Production Operation and Support (POS) with 25%-100% surface disturbance, Transition (TRANS) with 5%-25% surface disturbance, Intermittent (INTER) with <5% surface disturbance, Long-Range Prospect (LRP) with surface disturbance similar to POS or TRANS and Existing (EXIST) where the surface is already disturbed.*

Resource/Issue	Impacts Common to All Alternatives (Implementation of Foreseeable Mining Uses on Selected Lands)	*PROPOSED ACTION (Preferred Alternative)
BIOLOGICAL RESOURCES **Upland Plant Communities** ***Section 4.1.1***	Approximately 10,891 acres impacted. 891 acres within EXIST (already disturbed), 4,037 within INTER, 3,416 within POS, 704 within TRANS, and 1,731 within LRP.	Asarco to acquire approximately 10,891 acres of upland plant communities; 10,000 acres of Sonoran desertscrub and 891 acres of disturbed plant communities. BLM to acquire approximately 7,148 acres of upland plant communities
Riparian Plant Communities ***Section 4.1.2***	Approximately ~~17~~ 93 acres of Sonoran Riparian Deciduous Forest[1] ~~and 17 acres of artificial ponds/reservoirs~~ impacted.	Asarco to acquire approximately ~~90~~ 34 acres of riparian communities; 17 acres Xeroriparian mixed grass, and ~~22~~ 17 acres Sonoran Riparian Deciduous Forest ~~and 51 acres of artificial ponds.~~ BLM would acquire approximately 152 acres of riparian plant communities ~~62~~ 118 acre net gain to BLM administered riparian habitat
Wildlife/Wildlife Habitats ***Section 4.1.3***	Approximately 10,090 acres of wildlife habitat impacted. Approximately 26-42 big game animals impacted. Specifically, 9-12 within INTER, 9-17 within POS, 3 within TRANS, and 6-10 within LRP.	Asarco to acquire approximately 10,976 acres of wildlife habitat (891 already disturbed) BLM would acquire approximately 7,300 acres of wildlife/wildlife habitat on the offered lands
Special Status Species ***Section 4.1.4***	Plants; Impacts to San Carlos buckwheat on RM-8, Gila rock daisy on CB-1 and CB-4, and Pima Indian Mallow on CH-1 Fish and Wildlife: Impacts to eight roosts providing potential habitat for Townsend's big-eared bat , California leaf-nosed bat and cave myotis on Parcels RM-1, RM-8, RM-10 and RM-18; elimination of an artificial pond containing lowland leopard frog; approximately ~~3,276~~ 4,108 acres of Category II and 3,982 acres of Category III desert tortoise habitat directly/indirectly impacted, approximately 1,150 acres of potential habitat for chuchwalla; longfin dace in Walnut Creek; and 40 acres of potential habitat for Western burrowing owl on CG-3.	Federal protection of special status plants, fish and wildlife located on selected lands would be discontinued due to exchange. Asarco to acquire approximately 6,860 acres of Category II and III desert tortoise habitat. BLM to acquire habitat for ten special status wildlife species including ~~6,040~~ 7,144 acres of Category I and II desert tortoise habitat[2] ~~and 640 acres of Category II desert tortoise habitat.~~

[1] Riparian vegetation acreage associated with artificial ponds was moved to Section 3.2.2 and 4.2, Physical Resources and therefore, riparian vegetation acreage decreased on the selected lands.

[2] Tortoise acreage on the selected lands was re-calculated to exclude private and State-owned surface parcels (split-estate), therefore, changing the acreage of Category II and III tortoise to be impacted under any of the alternatives (See Table 4-5).

**The impacts discussed under the Proposed Action, Buckeye, Copper Butte and No Action Alternatives must be added to the impacts presented under Impacts Common to All Alternatives*

Table 2-7. Comparative Summary of Anticipated Environmental Consequences of the Proposed Action, Buckeye, Copper Butte and the No Action Alternatives, and Impacts Common to All Alternatives (the foreseeable mining uses) *Foreseeable Mining Use categories include: Production Operation and Support (POS) with 25%-100% surface disturbance, Transition (TRANS) with 5%-25% surface disturbance, Intermittent (INTER) with <5% surface disturbance, Long-Range Prospect (LRP) with surface disturbance similar to POS or TRANS and Existing (EXIST) where the surface is already disturbed.*

*BUCKEYE ALTERNATIVE	*COPPER BUTTE ALTERNATIVE	*NO ACTION ALTERNATIVE
Asarco to acquire approximately 9,200 acres of upland plant communities, of which, 891 acres already disturbed BLM to acquire approximately 6,508 acres of upland plant communities	Asarco to acquire approximately 8,586 acres of upland plant communities and approximately 891 acres already disturbed BLM to acquire approximately 5,450 acres of upland plant communities	Approximately 10,891 acres of upland plant communities would remain under BLM administration Approximately 7,300 acres of upland plant communities would remain under private ownership and subject to development or other private uses.
Asarco to acquire approximately ~~87~~ 34 acres of riparian plant communities ~~and artificial pond/reservoirs.~~ BLM would acquire approximately 152 acres of riparian plant communities on the offered lands. 118 acre net gain to BLM administered riparian habitat.	Asarco to acquire approximately ~~79~~ 34 acres of riparian plant communities BLM would acquire approximately 152 acres of riparian plant communities on the offered lands. 118 acre net gain to BLM administered riparian habitat.	~~90~~ 34 acres of riparian plant communities would remain under BLM administration. 152 acres of riparian plant communities, located on the offered lands, would remain in private ownership and subject to development or other private uses. BLM would forego an opportunity to increase BLM administered riparian habitat.
Asarco to acquire approximately 10,176 acres of wildlife habitat (891 acres already disturbed) BLM would acquire approximately 6,659 acres of wildlife habitat	Asarco to acquire approximately ~~9,176~~ 9,161 acres of wildlife habitat (891 already disturbed) BLM would acquire approximately 5,601 acres of wildlife habitat.	Approximately 10,976 acres of wildlife habitat would remain under BLM administration Approximately 7,300 acres of wildlife habitat on the offered lands, would remain under private ownership and subject to disturbance through private development or other private uses.
Federal protection of special status plants, fish and wildlife located on selected lands would be discontinued due to exchange. Approximately ~~800~~ 320 acres of Category II desert tortoise habitat on CB-1 would remain under BLM administration. BLM to acquire habitat for seven special status species including 6,504 acres of Category I and II desert tortoise habitat.	Federal protection of special status plants, fish and wildlife located on selected lands would be discontinued. Approximately ~~800~~ 652 acres of Category II and Category III desert tortoise habitat would remain under BLM administration as will populations of Gila rock daisy on CB-1 and CB-4. BLM to acquire habitat for seven special status species including 5,446 acres of Category I and II desert tortoise habitat.	Habitat for special status plants, fish and wildlife located on selected lands would remain under BLM administration including ~~1,251~~ 3,997 acres of Category II and ~~2,064~~ 3,063 acres of Category III desert tortoise habitat. An opportunity to acquired habitat for ten special status species, including 7,144 acres of Category I and II desert tortoise habitat, would be foregone and remain in private ownership and subject to development or other private uses.

**The impacts discussed under the Proposed Action, Buckeye, Copper Butte and No Action Alternatives must be added to the impacts presented under Impacts Common to All Alternatives*

Table 2-7. Comparative Summary of Anticipated Environmental Consequences of the Proposed Action, Buckeye, Copper Butte and the No Action Alternatives, and Impacts Common to All Alternatives (the foreseeable mining uses) *Foreseeable Mining Use categories include: Production Operation and Support (POS) with 25%-100% surface disturbance, Transition (TRANS) with 5%-25% surface disturbance, Intermittent (INTER) with <5% surface disturbance, Long-Range Prospect (LRP) with surface disturbance similar to POS or TRANS and Existing (EXIST) where the surface is already disturbed.*

Resource/Issue	Impacts Common to All Alternatives (Implementation of Foreseeable Mining Uses on Selected Lands)	*PROPOSED ACTION (Preferred Alternative)
Threatened and Endangered (T&E) Species Plants, Fish and Wildlife ***Section 4.1.5***	~~No impacts because~~ No T & E plants, fish or wildlife are known to occur on the selected lands. Impacts to approximately five acres of southwestern willow flycatcher habitat; approximately 6,646 acres of potential habitat for cactus ferruginous pygmy-owl and potential habitat for lesser long-nosed bat (if range extension occurred).	Asarco to acquire approximately five acres of potential southwestern willow flycatcher and approximately 6,646 acres of potential CFPO cactus ferruginous pygmy-owl habitat and potential habitat for lesser long-nosed bats (if range extension occurred). BLM would acquire offered lands which provide habitat for the bald eagle, American peregrine falcon, cactus ferruginous pygmy-owl and southwestern willow flycatcher.
Critical Habitat ***Section 4.1.6***	No proposed or critical habitat occurs on any of the selected lands. Proposed critical habitat occurs on the Gila River Parcel at Cochran for the cactus ferruginous pygmy-owl.	~~None~~ BLM would acquire the Gila River Parcel at Cochran, which is proposed critical habitat for the cactus ferruginous pygmy-owl.
PHYSICAL RESOURCES **Surface Water** ***Section 4.2.1***	Under the foreseeable mining uses, potential impacts to surface waters would be regulated by Clean Water Act (CWA) sections 401, 402, and 404.[3] Cumulative impacts to surface water quality and quantity may occur in Middle Gila River watershed.	Asarco would acquire 13 springs and 3 stockponds on the selected lands. BLM would acquire surface water features on the offered lands, which include 0.50 miles of the Big Sandy River, 2 springs, 2 stockponds, 1.1 miles of the Gila River, and one wildlife catchment.
Groundwater ***Section 4.2.2***	Discharges to groundwater from foreseeable mining uses would be regulated by Arizona's APP program. This requires that groundwater quality at designated points of compliance meet aquifer water quality standards.[4]	Asarco would acquire one abandoned stock watering well. BLM would acquire one well.
Surface Water Rights/Well Permits ***Section 4.2.3***	Nine surface water sources and wells on the selected lands in the Ray Complex area may become unusable from foreseeable mining uses of the selected lands. Three other surface water sources would most likely continue to be utilized for their designated uses.	Five federal reserved rights (Public Water Reserve No. 107) would be withdrawn by BLM from ADWR's records. Seven other surface water rights claims would transfer to Asarco, including three associated with stockponds on the Copper Butte Parcels and four associated with springs on RM-18. Five surface water rights and one well permit on the offered lands would transfer to BLM.

[3] Residual impacts may occur after compliance with CWA permits, and are described in Section 4.2.1.1.

[4] Residual impacts may occur after compliance with APP, and are described in Section 4.2.2.1.

**The impacts discussed under the Proposed Action, Buckeye, Copper Butte and No Action Alternatives must be added to the impacts presented under Impacts Common to All Alternatives*

Table 2-7. Comparative Summary of Anticipated Environmental Consequences of the Proposed Action, Buckeye, Copper Butte and the No Action Alternatives, and Impacts Common to All Alternatives (the foreseeable mining uses) *Foreseeable Mining Use categories include: Production Operation and Support (POS) with 25%-100% surface disturbance, Transition (TRANS) with 5%-25% surface disturbance, Intermittent (INTER) with <5% surface disturbance, Long-Range Prospect (LRP) with surface disturbance similar to POS or TRANS and Existing (EXIST) where the surface is already disturbed.*

*BUCKEYE ALTERNATIVE	*COPPER BUTTE ALTERNATIVE	*NO ACTION ALTERNATIVE
Asarco to acquire approximately five acres of potential southwestern willow flycatcher habitat, 5,846 acres of potential cactus ferruginous pygmy-owl habitat and potential habitat for lesser long-nosed bats. BLM would acquire offered lands which provide habitat for the bald eagle, American peregrine falcon, cactus ferruginous pygmy-owl and southwestern willow flycatcher.	Asarco to acquire approximately five acres of southwestern willow flycatcher, 4,831 acres of potential cactus ferruginous pygmy-owl habitat and potential habitat for lesser long-nosed bats. BLM would acquire offered lands which provide habitat for the bald eagle, American peregrine falcon, cactus ferruginous pygmy-owl and southwestern willow flycatcher.	Approximately five acres of potential southwestern flycatcher habitat, 6,646 acres of potential cactus ferruginous pygmy owl habitat and potential habitat for lesser long-nosed bats would remain under BLM administration. BLM would forego an opportunity to acquire ~~occupied~~ habitat for ~~these T & E wildlife species.~~ the southwestern willow flycatcher, cactus ferruginous pygmy-owl, peregrine falcon, and bald eagle.
~~None~~ BLM would acquire the Gila River Parcel at Cochran, which is proposed critical habitat for the cactus ferruginous pygmy-owl.	~~None~~ BLM would acquire the Gila River Parcel at Cochran, which is proposed critical habitat for the cactus ferruginous pygmy-owl.	~~None~~ BLM would not acquire the Gila River Parcel at Cochran, which is proposed critical habitat for the cactus ferruginous pygmy-owl.
Same as Proposed Action except that BLM would retain one spring and one stockpond on Parcel CB-1. BLM would not acquire one stockpond on the offered lands.	Same as Proposed Action except that BLM would retain three stockponds, and one abandoned well on Parcels CB-1, CB-2, and CB-3. BLM would not acquire one stockpond on the offered lands.	Same as Impacts Common to All Alternatives except that BLM would not acquire surface water features on the offered lands.
Same as Proposed Action	Same as Proposed Action	Same as Impacts Common to All Alternatives. BLM would forego an opportunity to acquire the one well on the offered lands.
Same as Proposed Action, except that one BLM water right associated with Parcel CB-1 for Rincon Reservoir would remain in federal ownership. Two water rights associated with Section 9 of the McCracken Mountains Parcels would not be acquired by BLM.	Same as Proposed Action, except that three BLM water rights associated with Parcels CB-1, CB-2, and CB-3 (for Rincon Reservoir, Dunn Tank No. 1, and Dunn Tank No. 2, respectively) would remain in federal ownership. Two water rights associated with Section 9 of the McCracken Mountains Parcels would not be acquired by BLM.	No water rights in the project area would transfer ownership. Five surface water rights and one well permit would remain in private ownership.

**The impacts discussed under the Proposed Action, Buckeye, Copper Butte and No Action Alternatives must be added to the impacts presented under Impacts Common to All Alternatives*

Table 2-7. Comparative Summary of Anticipated Environmental Consequences of the Proposed Action, Buckeye, Copper Butte and the No Action Alternatives, and Impacts Common to All Alternatives (the foreseeable mining uses) *Foreseeable Mining Use categories include: Production Operation and Support (POS) with 25%-100% surface disturbance, Transition (TRANS) with 5%-25% surface disturbance, Intermittent (INTER) with <5% surface disturbance, Long-Range Prospect (LRP) with surface disturbance similar to POS or TRANS and Existing (EXIST) where the surface is already disturbed.*

Resource/Issue	Impacts Common to All Alternatives (Implementation of Foreseeable Mining Uses on Selected Lands)	*PROPOSED ACTION (Preferred Alternative)
Air Quality ***Section 4.2.4***	All parcels within the Ray Complex and Copper Butte/Buckeye areas are within a non-attainment area for PM_{10} and all parcels within the Chilito/Hayden area are within a non-attainment area for both PM_{10} and SO_2. Any impacts to air quality resulting in accedences in PM_{10} or SO_2 would require a modification to Asarco's Title V Permit from ADEQ.	The exchange of selected lands in and of itself would not affect air quality. Acquisition of the offered lands is not expected to impact air quality.
Soils ***Section 4.2.5***	Approximately 10,339 acres of soils in the Ray Complex, Copper Butte/Buckeye and Chilito/Hayden areas and approximately 637 acres of soils in the Casa Grande area impacted.	Approximately 10,976 acres of soils on the selected lands would be acquired by Asarco. BLM would acquire 7,300 acres of soils on the offered lands.
MINERAL RESOURCES **Mineral Potential** ***Section 4.3.1***	The selected lands would be mined for copper under all the alternatives	None
Mineral Rights ***Section 4.3.2***	Asarco would exercise mineral rights on all mining claims. Third-party claims located on Parcel CH-1 would need to be resolved before mining can occur.	BLM would acquire the offered lands and petition to withdraw two parcels to mineral entry (Tomlin #4 and Gila River Parcel at Cochran).
LAND USE **Land Ownership** ***Section 4.4.1***	Foreseeable mining uses on the selected lands could occur under private or public ownership.	Two percent increase in privately-held lands in Pinal County and 0.3 percent increase in Gila County. In addition, a 0.1 percent decrease in publicly-held lands in Pinal County. BLM administered split-estate lands in the Ray Complex, Copper Butte/Buckeye and Chilito/Hayden areas would decrease from 48 to 43 percent. Increase in publicly-held lands in Mohave County.

**The impacts discussed under the Proposed Action, Buckeye, Copper Butte and No Action Alternatives must be added to the impacts presented under Impacts Common to All Alternatives*

Table 2-7. Comparative Summary of Anticipated Environmental Consequences of the Proposed Action, Buckeye, Copper Butte and the No Action Alternatives, and Impacts Common to All Alternatives (the foreseeable mining uses) *Foreseeable Mining Use categories include: Production Operation and Support (POS) with 25%-100% surface disturbance, Transition (TRANS) with 5%-25% surface disturbance, Intermittent (INTER) with <5% surface disturbance, Long-Range Prospect (LRP) with surface disturbance similar to POS or TRANS and Existing (EXIST) where the surface is already disturbed.*

*BUCKEYE ALTERNATIVE	*COPPER BUTTE ALTERNATIVE	*NO ACTION ALTERNATIVE
Same as Proposed Action.	Same as Proposed Action.	The selected lands would remain under BLM administration. BLM would not acquire the offered lands as they would remain under private ownership and subject to development or other private uses.
Approximately 10,176 acres of soils on the selected lands would be acquired by Asarco.	Approximately 9,161 acres of soils on the selected lands would be acquired by Asarco.	Asarco would not acquire any of the selected lands and BLM would not acquire any of the offered lands.
None	None	None
Same as Proposed Action.	Same as Proposed Action.	Existing mineral rights would continue to be held by Asarco. BLM would not acquire the mineral rights of the offered lands and would be unable to petition to withdraw Tomlin #4 and Gila River Parcel at Cochran to mineral entry.
Approximate two percent increase in privately-held lands in Pinal County and 0.3 percent increase in Gila County. In addition, a 0.1 percent decrease in publicly-held lands in Pinal County. BLM administered split-estate lands in the Ray Complex, Copper Butte/Buckeye and Chilito/Hayden areas would decrease from 48 to 43 percent. Increase in publicly-held lands in Mohave County.	Approximate two percent increase in privately-held lands in Pinal County and 0.3 percent increase in Gila County. In addition, a 0.1 percent decrease in publicly-held lands in Pinal County. BLM administered split-estate lands in the Ray Complex, Copper Butte/Buckeye and Chilito/Hayden areas would decrease from 48 to 43 percent. Increase in publicly-held lands in Mohave County.	No change from existing land ownership, the selected lands would continue to be administered under the BLM Phoenix and Safford RMPs. The offered lands would remain under private ownership and the BLM would forego an opportunity to acquire these lands.

**The impacts discussed under the Proposed Action, Buckeye, Copper Butte and No Action Alternatives must be added to the impacts presented under Impacts Common to All Alternatives*

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Resource/Issue	Impacts Common to All Alternatives (Implementation of Foreseeable Mining Uses on Selected Lands)	*PROPOSED ACTION (Preferred Alternative)
Management of Public Lands ***Section 4.4.2***	Impacts to management of public lands are expected when Asarco proceeds with foreseeable mining uses regardless of land ownership.	BLM would have substantially less management responsibilities under 3809 if Asarco acquires the selected lands. BLM will have fewer management conflicts in various wilderness and ACEC areas within Arizona by acquiring the offered lands.
Access and Recreation ***Section 4.4.3***	Battle Axe Road would be used by Asarco for mining operations at Copper Butte. Two alternative routes for access/recreation to Walnut Canyon and White Canyon Wilderness are being considered. In addition, alternative trail segments are being considered for the Arizona Trail. BLM has selected proposed Route #2 to replace the existing Battle Axe Road to the White Canyon Wilderness. Back country vehicle recreation in the Copper Butte/Buckeye area would be impacted by implementation of foreseeable mining uses. Proposed mitigation would allow access to popular sites (e.g. Coke Ovens and artesian well).	Some alignments proposed for the AZ Trail would be impacted as these would require Asarco permission to develop or require realignment. BLM would acquire offered lands in five special management areas, consolidating public land ownership and alleviating potential public access problems through those lands.
Rights-of-Way ***Section 4.4.4***	Three rights-of-way occur within the POS Use category and will likely need to be relocated: a portion of county road (Battle Axe Road AZA 21389), an electric power line (AZA 2146), and Highway 177 (AZAR 024241). Rights-of-way occurring in other foreseeable use categories could potentially be impacted, but not necessarily relocated.	BLM would transfer title of selected lands to Asarco and all rights-of-way would remain intact. Asarco would no longer need an easement for Parcel CH-4 (AZA 1000). Acquisition of the offered lands is not expected to impact any rights-of-way.
Grazing ***Section 4.4.5***	Approximately 4,814 acres and 379 AUMs of BLM administered grazing land in seven allotments would be impacted.	BLM would relinquish management of and grazing income of $1,239.30/year from approximately 8,196 acres (918 AUMs) and seven improvements within seven grazing allotments. BLM would acquire 7,300 acres within five allotments, totaling 288AUMs and $587.25 per year.

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*BUCKEYE ALTERNATIVE	*COPPER BUTTE ALTERNATIVE	*NO ACTION ALTERNATIVE
Same as Proposed Action, however, should Asarco ultimately seek to develop the Buckeye Deposit, it would have to be done under BLM's 3809 regulations, which would result in long-term BLM management of the Buckeye operation.	Same as Buckeye Alternative except Parcels CB-1, CB-2, and portions of CB-3 would remain under BLM administration, requiring management under 3809.	Implementation of the foreseeable mining uses via MPO, would require long-term BLM resources and oversight. Implementation of foreseeable mining uses might require BLM to process future patent applications, but currently new patent applications are not being accepted. BLM would forego an opportunity to acquire the offered lands. In addition, the McCracken Mountains ACEC would remain checker-boarded with fragmented management conflicts.
Same as Proposed Action, except that BLM would not acquire Section 9 of the McCracken Mountains Parcels. Public access through these private properties and recreation opportunities on these parcels would not be available. Legal public access through Section 24 would not be resolved	Same as the Buckeye alternative, except that BLM would not acquire Sections 9, 3 and 19 of the McCracken Mountains Parcels. Legal public access through Section 24 would not be resolved.	The selected lands would remain under BLM administration, and impacts to access/recreation would be expected to be similar to those described under impacts common to all alternatives. The offered lands would remain in private ownership. Public access and recreation on these lands would not be available, and an opportunity to acquire them would be gone. Legal public access through Section 24 would remain unsolved
Same as Proposed Action.	Rights-of-way crossing the Copper Butte parcels will remain under BLM administration.	Selected lands would remain under BLM administration. BLM would not acquire the offered lands.
Approximately 7,396 acres (825 AUMs) relinquished from BLM administration and a loss of grazing income of $1,113.75/year. BLM would acquire 6,659 acres within five allotments, and increase grazing revenues by $326.34 per year.	Approximately 6,221 acres (698 AUMs) relinquished from BLM administration and a loss of grazing income of $834.30/year. BLM would acquire 5,601 acres within five allotments, increase grazing revenues by $274.53 per year.	Under the No Action, the selected lands would remain under BLM administration. BLM would not acquire the offered lands, which would remain in private ownership and subject to development or other private uses.

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2.3.7 No Mining Election Alternative (Errata 2.1.5 in DEIS)

Should the land exchange not take place, a "no mining" election could occur, if: (1) the mining claimant[15] of record elects not to mine any portion of the selected public lands presently encumbered by mining claims; or (2) the mining claimant is barred from mining because its plan of operations is not approved or the claims are determined to be invalid. Even with the exchange, the same election could occur should the proponent elect not to mine or if the proponent was unable to secure the state and federal permits needed for mine operation.

Under the "no mining election," the minerals found within the claims would not be developed, and none of the actions contemplated under the Proposed Action, Copper Butte, Buckeye, or No Action alternatives would occur. The site would remain in its present state, and expansion of existing mining operations from adjoining lands would not take place. Surface disturbances created by mineral exploration and historic mining activities would remain to the extent not otherwise reclaimed.

The selected public lands would continue to be subject to the pressures of mineral development, given favorable economic circumstances, and would be available for future mine development attempts or other uses within the limits of applicable state and federal laws and regulations. Should there be no mining, certain employment and economic benefits would not accrue to the local and regional communities.

Given the prevailing circumstances, the likelihood of a no mining election is essentially nil and cannot be considered a reasonably foreseeable possibility under any of the alternatives, including the No Action Alternative.

2.4 COMPARATIVE SUMMARY OF ENVIRONMENTAL IMPACTS

Table 2-7 summarizes and compares the environmental impacts between the Proposed Action, Buckeye, Copper Butte and No Action Alternatives. Impacts resulting from the foreseeable uses, which are common to all alternatives and are likely to occur with or without a land exchange, are also identified in this table. Detailed analysis of impacts is provided in Chapter 4.

[15] As noted at Section 3.2.2.2, the selected lands are encumbered by a total of 751 mining claims. Each of the 31 parcels constituting the selected lands are encumbered by mining claims, except one (Parcel CH-5). Of these 751 claims, 747 (99.5 percent) are held by Asarco, and 4 (0.5%) are held by a third party (Parcel CH-1). Thus, references to "mining claimant" as a practical matter, refer to Asarco.

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Resource/Issue	Impacts Common to All Alternatives (Implementation of Foreseeable Mining Uses on Selected Lands)	*PROPOSED ACTION (Preferred Alternative)
BIOLOGICAL RESOURCES **Upland Plant Communities** ***Section 4.1.1***	Approximately 10,891 acres impacted. 891 acres within EXIST (already disturbed), 4,037 within INTER, 3,416 within POS, 704 within TRANS, and 1,731 within LRP.	Asarco to acquire approximately 10,891 acres of upland plant communities; 10,000 acres of Sonoran desertscrub and 891 acres of disturbed plant communities. BLM to acquire approximately 7,148 acres of upland plant communities
Riparian Plant Communities ***Section 4.1.2***	Approximately ~~17~~ 93 acres of Sonoran Riparian Deciduous Forest[1] ~~and 17 acres of artificial ponds/reservoirs~~ impacted.	Asarco to acquire approximately ~~90~~ 34 acres of riparian communities; 17 acres Xeroriparian mixed grass, and ~~22~~ 17 acres Sonoran Riparian Deciduous Forest ~~and 54 acres of artificial ponds.~~ BLM would acquire approximately 152 acres of riparian plant communities ~~62~~ 118 acre net gain to BLM administered riparian habitat
Wildlife/Wildlife Habitats ***Section 4.1.3***	Approximately 10,090 acres of wildlife habitat impacted. Approximately 26-42 big game animals impacted. Specifically, 9-12 within INTER, 9-17 within POS, 3 within TRANS, and 6-10 within LRP.	Asarco to acquire approximately 10,976 acres of wildlife habitat (891 already disturbed) BLM would acquire approximately 7,300 acres of wildlife/wildlife habitat on the offered lands
Special Status Species ***Section 4.1.4***	Plants: Impacts to San Carlos buckwheat on RM-8, Gila rock daisy on CB-1 and CB-4, and Pima Indian Mallow on CH-1 Fish and Wildlife: Impacts to eight roosts providing potential habitat for Townsend's big-eared bat , California leaf-nosed bat and cave myotis on Parcels RM-1, RM-8, RM-10 and RM-18; elimination of an artificial pond containing lowland leopard frog; approximately ~~3,276~~ 4,108 acres of Category II and 3,982 acres of Category III desert tortoise habitat directly/indirectly impacted, approximately 1,150 acres of potential habitat for chuchwalla; longfin dace in Walnut Creek; and 40 acres of potential habitat for Western burrowing owl on CG-3.	Federal protection of special status plants, fish and wildlife located on selected lands would be discontinued due to exchange. Asarco to acquire approximately 6,860 acres of Category II and III desert tortoise habitat. BLM to acquire habitat for ten special status wildlife species including ~~6,040~~ 7,144 acres of Category I and II desert tortoise habitat[2] ~~and 640 acres of Category II desert tortoise habitat.~~

[1] Riparian vegetation acreage associated with artificial ponds was moved to Section 3.2.2 and 4.2, Physical Resources and therefore, riparian vegetation acreage decreased on the selected lands.

[2] Tortoise acreage on the selected lands was re-calculated to exclude private and State-owned surface parcels (split-estate), therefore, changing the acreage of Category II and III tortoise to be impacted under any of the alternatives (See Table 4-5).

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Table 2-7. Comparative Summary of Anticipated Environmental Consequences of the Proposed Action, Buckeye, Copper Butte and the No Action Alternatives, and Impacts Common to All Alternatives (the foreseeable mining uses) *Foreseeable Mining Use categories include: Production Operation and Support (POS) with 25%-100% surface disturbance, Transition (TRANS) with 5%-25% surface disturbance, Intermittent (INTER) with <5% surface disturbance, Long-Range Prospect (LRP) with surface disturbance similar to POS or TRANS and Existing (EXIST) where the surface is already disturbed.*

*BUCKEYE ALTERNATIVE	*COPPER BUTTE ALTERNATIVE	*NO ACTION ALTERNATIVE
Asarco to acquire approximately 9,200 acres of upland plant communities, of which, 891 acres already disturbed BLM to acquire approximately 6,508 acres of upland plant communities	Asarco to acquire approximately 8,586 acres of upland plant communities and approximately 891 acres already disturbed BLM to acquire approximately 5,450 acres of upland plant communities	Approximately 10,891 acres of upland plant communities would remain under BLM administration Approximately 7,300 acres of upland plant communities would remain under private ownership and subject to development or other private uses.
Asarco to acquire approximately ~~87~~ 34 acres of riparian plant communities ~~and artificial pond/reservoirs.~~ BLM would acquire approximately 152 acres of riparian plant communities on the offered lands. 118 acre net gain to BLM administered riparian habitat.	Asarco to acquire approximately ~~79~~ 34 acres of riparian plant communities BLM would acquire approximately 152 acres of riparian plant communities on the offered lands. 118 acre net gain to BLM administered riparian habitat.	~~90~~ 34 acres of riparian plant communities would remain under BLM administration. 152 acres of riparian plant communities, located on the offered lands, would remain in private ownership and subject to development or other private uses. BLM would forego an opportunity to increase BLM administered riparian habitat.
Asarco to acquire approximately 10,176 acres of wildlife habitat (891 acres already disturbed) BLM would acquire approximately 6,659 acres of wildlife habitat	Asarco to acquire approximately ~~9,176~~ 9,161 acres of wildlife habitat (891 already disturbed) BLM would acquire approximately 5,601 acres of wildlife habitat.	Approximately 10,976 acres of wildlife habitat would remain under BLM administration Approximately 7,300 acres of wildlife habitat on the offered lands, would remain under private ownership and subject to disturbance through private development or other private uses.
Federal protection of special status plants, fish and wildlife located on selected lands would be discontinued due to exchange. Approximately ~~800~~ 320 acres of Category II desert tortoise habitat on CB-1 would remain under BLM administration. BLM to acquire habitat for seven special status species including 6,504 acres of Category I and II desert tortoise habitat.	Federal protection of special status plants, fish and wildlife located on selected lands would be discontinued. Approximately ~~800~~ 652 acres of Category II and Category III desert tortoise habitat would remain under BLM administration as will populations of Gila rock daisy on CB-1 and CB-4. BLM to acquire habitat for seven special status species including 5,446 acres of Category I and II desert tortoise habitat.	Habitat for special status plants, fish and wildlife located on selected lands would remain under BLM administration including ~~1,251~~ 3,997 acres of Category II and ~~2,064~~ 3,063 acres of Category III desert tortoise habitat. An opportunity to acquired habitat for ten special status species, including 7,144 acres of Category I and II desert tortoise habitat, would be foregone and remain in private ownership and subject to development or other private uses.

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Table 2-7. Comparative Summary of Anticipated Environmental Consequences of the Proposed Action, Buckeye, Copper Butte and the No Action Alternatives, and Impacts Common to All Alternatives (the foreseeable mining uses) *Foreseeable Mining Use categories include: Production Operation and Support (POS) with 25%-100% surface disturbance, Transition (TRANS) with 5%-25% surface disturbance, Intermittent (INTER) with <5% surface disturbance, Long-Range Prospect (LRP) with surface disturbance similar to POS or TRANS and Existing (EXIST) where the surface is already disturbed.*

Resource/Issue	Impacts Common to All Alternatives (Implementation of Foreseeable Mining Uses on Selected Lands)	*PROPOSED ACTION (Preferred Alternative)
Threatened and Endangered (T&E) Species Plants, Fish and Wildlife ***Section 4.1.5***	~~No impacts because~~ No T & E plants, fish or wildlife are known to occur on the selected lands. Impacts to approximately five acres of southwestern willow flycatcher habitat; approximately 6,646 acres of potential habitat for cactus ferruginous pygmy-owl and potential habitat for lesser long-nosed bat (if range extension occurred).	Asarco to acquire approximately five acres of potential southwestern willow flycatcher and approximately 6,646 acres of potential CFPO cactus ferruginous pygmy-owl habitat and potential habitat for lesser long-nosed bats (if range extension occurred). BLM would acquire offered lands which provide habitat for the bald eagle, American peregrine falcon, cactus ferruginous pygmy-owl and southwestern willow flycatcher.
Critical Habitat ***Section 4.1.6***	No proposed or critical habitat occurs on any of the selected lands. Proposed critical habitat occurs on the Gila River Parcel at Cochran for the cactus ferruginous pygmy-owl.	~~None~~ BLM would acquire the Gila River Parcel at Cochran, which is proposed critical habitat for the cactus ferruginous pygmy-owl.
PHYSICAL RESOURCES **Surface Water** ***Section 4.2.1***	Under the foreseeable mining uses, potential impacts to surface waters would be regulated by Clean Water Act (CWA) sections 401, 402, and 404.[3] Cumulative impacts to surface water quality and quantity may occur in Middle Gila River watershed.	Asarco would acquire 13 springs and 3 stockponds on the selected lands. BLM would acquire surface water features on the offered lands, which include 0.50 miles of the Big Sandy River, 2 springs, 2 stockponds, 1.1 miles of the Gila River, and one wildlife catchment.
Groundwater ***Section 4.2.2***	Discharges to groundwater from foreseeable mining uses would be regulated by Arizona's APP program. This requires that groundwater quality at designated points of compliance meet aquifer water quality standards.[4]	Asarco would acquire one abandoned stock watering well. BLM would acquire one well.
Surface Water Rights/Well Permits ***Section 4.2.3***	Nine surface water sources and wells on the selected lands in the Ray Complex area may become unusable from foreseeable mining uses of the selected lands. Three other surface water sources would most likely continue to be utilized for their designated uses.	Five federal reserved rights (Public Water Reserve No. 107) would be withdrawn by BLM from ADWR's records. Seven other surface water rights claims would transfer to Asarco, including three associated with stockponds on the Copper Butte Parcels and four associated with springs on RM-18. Five surface water rights and one well permit on the offered lands would transfer to BLM.

[3] Residual impacts may occur after compliance with CWA permits, and are described in Section 4.2.1.1.

[4] Residual impacts may occur after compliance with APP, and are described in Section 4.2.2.1.

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Table 2-7. Comparative Summary of Anticipated Environmental Consequences of the Proposed Action, Buckeye, Copper Butte and the No Action Alternatives, and Impacts Common to All Alternatives (the foreseeable mining uses) *Foreseeable Mining Use categories include: Production Operation and Support (POS) with 25%-100% surface disturbance, Transition (TRANS) with 5%-25% surface disturbance, Intermittent (INTER) with <5% surface disturbance, Long-Range Prospect (LRP) with surface disturbance similar to POS or TRANS and Existing (EXIST) where the surface is already disturbed.*

*BUCKEYE ALTERNATIVE	*COPPER BUTTE ALTERNATIVE	*NO ACTION ALTERNATIVE
Asarco to acquire approximately five acres of potential southwestern willow flycatcher habitat, 5,846 acres of potential cactus ferruginous pygmy-owl habitat and potential habitat for lesser long-nosed bats. BLM would acquire offered lands which provide habitat for the bald eagle, American peregrine falcon, cactus ferruginous pygmy-owl and southwestern willow flycatcher.	Asarco to acquire approximately five acres of southwestern willow flycatcher, 4,831 acres of potential cactus ferruginous pygmy-owl habitat and potential habitat for lesser long-nosed bats. BLM would acquire offered lands which provide habitat for the bald eagle, American peregrine falcon, cactus ferruginous pygmy-owl and southwestern willow flycatcher.	Approximately five acres of potential southwestern flycatcher habitat, 6,646 acres of potential cactus ferruginous pygmy owl habitat and potential habitat for lesser long-nosed bats would remain under BLM administration. BLM would forego an opportunity to acquire ~~occupied~~ habitat for ~~these T & E wildlife species.~~ the southwestern willow flycatcher, cactus ferruginous pygmy-owl, peregrine falcon, and bald eagle.
~~None~~ BLM would acquire the Gila River Parcel at Cochran, which is proposed critical habitat for the cactus ferruginous pygmy-owl.	~~None~~ BLM would acquire the Gila River Parcel at Cochran, which is proposed critical habitat for the cactus ferruginous pygmy-owl.	~~None~~ BLM would not acquire the Gila River Parcel at Cochran, which is proposed critical habitat for the cactus ferruginous pygmy-owl.
Same as Proposed Action except that BLM would retain one spring and one stockpond on Parcel CB-1. BLM would not acquire one stockpond on the offered lands.	Same as Proposed Action except that BLM would retain three stockponds, and one abandoned well on Parcels CB-1, CB-2, and CB-3. BLM would not acquire one stockpond on the offered lands.	Same as Impacts Common to All Alternatives except that BLM would not acquire surface water features on the offered lands.
Same as Proposed Action	Same as Proposed Action	Same as Impacts Common to All Alternatives. BLM would forego an opportunity to acquire the one well on the offered lands.
Same as Proposed Action, except that one BLM water right associated with Parcel CB-1 for Rincon Reservoir would remain in federal ownership. Two water rights associated with Section 9 of the McCracken Mountains Parcels would not be acquired by BLM.	Same as Proposed Action, except that three BLM water rights associated with Parcels CB-1, CB-2, and CB-3 (for Rincon Reservoir, Dunn Tank No. 1, and Dunn Tank No. 2, respectively) would remain in federal ownership. Two water rights associated with Section 9 of the McCracken Mountains Parcels would not be acquired by BLM.	No water rights in the project area would transfer ownership. Five surface water rights and one well permit would remain in private ownership.

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Resource/Issue	Impacts Common to All Alternatives (Implementation of Foreseeable Mining Uses on Selected Lands)	*PROPOSED ACTION (Preferred Alternative)
Air Quality ***Section 4.2.4***	All parcels within the Ray Complex and Copper Butte/Buckeye areas are within a non-attainment area for PM_{10} and all parcels within the Chilito/Hayden area are within a non-attainment area for both PM_{10} and SO_2. Any impacts to air quality resulting in accedences in PM_{10} or SO_2 would require a modification to Asarco's Title V Permit from ADEQ.	The exchange of selected lands in and of itself would not affect air quality. Acquisition of the offered lands is not expected to impact air quality.
Soils ***Section 4.2.5***	Approximately 10,339 acres of soils in the Ray Complex, Copper Butte/Buckeye and Chilito/Hayden areas and approximately 637 acres of soils in the Casa Grande area impacted.	Approximately 10,976 acres of soils on the selected lands would be acquired by Asarco. BLM would acquire 7,300 acres of soils on the offered lands.
MINERAL RESOURCES **Mineral Potential** ***Section 4.3.1***	The selected lands would be mined for copper under all the alternatives	None
Mineral Rights ***Section 4.3.2***	Asarco would exercise mineral rights on all mining claims. Third-party claims located on Parcel CH-1 would need to be resolved before mining can occur.	BLM would acquire the offered lands and petition to withdraw two parcels to mineral entry (Tomlin #4 and Gila River Parcel at Cochran).
LAND USE **Land Ownership** ***Section 4.4.1***	Foreseeable mining uses on the selected lands could occur under private or public ownership.	Two percent increase in privately-held lands in Pinal County and 0.3 percent increase in Gila County. In addition, a 0.1 percent decrease in publicly-held lands in Pinal County. BLM administered split-estate lands in the Ray Complex, Copper Butte/Buckeye and Chilito/Hayden areas would decrease from 48 to 43 percent. Increase in publicly-held lands in Mohave County.

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*BUCKEYE ALTERNATIVE	*COPPER BUTTE ALTERNATIVE	*NO ACTION ALTERNATIVE
Same as Proposed Action.	Same as Proposed Action.	The selected lands would remain under BLM administration. BLM would not acquire the offered lands as they would remain under private ownership and subject to development or other private uses.
Approximately 10,176 acres of soils on the selected lands would be acquired by Asarco.	Approximately 9,161 acres of soils on the selected lands would be acquired by Asarco.	Asarco would not acquire any of the selected lands and BLM would not acquire any of the offered lands.
None	None	None
Same as Proposed Action.	Same as Proposed Action.	Existing mineral rights would continue to be held by Asarco. BLM would not acquire the mineral rights of the offered lands and would be unable to petition to withdraw Tomlin #4 and Gila River Parcel at Cochran to mineral entry.
Approximate two percent increase in privately-held lands in Pinal County and 0.3 percent increase in Gila County. In addition, a 0.1 percent decrease in publicly-held lands in Pinal County. BLM administered split-estate lands in the Ray Complex, Copper Butte/Buckeye and Chilito/Hayden areas would decrease from 48 to 43 percent. Increase in publicly-held lands in Mohave County.	Approximate two percent increase in privately-held lands in Pinal County and 0.3 percent increase in Gila County. In addition, a 0.1 percent decrease in publicly-held lands in Pinal County. BLM administered split-estate lands in the Ray Complex, Copper Butte/Buckeye and Chilito/Hayden areas would decrease from 48 to 43 percent. Increase in publicly-held lands in Mohave County.	No change from existing land ownership, the selected lands would continue to be administered under the BLM Phoenix and Safford RMPs. The offered lands would remain under private ownership and the BLM would forego an opportunity to acquire these lands.

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Resource/Issue	Impacts Common to All Alternatives (Implementation of Foreseeable Mining Uses on Selected Lands)	*PROPOSED ACTION (Preferred Alternative)
Management of Public Lands ***Section 4.4.2***	Impacts to management of public lands are expected when Asarco proceeds with foreseeable mining uses regardless of land ownership.	BLM would have substantially less management responsibilities under 3809 if Asarco acquires the selected lands. BLM will have fewer management conflicts in various wilderness and ACEC areas within Arizona by acquiring the offered lands.
Access and Recreation ***Section 4.4.3***	Battle Axe Road would be used by Asarco for mining operations at Copper Butte. Two alternative routes for access/recreation to Walnut Canyon and White Canyon Wilderness are being considered. In addition, alternative trail segments are being considered for the Arizona Trail. BLM has selected proposed Route #2 to replace the existing Battle Axe Road to the White Canyon Wilderness. Back country vehicle recreation in the Copper Butte/Buckeye area would be impacted by implementation of foreseeable mining uses. Proposed mitigation would allow access to popular sites (e.g. Coke Ovens and artesian well).	Some alignments proposed for the AZ Trail would be impacted as these would require Asarco permission to develop or require realignment. BLM would acquire offered lands in five special management areas, consolidating public land ownership and alleviating potential public access problems through those lands.
Rights-of-Way ***Section 4.4.4***	Three rights-of-way occur within the POS Use category and will likely need to be relocated: a portion of county road (Battle Axe Road AZA 21389), an electric power line (AZA 2146), and Highway 177 (AZAR 024241). Rights-of-way occurring in other foreseeable use categories could potentially be impacted, but not necessarily relocated.	BLM would transfer title of selected lands to Asarco and all rights-of-way would remain intact. Asarco would no longer need an easement for Parcel CH-4 (AZA 1000). Acquisition of the offered lands is not expected to impact any rights-of-way.
Grazing ***Section 4.4.5***	Approximately 4,814 acres and 379 AUMs of BLM administered grazing land in seven allotments would be impacted.	BLM would relinquish management of and grazing income of $1,239.30/year from approximately 8,196 acres (918 AUMs) and seven improvements within seven grazing allotments. BLM would acquire 7,300 acres within five allotments, totaling 288AUMs and $587.25 per year.

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*BUCKEYE ALTERNATIVE	*COPPER BUTTE ALTERNATIVE	*NO ACTION ALTERNATIVE
Same as Proposed Action, however, should Asarco ultimately seek to develop the Buckeye Deposit, it would have to be done under BLM's 3809 regulations, which would result in long-term BLM management of the Buckeye operation.	Same as Buckeye Alternative except Parcels CB-1, CB-2, and portions of CB-3 would remain under BLM administration, requiring management under 3809.	Implementation of the foreseeable mining uses via MPO, would require long-term BLM resources and oversight. Implementation of foreseeable mining uses might require BLM to process future patent applications, but currently new patent applications are not being accepted. BLM would forego an opportunity to acquire the offered lands. In addition, the McCracken Mountains ACEC would remain checker-boarded with fragmented management conflicts.
Same as Proposed Action, except that BLM would not acquire Section 9 of the McCracken Mountains Parcels. Public access through these private properties and recreation opportunities on these parcels would not be available. Legal public access through Section 24 would not be resolved.	Same as the Buckeye alternative, except that BLM would not acquire Sections 9, 3 and 19 of the McCracken Mountains Parcels. Legal public access through Section 24 would not be resolved.	The selected lands would remain under BLM administration, and impacts to access/recreation would be expected to be similar to those described under impacts common to all alternatives. The offered lands would remain in private ownership. Public access and recreation on these lands would not be available, and an opportunity to acquire them would be gone. Legal public access through Section 24 would remain unsolved
Same as Proposed Action.	Rights-of-way crossing the Copper Butte parcels will remain under BLM administration.	Selected lands would remain under BLM administration. BLM would not acquire the offered lands.
Approximately 7,396 acres (825 AUMs) relinquished from BLM administration and a loss of grazing income of $1,113.75/year. BLM would acquire 6,659 acres within five allotments, and increase grazing revenues by $326.34 per year.	Approximately 6,221 acres (698 AUMs) relinquished from BLM administration and a loss of grazing income of $834.30/year. BLM would acquire 5,601 acres within five allotments, increase grazing revenues by $274.53 per year.	Under the No Action, the selected lands would remain under BLM administration. BLM would not acquire the offered lands, which would remain in private ownership and subject to development or other private uses.

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Resource/Issue	Impacts Common to All Alternatives (Implementation of Foreseeable Mining Uses on Selected Lands)	*PROPOSED ACTION (Preferred Alternative)
Visual Quality ***Section 4.4.6***	Foreseeable mining uses at the proposed Copper Butte pit and Buckeye Long-Range Prospect would be visible from 35% of the Copper Butte/ Buckeye visual quality study area, which includes the White Canyon Wilderness. An estimated 8% of the residents of the Silver Creek Community would view mining activity at Copper Butte.	Visual impacts from mining would occur on private lands rather than public lands BLM would acquire all of the offered lands, and visual quality would be protected from development in special management areas.
Wilderness/ Special Management Areas ***Section 4.4.7***	Noise, air, and visual quality impacts resulting from the foreseeable mining uses would impact naturalness and solitude values in White Canyon Wilderness. Mining would be visible from higher areas within the wilderness, however visitors would be able to avoid these impacts by using the relatively protected canyon portions of the wilderness as they do today. Potential impacts expected for proposed public access Route #1 to White Canyon Wilderness and the Silver Creek community, therefore Route #2 is BLM's preferred alternative access route.	Asarco to acquire selected lands with private lands adjacent to wilderness and ACEC. BLM acquires offered lands in, or adjacent to, the Mount Tipton and Warm Springs Wilderness Areas as well as lands within three special management areas. Acquisition improves management proficiencies within each RMP and reduces management conflicts regarding access for recreation use.
CULTURAL RESOURCES **Archaeological Resources** ***Section 4.5.1***	Potential impacts to ~~80~~ 78 archaeological sites would be mitigated through the implementation of a treatment plan. Specifically, 43 sites within the Ray Complex and 35 sites within the Copper Butte/Buckeye area.	~~80~~ 56 sites transferred into private ownership after mitigation. Potential impacts to 78 sites would be mitigated through the implementation of a treatment plan. The exchange would place at least 11 sites into public ownership, where they would be afforded federal management and protection under ARPA and NHPA .
Places of Traditional Importance ***Section 4.5.2***	BLM is consulting with tribes to help identify places of traditional importance on the selected lands. None identified to date.	Same as Impacts Common to all Alternatives
SOCIOECONOMIC RESOURCES **Population and Demographics** ***Section 4.6.1***	None Expected	None Expected

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*BUCKEYE ALTERNATIVE	*COPPER BUTTE ALTERNATIVE	*NO ACTION ALTERNATIVE
Same as Proposed Action, but BLM would not acquire Section 9 of the McCracken Mountains Parcels, and potential future visual impacts from mining activities on Parcel CB-1 would occur on public lands rather than private lands.	Same as Buckeye Alternative, except BLM would not acquire Sections 9, 3, 19 of the McCracken Mountains Parcels. Additional visual impacts in the Copper Butte/Buckeye area as Parcels CB-1, CB-2 and a portion of CB -3 would remain in public ownership	The selected lands would remain under BLM, and visual impacts would be expected to be similar to impacts common to all alternatives. BLM would not acquire the offered lands, and the potential for visual impacts from private development within Special Management Areas would remain.
Same as Proposed Action BLM acquisition of offered lands except Section 9 of the McCracken Mountains Parcels improves management within the Phoenix and Kingman RMP and reduces management conflicts regarding access for recreation use.	Same as Proposed Action BLM acquisition of offered lands except Sections 9, 3 and 19 of the McCracken Mountains Parcels improves management within each RMP and reduces management conflicts regarding access for recreation use.	Selected lands would remain under BLM administration. BLM would not acquire any of the offered lands, which would remain under private ownership and subject to development and other private uses. Landowners could potentially apply for access roads to properties located within wilderness.
The exchange would transfer ~~76~~ 52 sites into private ownership after mitigation. Potential impacts to 74 sites would be mitigated through the implementation of a treatment plan. The exchange would place at least 11 sites into public ownership, where they would be afforded federal management and protection.	The exchange would transfer ~~64~~ 40 sites into private ownership after mitigation. Potential impacts to 62 sites would be mitigated through the implementation of a treatment plan. The exchange would place at least 11 sites into public ownership, where they would be afforded federal management and protection.	Sites on the offered lands would be subject to the rights of private ownership to the degree that private actions are regulated by local, state, and federal law. Sites on BLM surface on the selected lands would remain subject to BLM management and control.
Same as Impacts Common to all Alternatives	Same as Impacts Common to all Alternatives	Same as Impacts Common to All Alternatives.
None Expected	None Expected	None Expected

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Table 2-7. Comparative Summary of Anticipated Environmental Consequences of the Proposed Action, Buckeye, Copper Butte and the No Action Alternatives, and Impacts Common to All Alternatives (the foreseeable mining uses) *Foreseeable Mining Use categories include: Production Operation and Support (POS) with 25%-100% surface disturbance, Transition (TRANS) with 5%-25% surface disturbance, Intermittent (INTER) with <5% surface disturbance, Long-Range Prospect (LRP) with surface disturbance similar to POS or TRANS and Existing (EXIST) where the surface is already disturbed.*

Resource/Issue	Impacts Common to All Alternatives (Implementation of Foreseeable Mining Uses on Selected Lands)	*PROPOSED ACTION (Preferred Alternative)
Local and Regional Economy ***Section 4.6.2***	Asarco would retain 48 employees for the Copper Butte/Buckeye project. Average total income in salaries/wages to employees at Ray Complex and Copper Butte operations is approximately $1,882,000/year. Asarco is estimated to pay approximately $1,080,600/yr in taxes for Ray Complex and Copper Butte operations.	The exchange would affect the local economy through increased property tax revenues in Pinal and Gila Counties. Reductions in the property tax rolls of counties containing the offered lands are small and are potentially offset by PILT payments. For Mohave County, the result is a net loss of $15,700, $ 3,900 in Pinal County of the county's total property tax receipts.
Environmental Justice ***Section 4.6.3***	None-- Several meetings were held for the residents of the Silver Creek Community to give more detailed information of the Proposed Action and alternatives and to discuss the possible impacts.	None

**The impacts discussed under the Proposed Action, Buckeye, Copper Butte and No Action Alternatives must be added to the impacts presented under Impacts Common to All Alternatives*

Table 2-7. Comparative Summary of Anticipated Environmental Consequences of the Proposed Action, Buckeye, Copper Butte and the No Action Alternatives, and Impacts Common to All Alternatives (the foreseeable mining uses) *Foreseeable Mining Use categories include: Production Operation and Support (POS) with 25%-100% surface disturbance, Transition (TRANS) with 5%-25% surface disturbance, Intermittent (INTER) with <5% surface disturbance, Long-Range Prospect (LRP) with surface disturbance similar to POS or TRANS and Existing (EXIST) where the surface is already disturbed.*

*BUCKEYE ALTERNATIVE	*COPPER BUTTE ALTERNATIVE	*NO ACTION ALTERNATIVE
Same as Proposed Action, except Section 9 of the McCracken Mountains Parcels not acquired, therefore resulting in less property tax in Mohave County as compared to the Proposed Action.	Same as Buckeye Alternative except Sections 9, 3 and 19 of the McCracken Mountains Parcels would not be acquired by BLM.	Asarco would retain its 1600 employees at the Ray Complex operations and there would be no change in taxes or income as existing operations would continue. Offered lands would remain under private ownership and subject to development and other private uses.
None	None	None

**The impacts discussed under the Proposed Action, Buckeye, Copper Butte and No Action Alternatives must be added to the impacts presented under Impacts Common to All Alternatives*

CHAPTER 3

THE AFFECTED ENVIRONMENT

This chapter describes the existing conditions of natural and human environment on both the selected and offered lands potentially affected by the proposed Ray Land Exchange/Plan Amendment. The chapter is organized into three major sections: Regional Overview of the Selected Lands, Existing Conditions of the Selected Lands, and Existing Conditions of the Offered Lands. The resources covered in the two sections on existing conditions relate to the issues raised during public scoping and are organized into the same general categories as in Table 1-6 in Chapter 1. These categories are Land Use, Biological Resources, Physical Resources, Mineral Resources, Cultural Resources, and Socioeconomic Resources.

3.1 REGIONAL OVERVIEW

As indicated in Chapters 1 and 2, the selected lands are divided into four project areas located in Pinal and Gila Counties in south-central Arizona. These areas are referred to in this document as the Ray Complex, Copper Butte/Buckeye, Chilito/Hayden and the Casa Grande area, respectively. The offered lands are referred to in this document based on two individual parcels and three parcel groups located in Pinal and Mohave Counties.

Selected Lands. The Ray Complex, Copper Butte/Buckeye and Chilito/Hayden areas are located in northeastern Pinal County and southwestern Gila County. The Chilito/Hayden parcels are located just north of the town of Winkelman northward about 25 miles along Highway 177 to the Ray Complex and Copper Butte/Buckeye Parcels located near Walnut and Mineral Creeks (Figure 1-1). All selected parcels in this area lie within five miles of Hwy 177, with the majority surrounding the Ray Mine (Figure 1-1). This huge open-pit copper mine and associated ore processing facilities form Asarco's Ray Complex, which gives the area its name. Communities in the project area include Kearny, Hayden, and Winkelman. The Town of Superior is about 10 miles north; the Tonto National Forest boundary lies about a mile to the north; and the San Carlos Apache Reservation boundary is less than 10 miles to the east.

The Casa Grande area borders the town of Casa Grande in western Pinal County. The three parcels in this area fall within an area measuring three miles north-to-south and two miles east-to-west. Communities near Casa Grande include Eloy, Coolidge, and Florence. Boundaries of the Gila River Indian Reservation, Maricopa Indian Reservation, and Tohono O'odham Nation lie within 15 miles of the project area.

Topographically, south-central Arizona is dominated by long, open, relatively flat basins between Northwest-trending, elongated mountain ranges. The entire region is drained by the Gila River and a network of largely ephemeral tributaries. Overall, the Gila drainage is to the southwest, but local drainage patterns vary considerably. As part of the Sonoran Desert, this region is dry and hot and supports various kinds of lowland and upland desert plant communities. Relatively small patches of riparian vegetation grow near the rare sources of permanent water, but xeroriparian plant communities along ephemeral washes are much more common.

The Ray Complex, Copper Butte/Buckeye and Chilito/Hayden areas extend along the western slope of the rugged Dripping Springs Mountains and into the valleys of the Gila River and two of its tributaries: Mineral and Walnut Creeks. Across the Gila River, a smaller range, the Tortilla Mountains, borders the area on the west. Elevations range from about 2,000 feet above mean sea level (msl) in Kearny, which is on the Gila River, to 5,200 feet above msl in the Dripping Springs Mountains. Ray, headquarters for Asarco's operations at the Ray Mine, is located some 10 miles northeast of Kearny at an elevation of about 2,200 feet above msl. Elevations of the selected parcels in the Ray Complex area range from 2,000 to 4,000 feet above msl.

In contrast to the largely mountainous terrain of the Ray Complex, Copper Butte/Buckeye and Chilito/Hayden areas, the Casa Grande area is situated in the broad, nearly level Casa Grande Valley at an elevation of about 1,300 feet above msl. The Santa Cruz River, a tributary of the Gila River, drains the valley, but both it and the Gila (20 miles north of Casa Grande) are now ephemeral watercourses in this area as a result of human development. Sparse, lowland desert vegetation and extensive irrigated cotton fields are typical of the region.

Offered Lands. The offered lands encompass five different areas in two counties throughout Arizona (Figure 1-2). One parcel, the Gila River Parcel at Cochran (Figure 2-1), is located in Pinal County, within ~~25 within~~ 6 miles from the selected lands in the Copper Butte/Buckeye area. The remaining offered lands are located in Mohave County and include one individual parcel, the Sacramento Valley Parcel, located southwest of Kingman (Figure 2-2). The remaining parcels in Mohave County are described in parcel groups (meaning there are several parcels within close proximity of one another described within a group). One group, the Knisely Ranch Parcels, are located approximately 40 miles north of Kingman (Figure 2-5). A second group, the Tomlin Parcels, are located southwest of the town of Wikieup (Figure 2-3), and the last group, the McCracken Mountains Parcels, are located just east of Lake Havasu City (Figure 2-4).

3.1.1 Climate

Selected Lands. The project areas surrounding the selected lands are arid. Kearny, in the Ray Complex area, averages 17 inches of precipitation annually; Casa Grande averages 8.4 inches. In Kearny, the winter months (December through March) account for 39 percent of the precipitation, which falls as gentle rain. July, August, and September account for another 40 percent (Table 3-1). During these three summer months, moisture of tropical origin enters the state from the south, generally precipitating in brief, heavy thunderstorms (Sellers and Hill, 1974). Temperature data collected at Winkelman indicates an average annual temperature of approximately 65 degrees (ibid).

Table 3-1. Average Precipitation During Summer/Fall Months in Kearny and Casa Grande

Month	Kearny Precipitation (inches)	Casa Grande Precipitation (inches)
July	2.13	0.95
August	2.90	1.56
September	1.30	0.79
October	0.83	0.62
Annual Average	**17.1**	**8.12**

Source: Arizona Department of Commerce, 1997

Offered Lands. The area surrounding the majority of the offered lands in Mohave County is considered arid. Temperature data collected near Kingman indicates an annual temperature of approximately 61 degrees and an average precipitation of 8.6 inches (ibid). Winds are usually from the southwest, with average daily wind speeds of about 5 to 10 miles per hour in the winter and 8 to 20 miles per hour in the summer (Arizona Meteorological Network, 1995).

3.2 EXISTING CONDITIONS OF THE SELECTED LANDS

3.2.1 Biological Resources

This section is divided into the following subsections: upland plant communities, riparian plant communities, wildlife/wildlife habitats, special status species, and biodiversity.

3.2.1.1 Upland Plant Communities

The project areas lie within the Sonoran Desertscrub biotic community (Brown 1994). Two upland plant communities were identified on the selected lands: Sonoran Desertscrub (Arizona Upland Subdivision) and disturbed. Plant species typical of semidesert grassland and interior chaparral plant communities occur in association with Sonoran desertscrub plants on portions of some parcels. However, because semidesert grassland and interior chaparral species are uncommon and local relative to Sonoran desertscrub species, they are not treated as separate communities in this document. Upland plant communities (Sonoran Desertscrub and disturbed) cover approximately 10,891 acres (99.2%) of the selected lands and are summarized in Table 3-2.

Table 3-2. Approximate Acreage of Upland Plant Communities on the Selected Lands

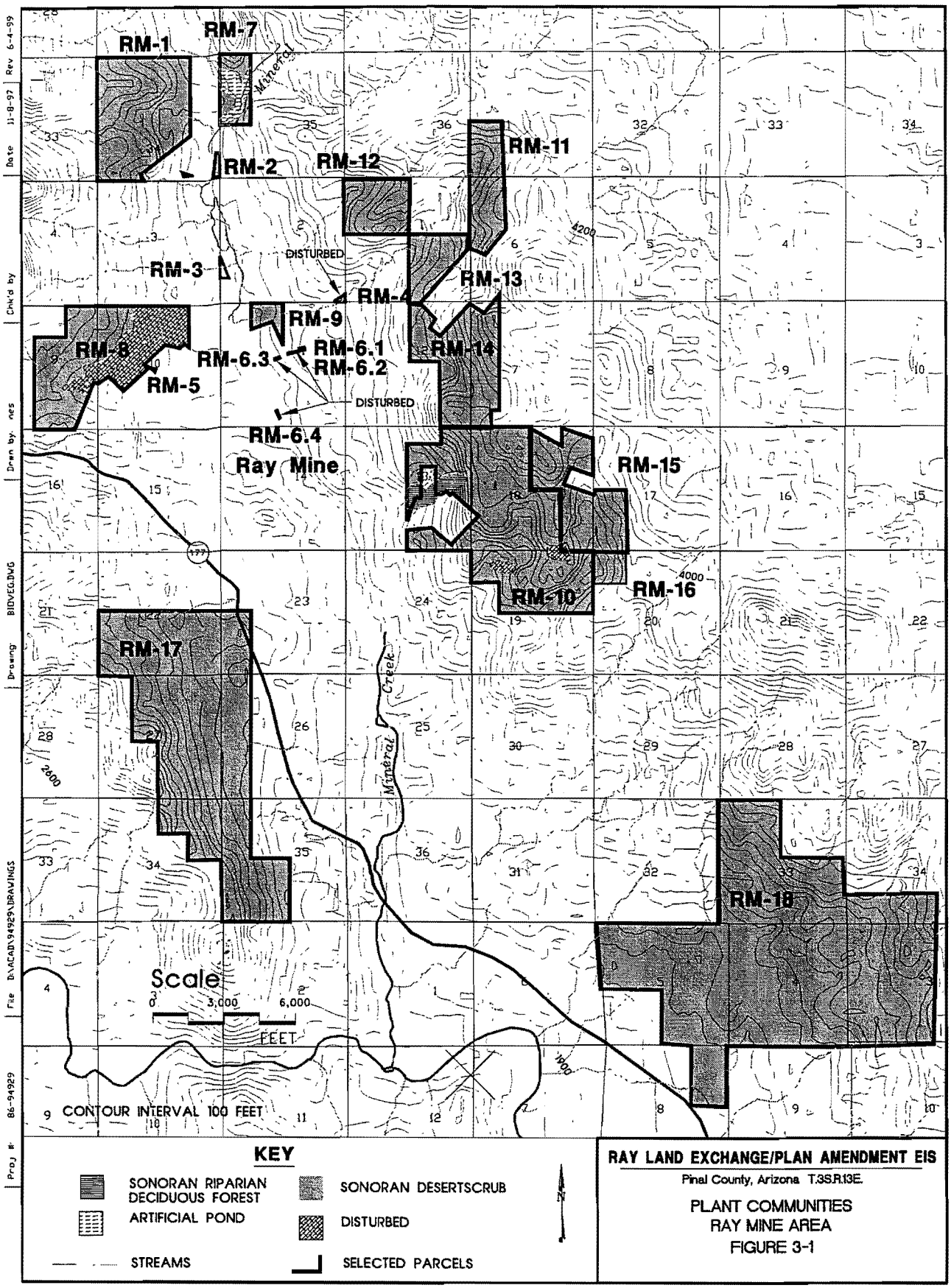
Selected Lands	Sonoran Desert Scrub	Disturbed	TOTALS (acres)
Ray Complex	6,036	230	6,266
Copper Butte/Buckeye	3,173	-	3,173
Chilito/Hayden	791	38	829
Casa Grande	-	623	623
TOTALS (acres)	**10,000**	**891**	**10,891**

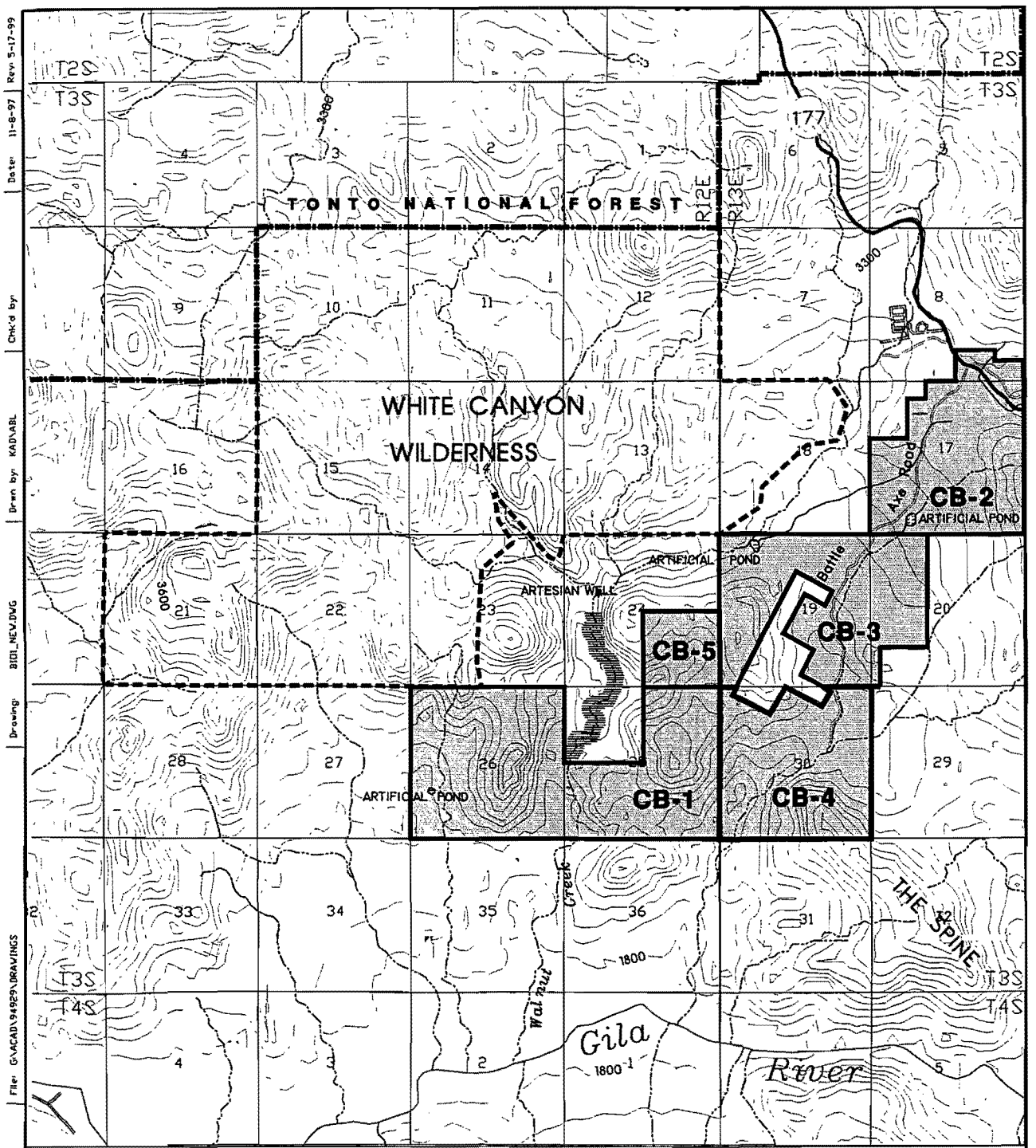
Ray Complex. Sonoran Desertscrub occurs on the majority of selected land parcels in the Ray Complex area (Figures 3-1, 3-2). Dominant species include foothill paloverde (*Cercidium microphyllum*), saguaro (*Carnegiea gigantea*), and a variety of woody shrubs and small cacti. Jojoba (*Simmondsia chinensis*) is dominant or co-dominant on gradual slopes at elevations ranging from about 2,400 to 3,400 feet on the Ray Complex parcels. Several Sonoran Desertscrub species (e.g., foothill paloverde and saguaro) are uncommon or locally common in areas dominated by jojoba. Sonoran Desertscrub in the Ray Complex area selected lands covers approximately 6,036 acres (57% of selected lands, Figure 3-2).

Species commonly found in semidesert grassland communities occur in association with Sonoran desertscrub plants on the Copper Butte/Buckeye parcels and RM-15, at elevations above about 3,000 feet. These plants include a variety of grasses, sotol (*Dasylirion wheeleri*), Palmer agave (*Agave palmeri*), oreganillo (*Aloysia wrightii*), and banana yucca (*Yucca baccata*).

Plant species typical of interior chaparral communities occur on several parcels in the Ray Complex area, but are most abundant at upper elevations on Parcels RM-10, RM-11, and RM-13. Chaparral plants include scrub live oak (*Quercus turbinella*), squaw bush (*Rhus trilobata*), sugar bush (*R. ovata*), mountain mahogany (*Cercocarpus montanus*), and coahuila juniper (*Juniperus coahuilensis*).

Vegetation in disturbed areas is sparse and limited to weedy grasses, forbs, and shrubs. In disturbed areas, "weedy" species consist of both native and non-native representatives and include the following: burro weed *(Isocoma tenuisecta)*, snakeweed *(Guitierrezia sarothrae)*, desert broom *(Baccharis sarothroides)*, and red brome (*Bromus madritensis)*. However, disturbed habitats occur more extensively on Parcels RM-3, RM-4, RM-5, RM-6, RM-8, and RM-9 (Table 3-2).


RM-1
RM-7
RM-2
RM-12
RM-11
RM-3
DISTURBED
RM-4
RM-13
RM-9
RM-8
RM-6.3
RM-6.1
RM-6.2
RM-14
RM-5
DISTURBED
RM-6.4
Ray Mine
RM-15
RM-10
RM-16
RM-17
RM-18
Mineral Creek
Scale
0 3,000 6,000
FEET
CONTOUR INTERVAL 100 FEET
KEY
SONORAN RIPARIAN DECIDUOUS FOREST
SONORAN DESERTSCRUB
ARTIFICIAL POND
DISTURBED
STREAMS
SELECTED PARCELS
RAY LAND EXCHANGE/PLAN AMENDMENT EIS
Pinal County, Arizona T.3S.R.13E.
PLANT COMMUNITIES
RAY MINE AREA
FIGURE 3-1



KEY

- SONORAN DESERTSCRUB
- SONORAN RIPARIAN DECIDUOUS FOREST
- ARTIFICIAL POND
- STREAMS
- SELECTED PARCELS

Scale 0 1/2 1 MILE

CONTOUR INTERVAL 100 FEET

RAY LAND EXCHANGE/PLAN AMENDMENT EIS

Pinal County, Arizona T.3S.R.13E.

PLANT COMMUNITIES OF THE COPPER BUTTE/BUCKEYE AREA

FIGURE 3-2

Copper Butte/Buckeye. Sonoran desertscrub in the Copper Butte/Buckeye area covers approximately 3,173 acres (29% of Selected Lands, Table 3-2).

Chilito/Hayden. Sonoran desertscrub in the Chilito/Hayden area covers approximately 791 acres (7% of Selected Lands, Table 3-2). Approximately 38 acres (Figure 3-3) of disturbed habitat occurs on Parcel CH-4 as a result of mining activities.

Casa Grande. The only upland plant community within the Casa Grande area is disturbed habitat, where approximately 623 acres (6%)occurs on Parcels CG-1, CG-2, and CG-3 (Table 3-2). Disturbed habitat results mostly from agricultural activities and surface clearing for canal and berm construction (Figure 3-4).

3.2.1.2 Riparian Plant Communities

~~Four~~ Three riparian plant communities were identified on the selected lands: Xeroriparian Mixed Scrub (XMS), Xeroriparian Mixed Grass (XMG), Sonoran Riparian Deciduous Forest (SFDF), ~~and artificial ponds~~[16]. Approximately ~~90~~ 34.4 acres of riparian plant communities occur within the Sonoran Riparian Deciduous Forest, ~~artificial pond~~, and Xeroriparian Mixed Grass Communities and are summarized in Table 3-3. No wetlands as defined by Executive Order 11990 were found on any of the selected lands.

Table 3-3. Summary of Riparian Plant Communities on the Selected Lands

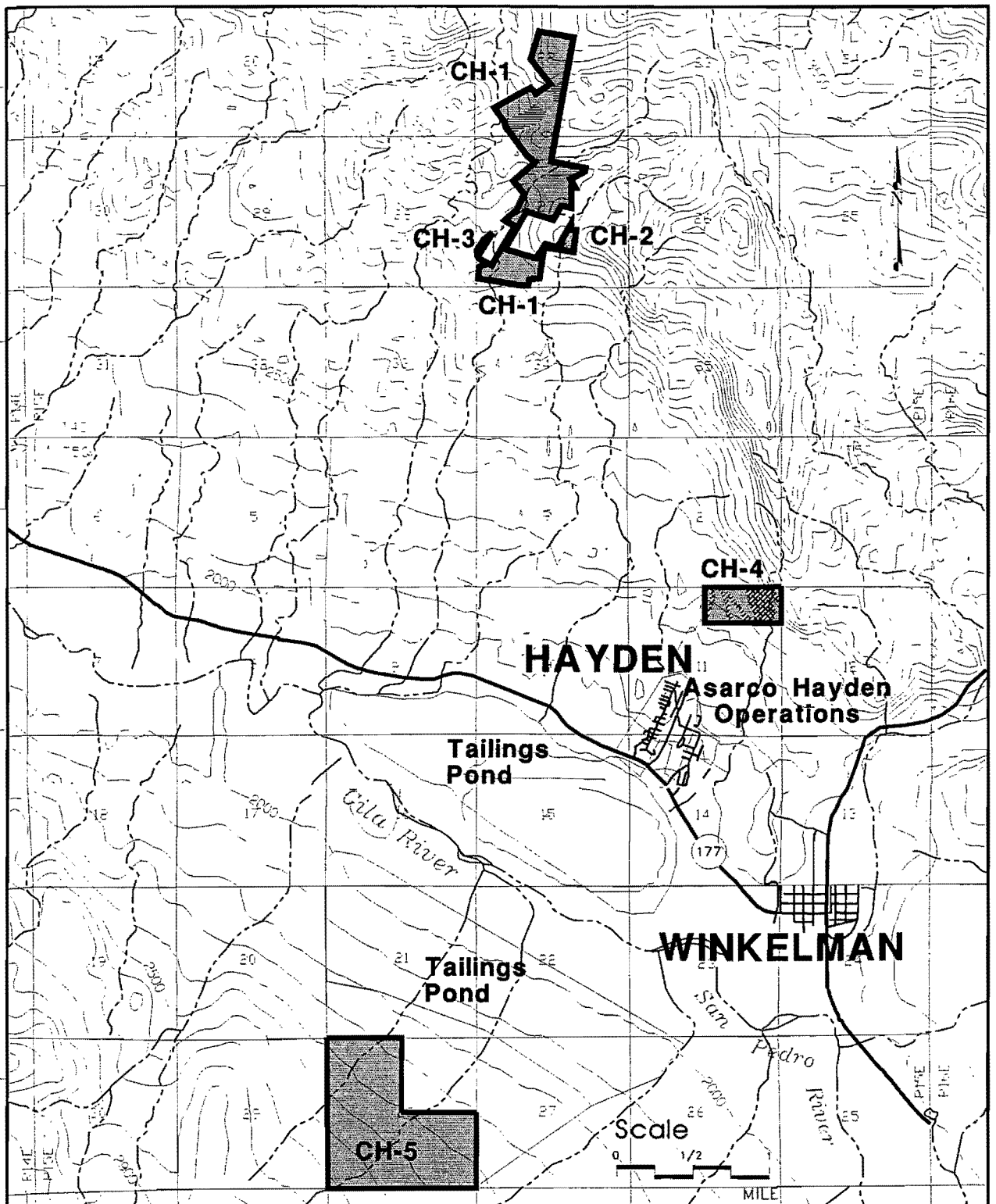
Selected Lands	XMG	SRDF	~~Artificial Ponds/Reservoirs~~	TOTAL (acres)
Ray Complex	-	13	~~47~~	~~60~~ 13
Copper Butte/Buckeye	-	6 ≤1**	~~3.6~~	~~9.6~~ ≤1
Chilito/Hayden	-	3.4	-	3.4
Casa Grande	17	-	-	17
TOTAL (acres)	**17**	**~~22.4~~ 17.4**	**~~50.6~~**	**~~90~~ 34.4***

XMG= Xeroriparian Mixed Grass, SRDF= Sonoran Riparian Deciduous Forest
* Approximately 23 of the 34 acres of SRDF and XMG occurs on split-estate parcels.
** Scattered small patches of SRDF habitat occur along a ¼ mile wash on Parcel CB-4 totaling less than one acre (SWCA 1996).

Xeroriparian Mixed Scrub is the dominant riparian vegetation community on the selected lands. Common plant species include mesquite (*Prosopis velutina*), catclaw acacia (*Acacia greggii*), desert hackberry (*Celtis spinosa*), burrobush (*Hymenoclea monogyra*), desert broom, and blue paloverde (*Cercidium floridum*). This community is associated with an ephemeral water supply (ephemeral washes flow briefly in direct response to precipitation in the immediate vicinity) and typically contains plant species also found in adjacent uplands, although riparian plants are often larger and occur at higher densities. Because it is a poorly defined community and similar in plant composition to the adjacent uplands, area calculations have been included in the upland plant community acreage.

Ray Complex. Sonoran Riparian Deciduous Forest vegetation occurs in drainages with a perennial water source or in areas with shallow groundwater. Dominant species include Goodding willow *(Salix gooddingii)*, Fremont cottonwood (*Populus fremontii*), and seep willow *(Baccharis salicifolia)*. Approximately 11.7 acres of this habitat type is found along Mineral Creek on Parcel RM-7 and RM-2 and on a portion of Parcel RM-10 and approximately 0.5 acres is found along a perennial spring on Parcel RM-18. In total, Sonoran Riparian

[16] Artificial ponds/reservoirs was removed from this section and is discussed under Physical Resources, water.

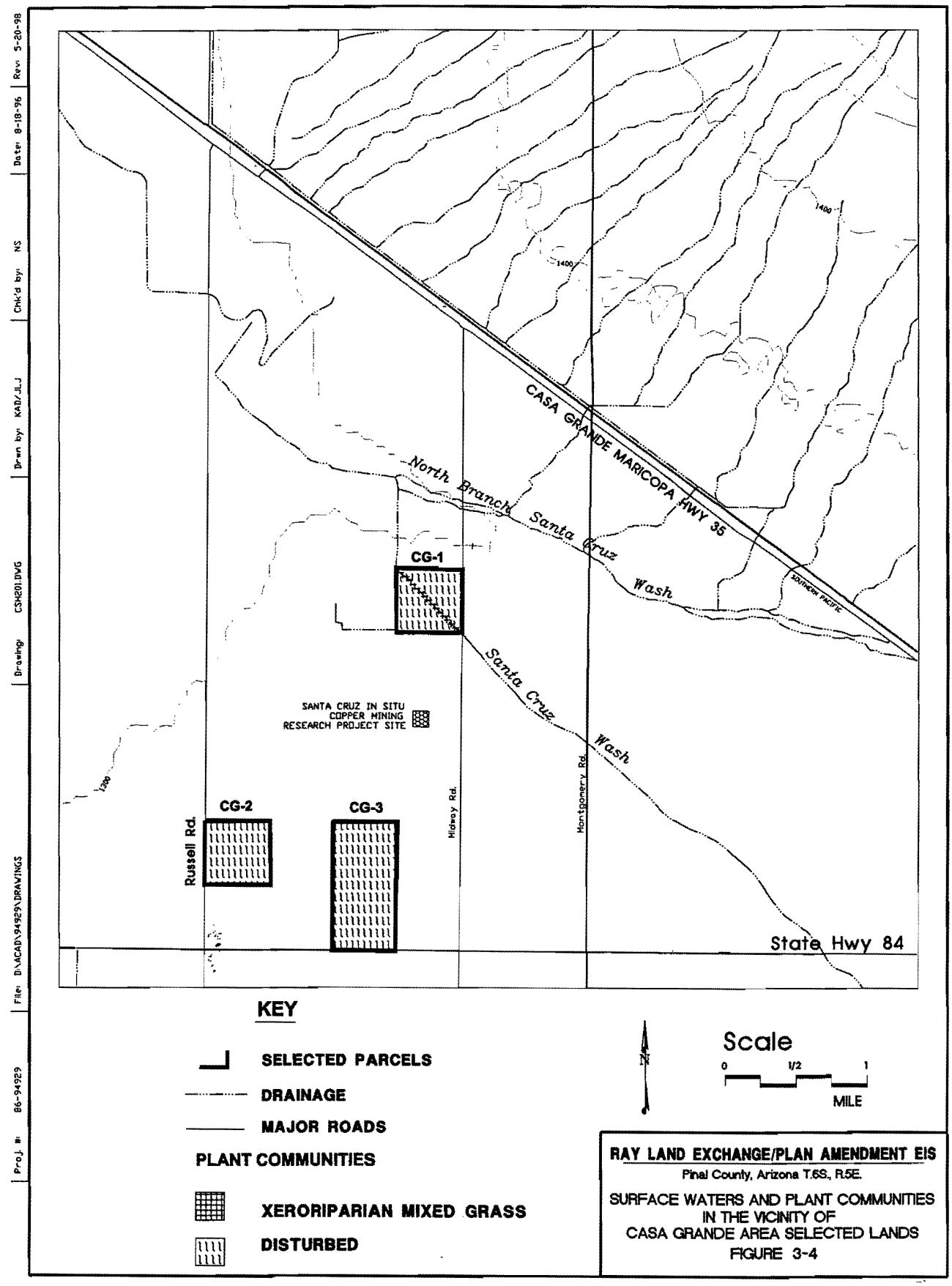


RAY LAND EXCHANGE/PLAN AMENDMENT EIS

Pinal County, Arizona T.4S. R.15E., T.5S. R.15E.

PLANT COMMUNITIES OF THE CHILITO/ HAYDEN AREA SELECTED LANDS

FIGURE 3-3


Proj #: 86-94929
File: D:\ACAD\94929\DRAWINGS
Drawing: CSH201.DWG
Drwn by: KAB/JLJ
Chk'd by: NS
Date: 8-18-96
Rev: 5-20-98
CASA GRANDE MARICOPA HWY 35
SOUTHERN PACIFIC
North Branch Santa Cruz Wash
Santa Cruz Wash
CG-1
CG-2
CG-3
SANTA CRUZ IN SITU COPPER MINING RESEARCH PROJECT SITE
Russell Rd.
Hidaway Rd.
Montgomery Rd.
State Hwy 84
1400
1300
KEY
SELECTED PARCELS
DRAINAGE
MAJOR ROADS
PLANT COMMUNITIES
XERORIPARIAN MIXED GRASS
DISTURBED
Scale
0
1/2
1
MILE
RAY LAND EXCHANGE/PLAN AMENDMENT EIS
Pinal County, Arizona T.6S., R.5E.
SURFACE WATERS AND PLANT COMMUNITIES IN THE VICINITY OF CASA GRANDE AREA SELECTED LANDS
FIGURE 3-4

Deciduous Forest vegetation covers approximately 13 acres of the selected lands in the Ray Complex area.

~~Two very small borrow pits containing water are located on Parcel RM-3. No emergent wetland species were observed at either of these artificial ponds. Although the reservoir on Parcel RM-7 supports an approximately seven-acre patch of mixed broadleaf vegetation at its north end, the vegetation around the remainder of the reservoir includes approximately 47 acres, including open water, which is composed of the same species as those occurring around stock tanks in the Copper Butte/Buckeye area.~~

Copper Butte/Buckeye. ~~Artificial ponds include stock tanks, borrow pits, and reservoirs that hold water for extended periods. Stock tanks are located on Parcels CB-1, CB-2, and CB-3 and are sparsely vegetated, predominantly with mesquite, desert broom, and seep willow; however, the margins of the stock tank on Parcel CB-3 are heavily vegetated in places with these three species and with blue paloverde. In total, artificial ponds in this area cover approximately 3.6 acres of the selected lands in the Copper Butte/Buckeye area. Approximately six acres of Sonoran Riparian Deciduous Forest vegetation occurs along Walnut Creek on Parcel CB-1 and on a portion of Parcel CB-4.~~ Based on a field visit by BLM in April 1999, it was determined that no riparian vegetation exists along Walnut Creek on Parcel CB-1, and the only riparian vegetation exists within the ACEC and into Section 24 (T3S, R12E), as well as small scattered patches within Parcel CB-4 (<1 acre). Therefore, impact calculations for SRDF Habitat was decreased to contain <1 acre.

Chilito/Hayden. Approximately 3.4 acres of Sonoran Riparian Deciduous Forest vegetation occurs in the central portion of Parcel CH-1.

Casa Grande. The only riparian plant community within the Casa Grande area is Xeroriparian Mixed Grass, which is dominated by a variety of mostly non-native grasses, including Johnson grass (*Sorgum halepense*). This riparian community occurs only along a channelized portion of the Santa Cruz Wash on Parcel CG-1 in the Casa Grande area where it covers approximately 17 acres (<1%) (Figure 3-4).

3.2.1.3 Wildlife/Wildlife Habitats

Wildlife presence or abundance in any given area is dependent on a variety of habitat attributes, including vegetation structure, plant species composition, and the presence of certain physical features (BLM 1986). Sixty percent of all wildlife in Arizona depend upon riparian and aquatic habitats (BLM 1991). These habitats support biologically diverse plant communities and supply food, water and shelter for wildlife. In Arizona, twenty-eight priority species require riparian/aquatic areas (ibid). A very small percentage (0.5%) of land in Arizona is riparian/aquatic habitat and able to support these species. These habitats are important to wildlife out of proportion to their spatial extent.

Although riparian habitats are present on less than one percent of the selected lands, they support a large proportion of the biological diversity of the area and are a focal point for wildlife species in a desert environment. The variety of upland habitats including Sonoran desertscrub, semi-desert grassland, and interior chaparral on the selected lands provide an additional array of habitat features for wildlife. The following section discusses the wildlife present in each of these habitats. This section deals only with general wildlife and wildlife habitats. BLM and Arizona State Special status, and Federally Threatened/Endangered (T&E) species will be addressed in Sections 3.2.1.4 and 3.2.1.5.

Ray Complex, Copper Butte/Buckeye, Chilito/Hayden. Two upland wildlife habitats, Sonoran desertscrub and Disturbed, have been identified. With the exception of extensively disturbed parcels, wildlife in this area is expected to be typical of that found in similar Sonoran desertscrub communities. Due to the absence of native vegetation, the disturbed parcels have very low wildlife values. Upland, big game species known to occur within these two habitat areas include mule deer (*Odocoileus hemionus*), white-tailed deer (*Odocoileus virginianus*), and javelina (*Tayassu tajacu*). The Arizona Game and Fish Department (AGFD)[17] provided

[17] The AGFD provided both numeric density estimates and the relative designations of "low" and "medium." Density estimates are based on a combination of off-site wildlife survey data and estimated habitat capabilities of the selected lands rather than on site-specific population surveys.

estimated densities for these species (Table 3-4) in the vicinity of the selected lands, assuming habitats were evenly distributed throughout (BLM 1994a).

Table 3-4. Estimated Densities for Big Game Species on the Selected Lands

Species	Estimated densities (number of individuals per square mile)			
	CH-1-CH-5	CB-1-CB-5	RM-1-RM-18	Casa Grande Area
Mule deer	1 - 5	5 - 7	5 - 7	-
White-tailed deer	5 - 7	-	1 - 5 (5 - 7)	-
Javelina	0.5 - 3	1.5 - 3	1.5 - 3 (0.5 - 3)	-
TOTAL	**6.5-15**	**6.5-10**	**7.5-17**	**-**

- Wildlife density estimates were not available for this area.
Source: SWCA 1997e

~~Desert bighorn sheep have not been observed on any of the selected lands. AGFD was at one time considering future introduction of this species to the Dripping Springs Mountains east of the Ray Complex area (Letter to SWCA from AGFD dated October 6, 1995). However, the AGFD has determined that habitat conditions in the Dripping Springs Mountains are not suitable for transplant at this time.~~

Desert bighorn sheep have not been observed on any of the selected lands although they may have occurred there historically. AGFD has evaluated both the Dripping Springs Mountains east of the Ray Complex area (letter to SWCA from AGFD dated October 6, 1995) and the Picketpost Mountain (Mineral Mountains) area including Copper Butte/Buckeye as reintroduction sites for the species (AGFD 1999). The AGFD has determined that habitat conditions in the Dripping Springs Mountains are not suitable for transplant at this time (Letter to SWCA from AGFD dated October 6, 1995). Based on the habitat evaluation, the Picketpost Mountain area is the highest priority release site for Region 5 of the AGFD and is anticipated to be one of the higher priority sites statewide when the evaluation is completed (Jim Heffelfinger, AGFD personal communication, 1999). Parcel CB-1 is included within a portion of excellent[18] and good sheep habitat, and Parcels CB-4 and CB-5 are also within good habitat. The currently contiguous block of habitat stretches from Picketpost Mountain south to the Gila River between the North Butte and the Spine and across the Gila River south of the Spine, which is a mix of excellent, good and fair habitat.

Upland, small game species observed commonly during field visits to undisturbed parcels included Gambel's quail *(Callipepla gambelii)*, mourning dove (*Zenaida macroura*), black-tailed jackrabbit *(Lepus californicus)*, and desert cottontail (*Sylvilagus audubonii*). No density estimates were provided by the AGFD for small game mammals.

Upland, nongame wildlife species observed on the selected lands are typical of those in Sonoran desertscrub communities in the region. A variety of reptiles, mammals and birds were observed during field visits to parcels in the Ray Complex area. No density estimates were provided by the AGFD for nongame species.

Three riparian wildlife habitats, Xeroriparian Mixed Scrub, Sonoran Riparian Deciduous Forest and artificial ponds (50.6 acres), were identified on the Ray Complex area Selected Lands. These areas supply food, water and/or shelter to big-game, small-game and non-game wildlife. A variety of nongame, reptiles, amphibians, mammals and birds were observed during field visits to parcels in the Ray Complex area. Game fish species observed in the Big Box Dam reservoir on Parcel RM-7 include bass (*Micropterus spp.*)

[18] Habitat was scored using the Cunningham/Hansen Model where 4km^2 cells were scored with the following classifications: Excellent (score 85-80), Good (score 70-79), Fair (score 51-69), and Poor (score 0-50) (AGFD1999).

and sunfish (*Lepomis spp.*). No density estimates were provided by the AGFD for game fish species. The mosquitofish, an introduced nongame fish, was also observed on Parcel RM-7 in the Big Box Dam reservoir.

Casa Grande. Upland game and nongame wildlife in the project area are expected to be typical of those in other Sonoran desertscrub habitats. However, because the parcels have been extensively disturbed by past human activities, wildlife densities are expected to be very low relative to undisturbed desert habitats in the region. Large game species that occasionally may occur in the project area include mule deer and coyote (*Canis latrans*). Few nongame or neotropical bird species are expected to occur as the parcels in the Casa Grande area provide poor habitat for these species.

Seventeen acres of Xeroriparian Mixed Grass, the only riparian habitat identified within the Casa Grande Area Selected Lands, is found along the Santa Cruz River drainage on Parcel CG-1. This drainage falls within disturbed agricultural areas and has been channelized. Wildlife densities in this habitat are expected to be relatively low.

3.2.1.4 State and BLM Special Status Species

Both the State of Arizona and the Arizona BLM are in the process of developing lists of species within their jurisdictions that are believed to need special management considerations. The AGFD has developed a draft list of species identified as the Wildlife of Special Concern in Arizona (WSCA). This list includes wildlife species whose occurrence in Arizona is or may be in jeopardy due to human-caused habitat fragmentation, degradation, and destruction (AGFD 1996). With the exception of those species also listed by the U.S. Fish and Wildlife Service (or proposed for listing), WSCA species are not protected under the authority of the Federal Endangered Species Act. Listing as a WSCA confers no regulatory authority or special legal status. The designation is primarily designed to aid management decisions and increase public awareness.

The BLM is in the process of converting the former Federal Candidate and Federal C2 species, which are no longer considered candidate species, to BLM "sensitive species". Once converted, the list will be reviewed and refined. These species are currently referred to as "former candidate species under review for BLM sensitive species status". The BLM Manual, Section 6840, defines sensitive plant species as "...those designated by the State Director...that are 1) under status review by the FWS; or 2) whose numbers are declining so rapidly that Federal listing may become necessary; or 3) with typically small and widely dispersed populations; or 4) those inhabiting ecological refugia or other specialized or unique habitats...therefore, if sensitive species are designated by a State Director, the protection provided by the policy for candidate species shall be used as the minimum level of protection." The BLM also tracks other species in the Arizona Game and Fish Department Heritage Data Management System for cumulative impacts although they aren't treated as sensitive species". The current Arizona and BLM special status species are listed in Tables 3-5a and 3-5b.

3.2.1.4.1 Special Status Plants

Of the 23 species of special interest to the BLM and/or AGFD listed in Table 3-3a, six plants were identified for analysis: acuña cactus (*Echinomastus erectocentrus acunensis*), San Carlos wild buckwheat (*Eriogonum capillare*), Pima indian-mallow (*Abutilon parishii*), Mexican shrub mallow (*Malvastrum bicuspidatum*), Gila rock daisy (*Perityle gilensis*) and varied fishhook cactus (*Mammillaris viridiflora*) (Table 3-5a). With the exception of acuña cactus, which is a federal candidate species, all are categorized as Arizona Game and Fish Department Heritage Database. Of these six species, three (San Carlos wild buckwheat, Pima Indian-mallow, and Gila rock daisy) have been found on the selected lands.

Table 3-5a. State and BLM Special Status Plant Species with the Potential to Occur on the Selected Lands (by area)

Occurrence codes are as follows: 1=species is unlikely to occur in the area (habitats are not typical of those known to be used or the area is well outside of the species normal range); 2=species may occur infrequently in the area (plant species have not been surveyed for; animal species occasionally may visit but habitats do not appear suitable for breeding or no individuals were recorded during species-specific surveys); 3=species may occur regularly in the project area (species is relatively abundant and widespread and habitats appear typical of those known to be used for breeding); 4=species has been recorded in the project area.

Species	Status	Casa Grande	Copper Butte/ Buckeye	Chilito/ Hayden	Ray Complex
Acuña cactus *(Echinomastus erectocentrus acunensis)*	USFWS Candidate	1	1	1	1
San Carlos wild buckwheat *(Eriogonum capillare)*	AGFDHDMS***	1	2	2	4
Pima Indian-mallow *(Abutilon parishii)*	AGFDHDMS	1	2	4	2
Mexican shrub mallow *(Malvastrum bicuspidatum)*	AGFDHDMS	1	2	2	2
Varied fishhook cactus (Mammillaria viridiflora)	AGFDHDMS	1	2	2	2
Gila rock daisy *(Perityle gilensis)*	AGFDHDMS	1	4	2	2

* BLM =former candidate species under review for BLM sensitive species status
** WSCA = Wildlife of Special Concern in Arizona
***AGFDHDMS = Arizona Game and Fish Department Heritage Data Management System

Ray Complex. The San Carlos wild buckwheat was the only BLM special status plant species observed on Parcel RM-8 (SWCA 1996). Soils on the selected lands in the Ray Complex are derived from sedimentary (mostly limestone) rather than granitic rocks and thus differ from soils in areas where the acuña cactus is known to occur.

Copper Butte/Buckeye. Gila rock daisy was the only BLM special status plant observed on Parcels CB-1 and CB-4 (memo to Shela McFarlin, BLM, from John Anderson, BLM, dated October 1995). No acuña cacti were observed during surveys conducted previously on Parcel CB-1 (SWCA, 1994), and very few of the remaining selected lands are within the known elevational range of this cactus. Soils on the selected lands in the Copper Butte/Buckeye area are derived from sedimentary (mostly limestone) rather than granitic rocks and thus differ from soils in areas where the acuña cactus is known to occur.

Chilito/Hayden. Pima Indian-mallow was the only special status plant observed on Parcel CH-1 (SWCA 1994). Soils on the selected lands in the Chilito/Hayden area are derived from sedimentary (mostly limestone) rather than granitic rocks and thus differ from soils in areas where the acuna cactus is known to occur.

Casa Grande. None of the six plant species of special interest is likely to occur in the Casa Grande area. Habitats there are not suitable and the Casa Grande area is well outside these species normal range.

3.2.1.4.2 Special Status Fish and Wildlife

A total of seventeen special status wildlife species were identified as having the potential to occur on the Selected Lands (Table 3-5b). This includes eight bat species: California leaf-nosed bat (*Macrotus californicus*), greater western mastiff-bat (*Eumops perotis californicus*), small-footed myotis (*Myotis ciliolabrum*), long-legged myotis (*Myotis volans*), fringed myotis (*Myotis thysanodes*), Yuma myotis (*Myotis*

Table 3-5b. State and BLM Special Status Fish and Wildlife Species with the Potential to Occur on the Selected Lands (by area)

Occurrence codes are as follows: 1=species is unlikely to occur in the area (habitats are not typical of those known to be used or the area is well outside of the species normal range); 2=species may occur infrequently in the area (plant species have not been surveyed for; animal species occasionally may visit but habitats do not appear suitable for breeding or no individuals were recorded during species-specific surveys); 3=species may occur regularly in the project area (species is relatively abundant and widespread and habitats appear typical of those known to be used for breeding); 4=species has been recorded in the project area.

Species	Status	Casa Grande	Copper Butte/ Buckeye	Chilito/ Hayden	Ray Complex
California leaf-nosed bat (Macrotus californicus)	*BLM**	2	4	2	4
Greater western mastiff-bat (Eumops perotis californicus)	*BLM / WSCA***	2	2	2	2
Small-footed myotis (Myotis ciliolabrum)	*BLM*	1	2	2	2
Long-legged myotis (Myotis volans)	*BLM*	1	1	1	1
Fringed myotis (Myotis thysanodes)	*BLM*	1	2	2	2
Yuma myotis (Myotis yumanensis)	*BLM*	1	4	2	3
Cave myotis (Myotis velifer)	*BLM*	2	4	2	2
Townsend's big-eared bat (Plecotus townsendii pallescens)	*BLM / WSCA*	1	4	2	4
Ferruginous hawk (Buteo regalis)	*BLM / WSCA*	2	1	1	1
Western burrowing owl (Athene cunicularia hypugea	*BLM*	3	1	1	1
Common black-hawk (Buteogallus anthrocinus)	*WSCA*	1	2	1	2
Desert tortoise (Sonoran population) (Gopherus agassizii)	*BLM / WSCA*	1	4	4	4
Chuckwalla (Sauromalus obesus)	*BLM*	1	4	1	4
Lowland leopard frog (Rana yavapiensis)	*BLM / WSCA*	1	4	1	4
Mexican garter snake (Thamnophis eques)	*BLM / WSCA*	1	1	1	1
Roundtail chub (Gila robusta)	*BLM / WSCA*	1	1	1	1
Longfin dace (Agosia chrysogaster)	*BLM / WSCA*	1	4	1	3

** BLM =former candidate species under review for BLM sensitive species status*
*** WSCA = Wildlife of Special Concern in Arizona*
****AGFDHDMS = Arizona Game and Fish Department Heritage Data Management System*

yumanensis), cave myotis (*Myotis velifer*) and Townsend's big-eared bat (*Plecotus townsendii pallescens*), three bird species: ferruginous hawk (*Buteo regalis*), western burrowing owl (*Athene cunicularia hypugea*), and common black-hawk (*Buteogallus anthrocinus*); three reptile species: desert tortoise (*Gopherus agassizii*), chuckwalla (*Sauromalus obesus*) and Mexican garter snake (*Thamnophis eques*); one amphibian species: lowland leopard frog (*Rana yavapiensis*); and two fish species: roundtail chub (*Gila robusta*), and longfin dace (*Agosia chrysogaster*).

Ray Complex, Copper Butte/Buckeye, Chilito/Hayden.

Bats. In 1994, four special status bat species (California leaf-nosed bat, Townsend's big-eared bat, Yuma Myotis, and cave myotis) were captured during a mist net survey along Walnut Creek near Copper Butte/Buckeye (BLM 1994c). Two of the four species, California leaf-nosed bat and Townsend's big-eared bat, were observed in adits in the Ray Mine area. California leaf-nosed bat was observed on Parcel RM-10, and Townsend's big-eared bat was observed on Parcels RM-1 and RM-18 (SWCA 1994). An unidentified bat and several insectivorous bats were observed flying just inside the entrance of a shaft located along the western boundary of Parcel RM-8, however this adit was not relocated during surveys conducted in 1998 (SWCA 1996, 1998b). Although not observed during surveys, Yuma myotis is known to occur outside the project area in the Ray Mine diversion tunnel (SWCA 1995b). In 1998, three special status bat species were observed between seven bat roosts in the Ray Mine area (SWCA 1998b). Specifically, one roost found on Parcel RM-1 contained no bats, two roosts on RM-10 containing California leaf-nosed bats, and four roosts on Parcel RM-18 containing cave myotis and Townsends' big-eared bat. The greater western mastiff-bat, small-footed myotis, and fringed myotis may occur occasionally on one or more of the selected parcels. The long-legged myotis, is unlikely to occur on any of the parcels because habitats differ from those known to be used by this species.

Birds of Prey. The common black-hawk may occur occasionally on one or more of the selected parcels. An immature common black-hawk was reportedly observed by AGFD personnel at the reservoir behind Big Box Dam just south of Parcel RM-7 (Letter to Gail Acheson, BLM, from Ron Christofferson, AGFD, dated 29 September 1994). Ferruginous hawk and western burrowing owl are unlikely to occur on any of the parcels because habitats differ from those known to be used by these species.

Desert Tortoise. The Sonoran desert tortoise occurs east and south of the Colorado River and is not federally listed, although it is considered a sensitive species by both BLM and AGFD. It is a former Category II candidate species under the Endangered Species Act.

Signs of desert tortoise, typically found at elevations ranging from 900 to 3,500 feet, were observed on several parcels in the Ray Complex, Copper Butte/Buckeye and Chilito/Hayden areas (SWCA 1991, 1994, 1995b, 1996, 1997b). The categories of desert tortoise habitat designated by the BLM's "Desert Tortoise Rangewide Plan" (Appendix F) established goals for managing desert tortoises and their habitats based on several criteria. Management of Category I and II areas emphasizes maintenance of viable desert tortoise populations, while Category III habitats are generally characterized by lower densities. Lower densities typically occur in areas where habitat has been fragmented or otherwise degraded, or where land ownership patterns are such that effective management is difficult. This categorization process and the resulting management goals are a result of proactive management to conserve the Sonoran desert tortoise and its habitat and to avoid any programs or land use authorizations that would contribute to the need or justification for listing this species as endangered.

BLM has categorized desert tortoise habitat in the selected lands as Category II and III (Table 3-5c, Figure 3-5). No Category I (highest quality) tortoise habitat is present on any of the parcels. Based on Geographical Information System (GIS) calculations, a total of ~~3,276~~ 3,797 acres of Category II desert tortoise habitat is located on the full estate selected lands, and approximately 481 acres is located on split-estate parcels. Approximately ~~3,982~~ 3,063 acres of Category III desert tortoise habitat is located on the full estate selected lands, and approximately 1,020 acres is located on split-estate parcels. Therefore, a total of approximately 6,860 acres of Category II and III desert tortoise habitat exists on the full estate selected lands.

Table 3-5c. Estimated Acres of Category II and III Desert Tortoise Habitat on Full Estate Selected Lands

	Ray Complex	Copper Butte/Buckeye	Chilito/Hayden	Casa Grande	TOTAL
Category II	1864	1101	832	-	**3797**
Category III	1737	1326	-	-	**3063**
TOTAL	**3601**	**2427**	**832**	**-**	**6860**

Other Reptiles/Amphibians. Approximately 1,500 acres of potential chuckwalla habitat (rocky outcrops) are scattered throughout the Ray Complex area. The lowland leopard frog was observed upstream ~~on~~ Parcel CB-1 in and along Walnut Creek (SWCA 1994) and also in artificial ponds on Parcel RM-3 (SWCA 1995b). Lowland leopard frog is known to occur in Mineral Creek in the Ray Complex area. The Mexican garter snake is unlikely to occur on any of the parcels because habitats differ from those known to be used by this species.

Native Fish. Longfin dace were observed upstream of Parcel CB-1 in and along Walnut Creek (SWCA 1994). Longfin dace is also known to occur in Mineral Creek in the Ray Complex area. Roundtail chub is unlikely to occur on any of the parcels because habitats differ from those known to be used by this species.

Casa Grande. Two western burrowing owls were observed together in an abandoned field adjacent to Parcel CG-3 and on abandoned agricultural lands in the project area. These habitats appear to be typical of those known to be used for breeding (SWCA 1995a).

Four species that may occur infrequently in the project area are: California leaf-nosed bat, greater western mastiff-bat, cave myotis and ferruginous hawk. Habitats, however, do not appear to be typical of those known to be used by these species for breeding.

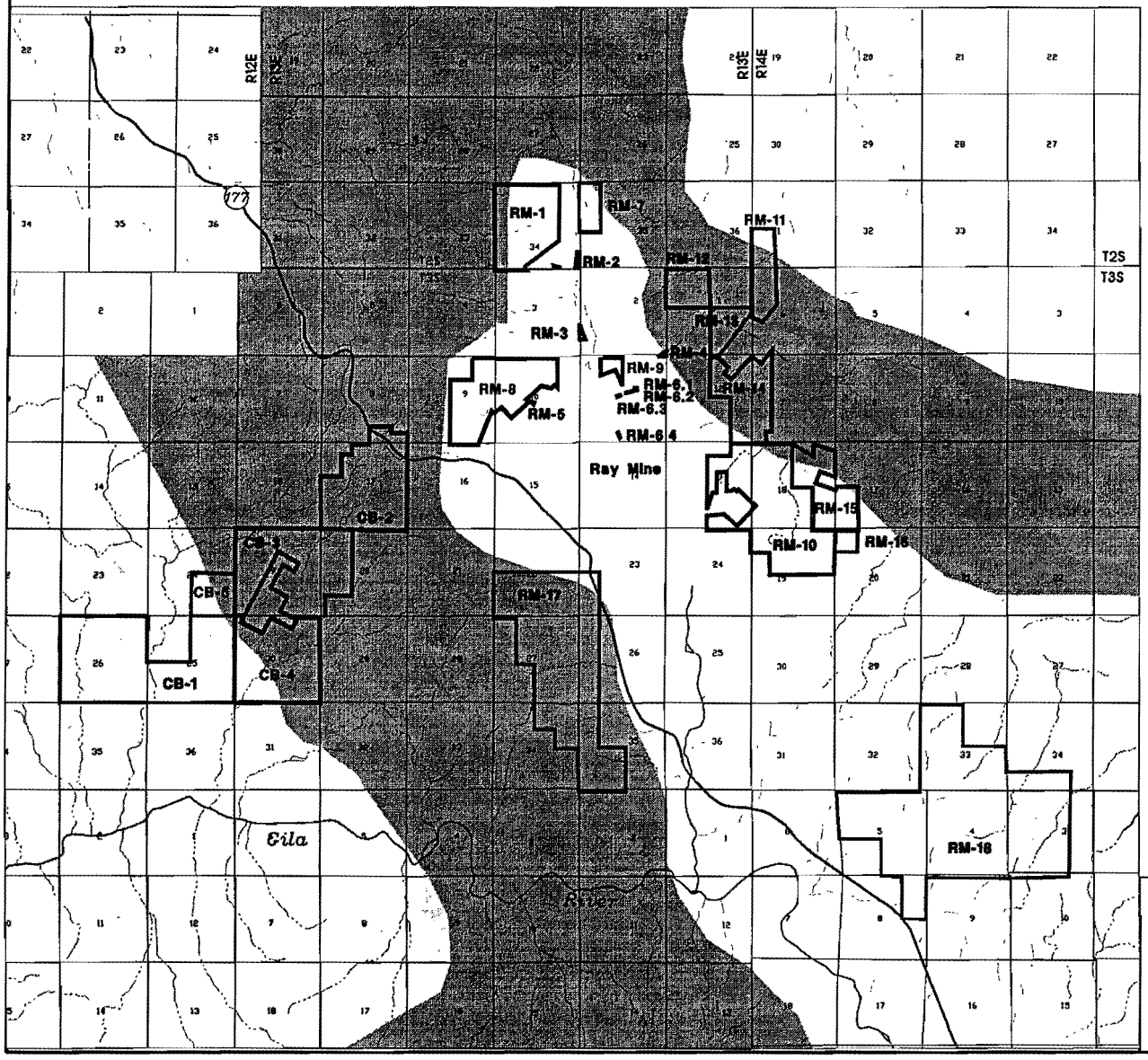
3.2.1.5 Federally Threatened and Endangered Species (T & E Species)

The following is a list of Federally Threatened, Endangered and Candidate species for the counties (Pinal and Gila) in which the Selected Lands Parcels are located (Table 3-6).

For the proposed exchange, the BLM coordinated with the USFWS and the AGFD to identify threatened and endangered species with the potential to occur in the general region of the selected lands. A list of twenty species was generated. Fourteen of these species; Yuma clapper rail, Mexican spotted owl, Nichol's turk's head cactus, desert pupfish, Gila topminnow, loach minnow, razorback sucker, spikedace, Arizona Agave, Apache (Arizona) trout, Colorado squawfish, Arizona bugbane, Blumer's dock, and Chiricahua leopard frog, were not identified for analysis as they are unlikely to occur on the selected lands. Habitats on the Selected Lands are not typical of those known to be used by these species and/or the selected lands are outside of the species known range. Six of the above species: lesser long-nosed bat, bald eagles, American peregrine falcon, southwestern willow flycatcher, cactus ferruginous pygmy-owl, and Arizona hedgehog cactus (Table 3-7) were identified as having the potential to occur on the selected lands.

Proj #: 86-94929	File: D:\ACAD\94929\DRAWINGS	Drawing: tortoise	Drwn by: nes	Chk'd by:	Date: 11-8-97	Rev 5-6-98

BLM CLASSIFIED DESERT TORTOISE HABITAT



KEY

DESERT TORTOISE HABITAT

CATEGORY II

CATEGORY III

STREAMS

SELECTED PARCELS

N

Scale

0 1 2

MILES

CONTOUR INTERVAL 100 FEET

RAY LAND EXCHANGE/PLAN AMENDMENT EIS

Pinal County, Arizona T.3S.R.13E.

LOCATION OF BLM CLASSIFIED DESERT TORTOISE HABITAT

FIGURE 3-5

Table 3-6. USFWS Federally Threatened, Endangered and Candidate Species for Pinal and Gila Counties

	Species	Scientific name	Status
Pinal County			
	Arizona hedgehog cactus	*Echinocereus triglochidiatus arizonicus*	Endangered
	Nichol's turk's head cactus	*Echinocactus horizonthal onis var. Nicholii*	Endangered
	Lesser long-nosed bat	*Leptonycteris curasoae yerbabuenae*	Endangered
	Desert pupfish	*Cyprinodon macularius*	Endangered
	Gila topminnow	*Poeciliopsis occidentalis occidentalis*	Endangered
	Loach minnow	*Tiaroga cobitis*	Threatened
	Razorback sucker	*Xyrauchen texanus*	Endangered
	Spikedace	*Meda fulgida*	Threatened
	American peregrine falcon	*Falco peregrinus anatum*	Endangered
	Bald eagle	*Haliaeetus leucocephalus*	Threatened
	Cactus ferruginous pygmy-owl	*Glaucidium brasilianum cactorum*	Endangered
	Mexican spotted owl	*Strix occidentalis lucida*	Threatened
	Southwestern willow flycatcher	*Empidonax traillii extimus*	Endangered
	Yuma clapper rail	*Rallus longirostris yumanensis*	Endangered
Gila County			
	Arizona Agave	*Agave arizonica*	Endangered
	Arizona hedgehog cactus	*Echinocereus triglochidiatus arizonicus*	Endangered
	Apache (Arizona) trout	*Oncorhynchus apache*	Threatened
	Colorado squawfish	*Ptychocheilus lucius*	Endangered
	Gila topminnow	*Poeciliopsis occidentalis occidentalis*	Endangered
	Loach minnow	*Tiaroga cobitis*	Threatened
	Razorback sucker	*Xyrauchen texanus*	Endangered
	American peregrine falcon	*Falco peregrinus anatum*	Endangered
	Bald eagle	*Haliaeetus leucocephalus*	Threatened
	Cactus ferruginous pygmy-owl	*Glaucidium brasilianum cactorum*	Endangered
	Mexican spotted owl	*Strix occidentalis lucida*	Threatened
	Southwestern willow flycatcher	*Empidonax traillii extimus*	Endangered
	Arizona bugbane	*Cimicifuga arizonica*	Candidate
	Blumer's dock	*Rumex orthoneurus*	Candidate
	Chiricahua leopard frog	*Rana chiricahuensis*	Candidate

Table 3-7. Federally Listed Species with the Potential to Occur on the Selected Lands (by Area)

Occurrence codes are as follows: 1=species is unlikely to occur in the area (habitats are not typical of those known to be used or the area is well outside of the species normal range); 2=species may occur infrequently in the area (plant species have not been surveyed for; animal species occasionally may visit but habitats do not appear suitable for breeding or no individuals were recorded during species-specific surveys); 3=species may occur regularly in the project area (species is relatively abundant and widespread and habitats appear typical of those known to be used for breeding); 4=species has been recorded in the project area.

			RAY COMPLEX AREA		
SPECIES	STATUS	CASA GRANDE AREA	Copper Butte/Buckeye	Chilito/ Hayden	Ray Mine
Lesser long-nosed bat *(Leptonycteris curasoae yerbabuenae)*	Endangered/ WSCA	1	1	1	1
Bald eagle *(Haliaeetus leucocephalus)*	Threatened/ WSCA	1	2	1	2
American peregrine falcon *(Falco peregrinus anatum)*	Endangered	2	2	2	2
Southwestern willow flycatcher *(Empidonax traillii extimus)*	Endangered/ WSCA	1	2	1	2
Cactus ferruginous pygmy-owl *(Glaucidium brasilianum cactorum)*	Endangered/ WSCA	1	1	1	1
Arizona hedgehog cactus *(Enchinocereus triglochidiatus arizonicus)*	Endangered	1	1	1	1

One of the six, the lesser long-nosed bat is migratory in Arizona, New Mexico, and Northwestern Mexico. Pregnant females arrive in late April and early May and feed on the nectar and pollen of columnar cacti, especially saguaros (Wilson 1985). Maternity roosts generally exist at lower elevations in natural caves or abandoned mines. In late July and early August, adult males arrive to join females and young as they disperse from maternity roosts to feed on the nectar and pollen of agave flowers. At this time, the species range expands north and east into higher elevations of southern Arizona and southwestern New Mexico (Cockrum and Petryszyn 1991). By mid- to late September, the majority of bats have left Arizona and New Mexico and returned to Mexico.

~~In Arizona, bald eagles nest along the Salt, Verde, Gila, Bill Williams, and Agua Fria drainages (AGFD 1988). It is estimated that between 200 and 300 eagles winter in Arizona, primarily in the White Mountains and along the Mogollon Rim (USFWS 1991). Habitat requirements include large trees, snags, or cliffs near water for nesting and near major rivers or reservoirs during winter. Bald eagles feed primarily on fish, but waterfowl, small mammals, and carrion are also eaten.~~

Wintering eagles are found along rivers and major reservoirs in Arizona. Approximately 200 to 300 bald eagles winter in Arizona, with many in the White Mountains and along the Mogollon Rim (USFWS 1991). A small resident population nests primarily along the Salt and Verde rivers in Arizona. New nest sites along the Gila, Bill Williams, and Agua Fria drainages (AGFD 1988) indicate that the population may be increasing. In 1998-9 there were three breeding areas between Winkelman and Coolidge Dam and thirty-five occupied breeding areas (BAs) statewide (AGFD 1999b).

The most important breeding habitat characteristic of the American peregrine falcon is the presence of tall cliffs (typically over 150 feet but sometimes as low as 60 feet), which serve both as nesting and perching sites (Johnsgard 1990). Although nests sometimes occur some distance from water (Monson and Phillips 1981), a source of water is usually close to the nest site, probably in association with an adequate prey base of small to medium-sized birds. In Arizona, breeding activity was documented at 206 locations in 1995 (Garrison and Spencer 1996).

The southwestern willow flycatcher is a migratory, riparian obligate species. It arrives in Arizona in May and begins to nest in late May (Phillips and Monson 1964) along streams, rivers, or other wetlands (Johnson et al. 1987). Suitable habitat for the southwestern willow flycatcher is characterized by patches of native riparian shrubs or trees including willow (*Salix* sp.), cottonwood (*Populus* sp.), box elder (*Acer negundo*), ash (*Fraxinus* sp.), or mixtures of these species. The southwestern willow flycatcher can be found at elevations below 8500 ft.

The cactus ferruginous pygmy-owl (CFPO) is a widely distributed species in the Neotropics, occurring in the United States only in southern Arizona and extreme southeastern Texas. In Arizona, breeding pairs recently have been found only at Organ Pipe Cactus National Monument and northwest of Tucson. The owl was formerly much more widespread in Arizona, occurring regularly as far north as New River (Millsap and Johnson 1988). Historically in Arizona, owls were found in mesquite woodlands, cottonwood forests, and less commonly in paloverde-mixed cactus forest. However, most recent observations of this species are from habitats dominated by mesquite, paloverde, ironwood (*Olneya tesota*) and catclaw acacia. The ferruginous pygmy-owl is most active at dawn and dusk and can be heard throughout the daylight hours. Primary food items for the owl include lizards, insects, rodents, and small birds.

In the following two subsections, and in Table 3-7, the potential for each of these plant and animal species to occur on the selected lands is analyzed below based on field surveys and/or habitat evaluations.

3.2.1.5.1 Federal T & E Plant Species

The Arizona hedgehog cactus occurs in narrow cracks between boulders on open slopes and in the understory of shrubs in the ecotone between Madrean evergreen woodland and interior chaparral at elevations ranging from 3,300 to 5,700 feet (USFWS 1991, CCA 1995). The preferred geological substrates are dacite and granite (CCA 1995).

Arizona hedgehog cactus, listed by the USFWS as Endangered is extremely unlikely to occur on any of the selected lands. This endangered species was not found on any of the surveyed parcels (SWCA 1994) and the majority of the remaining selected lands are outside the known elevational range of this cactus. Furthermore, soils and habitats in the project area differ from those at locations where this cactus is known to occur. Soils on the Selected Lands are derived from sedimentary (mostly limestone) rather than granitic rocks, and habitats are characterized as Sonoran desertscrub or ecotonal between Sonoran desertscrub and interior chaparral rather than ecotonal between Madrean evergreen woodland and interior chaparral, which USFWS describes as suitable habitat for this species (USFWS 1979). Thus, typical habitat of Arizona hedgehog cactus is not present on the selected lands.

3.2.1.5.2 Federal T & E Wildlife Species

~~None of the five Federally Threatened or Endangered wildlife species listed in Table 3-7 (Lesser long-nosed bat, bald eagle, American peregrine falcon, southwestern willow flycatcher, and cactus ferruginous pygmy-owl) none are known to occur regularly on any of the selected lands.~~

None of the five federally Threatened or Endangered wildlife species listed in Table 3-7 have been detected on any of the selected lands based on review of Heritage Data Management System (HDMS) records and current surveys. Presence of lesser long-nosed bat, southwestern willow flycatcher, and cactus ferruginous pygmy-owl were not detected during recent surveys of the selected lands (SWCA 1998a, 1998b). However potential habitat exists for all three species on portions of the selected lands parcels. The selected lands were not specifically surveyed for bald eagle or peregrine falcon, however none were detected during surveys for the other species and the selected lands have very limited habitats similar to those known to be used by these species for nesting and foraging.

Ray Complex. The selected lands in the Ray Complex do not provide habitats similar to those known to support southwestern willow flycatcher during the breeding season with the exception of approximately five acres on Parcel RM-2 which has potential but currently unsuitable habitat with very limited potential to improve. ~~and none were~~ No flycatchers were detected during surveys conducted along Mineral Creek in the Ray Complex (SWCA 1995b, 1998c).

Bald eagles are known to occur along the Gila River, but none have been detected ~~were observed~~ on any of the selected parcels (AGFD 1999a). ~~With the possible exception of Parcel RM-7, the selected lands do not provide suitable foraging and/or breeding habitat for this eagle.~~ The Ray Complex parcels lack large riverine, lake or reservoir habitats which would provide foraging areas for bald eagles and also lack suitable nesting substrates (large trees, snags, or cliffs) which are within 13 miles of the Gila River. The closest known nest site is near the confluence of the San Pedro and Gila Rivers at Winkelman (personal communication, Jamie Driscoll, AGFD 1999), approximately 15 miles east of the project area. Though bald eagles occasionally may visit the project area when foraging along the Gila River, regular visits are considered unlikely.

No lesser long-nosed bats or evidence of their occurrence (e.g., droppings) were noted on the selected lands during inspections of mine adits and natural caves (SWCA 1994, 1996, 1997b, 1998b) or during mist net surveys conducted by AGFD personnel (BLM 1994a). The selected lands, with the exception of the Casa Grande Parcels which do not provide forage plants or potential roost sites, are outside of the currently known range of the lesser long-nosed bat. ~~The Federally Endangered lesser long-nosed bat and the Federally Endangered CFPO are unlikely to occur because the selected lands are outside of the currently known ranges of these species.~~

The selected lands are outside of the currently occupied range of the cactus ferruginous pygmy-owl and there are no current or historic records from the Ray Complex or Copper Butte/Buckeye area. The nearest known location for the cactus ferruginous pygmy-owl is along the San Pedro River near Dudleyville. Birds were reported there in 1985, 1986, and 1987 (USFWS 1998). However, habitat assessments for pygmy-owl indicated potential habitat in the Ray Complex and approximately 4,114 acres of selected lands were surveyed in 1998 for the CFPO with over 370 call-stations. No owls were detected during these surveys ~~and no owls were found~~ (SWCA 1998a).

Copper Butte/Buckeye. Potentially suitable cliff breeding habitat for American peregrine falcon occurs in Walnut Canyon and in other nearby areas but is very limited on the Copper Butte parcels compared to surrounding areas ~~but not within the Copper Butte/Buckeye area.~~ However, an unidentified falcon was observed during field work near the Copper Butte/Buckeye area (BLM 1994a). The peregrine falcon may regularly visit parcels in this area, but other parcel groups do not provide cliffs.

The Federally Endangered lesser long-nosed bat ~~and the Federally Endangered cactus ferruginous pygmy-owl are~~ is unlikely to occur because the selected lands in Copper Butte/Buckeye are outside of the currently known ranges of ~~these~~this species and no evidence of their occurrence was found during surveys of mine adits and natural caves (SWCA 1994, 1996, 1997b, 1998b). ~~However, surveys were conducted to better evaluate the potential for occurrence in the project area.~~

Approximately 1,600 acres (portions of Parcels CB-1, 3 and 4) were surveyed in March 1998 for cactus ferruginous pygmy-owls with over 127 call stations and no owls were detected. No cactus ferruginous pygmy-owls were detected during surveys of Walnut Creek on Parcels CB-1, CB-2, CB-3, and CB-4 (BLM 1994a, SWCA 1995c). ~~or along Mineral Creek outside the project area (SWCA 1995b).~~

Chilito/Hayden. ~~The Chilito/Hayden selected lands do not provide suitable habitat for any of the five threatened or endangered wildlife species.~~ Based on a habitat assessment, approximately 700 acres (portions of Parcels CH-1,3,4,and 5) were surveyed in March 1998 for cactus ferruginous pygmy-owls with over 50 call stations, but no owls were detected (SWCA 1998a). The Chilito/Hayden selected lands do not provide suitable habitat for the other four threatened or endangered wildlife species.

Casa Grande. The Casa Grande selected lands do not provide suitable habitat for any of the five threatened or endangered wildlife species.

3.2.1.6 Critical Habitat

Of the six Federally Threatened or Endangered species considered, critical habitat has been designated only for southwestern willow flycatcher. ~~The selected lands are not within any of the areas designated as critical habitat for this species.~~ The nearest critical habitat is along the San Pedro River (*Federal Register* July 22,

1997), just south of Winkelman and about two miles east of Parcel CH-5 in the Chilito/Hayden area. In addition, critical habitat has been proposed for the cactus ferruginous pygmy-owl (*Federal Register* December 30, 1998) including lands along the Gila River in the project area, but outside any selected lands parcels.

3.2.1.7 Biodiversity

Biodiversity is variously defined as the total number of kinds of organisms and their relative abundances in a given area. Measurements of biodiversity are typically based on only a partial list of organisms present in an area, generally the larger, more conspicuous organisms such as vertebrates. In many cases, biodiversity is inferred from the numbers and kinds of plant communities in an area, with the assumption that a greater number of plant communities supports a greater biodiversity. This simple index of biodiversity is practical because the cost of inventorying all species that occur in an area is usually prohibitive. More complete measures of biodiversity require a large team of specialists working over many seasons over many years. Though useful, the number of plant communities provides only a rough index to biodiversity since plant community classifications are subjective and can be made at many different scales. Furthermore, not all units of classification support the same numbers of species. Thus, any two scientists delineating plant communities in a given area can arrive at two very different, but equally valid, classifications.

Measurements of biodiversity are extremely scale-dependent. A well-known biological relationship is the species-area curve, which typically shows that the number of species increases with the size of the area surveyed. Most often, the number of species does not increase in direct proportion to area. The rate of additional species usually increases sharply with a small area and gradually tapers off with larger areas.

For conservation purposes, biodiversity is usually measured over relatively large areas. Federal and state lists of "endangered species" or "species of management concern" are typically developed from a global, national, or state perspective. The goals of such lists are typically to prevent the extinction of the listed taxa, not to maintain existing population levels of all species.

No total measure of biodiversity in the project area was made. Instead, two standard approaches were taken to evaluate potential impacts to biological resources: 1) a general plant community classification and 2) a thorough evaluation of special interest species. Because the project areas consist primarily of Sonoran desertscrub and because of the small amount of riparian habitats, overall biodiversity is expected to be similar to that found in other habitats in south central Arizona. Evaluations and surveys indicate that few special-status species are expected to occur regularly in the project area.

3.2.2 Physical Resources

3.2.2.1 Surface Water

Ray Complex. The selected lands are in the Middle Gila River watershed (Figure 3-6). The Gila River, which is the major surface water feature in the area, flows to the west and is greatly influenced by the regulated outflow from the San Carlos Reservoir, located approximately 45 miles upstream. USGS gauge 09474000, located on the Gila River just downstream of Mineral Creek, recorded a yearly median discharge of 340 cubic feet per second (cfs) over a period of 85 years.

The water quality of the Gila River in the vicinity of the selected lands has been rated by the Arizona Department of Environmental Quality (ADEQ) as being in "partial support" of designated uses and "water quality limited." This means that the river does not fully meet water quality standards for arsenic, copper, and turbidity; however, the beneficial uses of the river for full body contact, fish consumption, irrigation, livestock watering and wildlife are not substantially impaired.

Most of the tributaries to the Gila River in this area are ephemeral; this means that they flow only during and immediately after rainfall events. The exception is Mineral Creek, a 17.3 mile long perennial stream that flows through the Ray Mine and several of the selected parcels. The water quality of Mineral Creek suffers from a number of elevated constituents which has resulted in the ADEQ rating the creek as being in "non-

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R12E R13E R13E R14E R14E R15E

T2S T3S T3S T4S

Mineral Cr.

RM-1 RM-7 RM-2 RM-12 RM-11 RM-3 RM-4 RM-13 RM-9 RM-8 RM-6.1 RM-5 RM-6.3 RM-6.2 RM-14 RM-6.4 Ray Mine RM-15 RM-10 RM-16 RM-17 RM-18

DUNN TANK #1 CB-2 CB-3 DUNN TANK #2 CB-5 VELMA SPRING CB-1 CB-4 RINCON RESERVOIR

Creek Walnut Creek Mineral Creek

SEE FIGURE 3-7 FOR DETAILED DESCRIPTION

Gila River

MIDDLE GILA WATERSHED

Donnelly Wash

KEARNY

KEY

- SELECTED PARCELS
- SPRINGS
- PERENNIAL STREAMS
- EPHEMERAL DRAINAGES

Sources:
Hydrography - USGS 1:100,000 scale DLG
Transportation - USGS 1:100,000 scale DLG
Archaeological sites digitized from maps using USGS 7.5' quads as base maps.
CD/MAPS Santa Fe, New Mexico

Scale
0 7,000 14,000
FEET

N

RAY LAND EXCHANGE/PLAN AMENDMENT EIS

Pinal County, Arizona

SURFACE WATERS IN THE VICINITY OF THE COPPER BUTTE/BUCKEYE AND RAY MINE AREA SELECTED LANDS

FIGURE 3-6

support" of designated uses and "water quality limited." This means that the creek is substantially impaired for the uses of full body contact, livestock watering and wildlife.[19]

Two existing facilities discharge treated wastewater into the stretch of the Gila River between Winkelman and Walnut Creek, and the Asarco Ray mine discharges water to Mineral Creek. These discharges are allowed under the National Pollutant Discharge Elimination System (NPDES) and are listed in Table 3-8.

Table 3-8. National Pollutant Discharge Elimination System (NPDES) Wastewater Permits in the Vicinity of the Selected Lands

Facility Name	NPDES Number	Discharge Location	Reach Number
ASARCO Inc. -- Ray Unit	0000035	Mineral Creek	15050100-012
AZ Department of Corrections - Eyman	23485	Gila River (east of Winkelman)	15050100-009
Kearny Publicly Owned Treatment Works	21827	Gila River (between Winkelman and Walnut Creek)	15050100-008
Winkelman Publicly Owned Treatment Works	20176	Gila River (between Winkelman and Walnut Creek)	15050100-008

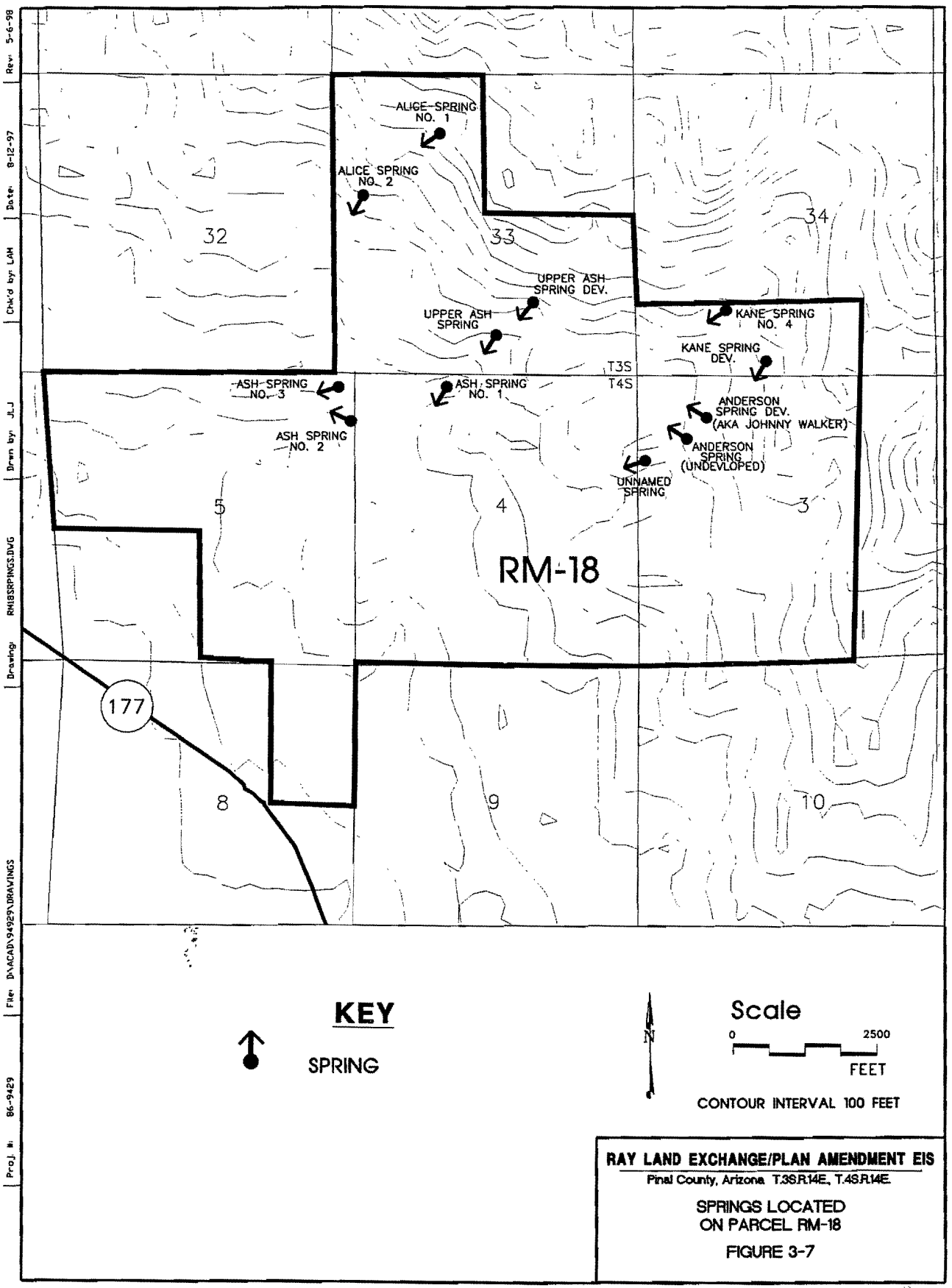
The Ray Complex parcels contain 12 springs listed in Table 3-9 and are shown on Figures 3-6 and 3-7.

Table 3-9. Surface Water Sources on the Selected Lands

Land Parcel(s)*	Springs (names)	Perennial Streams (names and miles)	Stock Tanks/Ponds (names)
SELECTED (FEDERAL) LANDS			
CB-1	Velma Spring	-	Rincon Reservoir
CB-2	-	-	Dunn Tank No. 1 (aka England Tank)
CB-3	-	-	Dunn Tank No. 2
RM-18	Alice Spring No. 1; Alice Spring No. 2; Upper Ash Spring; Kane Spring No. 4; Anderson Spring (undeveloped); Unnamed Spring Ash Spring No. 1; Ash Spring No. 2 Ash Spring No. 3; Upper Ash Spring Development; Kane Spring Development; Anderson Spring Development (aka Johnny Water)	-	-

* Parcels not included in this table have no known surface water resources.

[19] Mineral Creek flows through the existing Asarco Ray Mine in a tunnel which protects most of it from mining activities. However, from the tunnel outlet to the downstream end of Asarco property, Mineral Creek is subject to subsurface seepage and storm runoff from mining facilities. Investigations by ADEQ and EPA from 90-93 found water quality violations for copper, beryllium, zinc, turbidity, and pH. Engineering remedies have been installed to curtail seepage of groundwater. Surface water and groundwater will be addressed further during development of an Aquifer Protection Permit (ADEQ 1996b).


Rev: 5-6-98
Date: 8-12-97
Chk'd by: LAM
Drwn by: JLJ
Drawing: RM18SRPINGS.DWG
File: D:\ACAD\94929\DRAWINGS
Proj #: 86-9429
ALICE SPRING NO. 1
ALICE SPRING NO. 2
UPPER ASH SPRING DEV.
UPPER ASH SPRING
KANE SPRING NO. 4
KANE SPRING DEV.
ASH SPRING NO. 3
ASH SPRING NO. 1
ASH SPRING NO. 2
ANDERSON SPRING DEV. (AKA JOHNNY WALKER)
ANDERSON SPRING (UNDEVLOPED)
UNNAMED SPRING
T3S
T4S
32
33
34
5
4
3
8
9
10
RM-18
177
KEY
SPRING
N
Scale
0
2500
FEET
CONTOUR INTERVAL 100 FEET
RAY LAND EXCHANGE/PLAN AMENDMENT EIS
Pinal County, Arizona T.3S.R.14E., T.4S.R.14E.
SPRINGS LOCATED ON PARCEL RM-18
FIGURE 3-7

Copper Butte/Buckeye. Walnut Creek, a tributary to the Gila River, is an ephemeral stream which drains south through the Copper Butte/Buckeye parcels. Although specific flow measurements of Walnut Creek do not exist, the stream is ephemeral but may contain isolated intermittent and perennial pools. No water quality or flow information is available for this stream. Three stockponds and one spring are located on these parcels (approximately 3.6 acres of artificial pond habitat; Table 3-9 and shown on Figure 3-6).

Chilito/Hayden. The San Pedro River flows into the Gila River near Parcel CH-4 (Figure 3-8). Near its confluence with the Gila River, the San Pedro River is intermittent, with no flow present during much of the year. The water quality of the lower 11 miles of the San Pedro River has been rated by ADEQ as being in "non-support" of designated uses and "water quality limited"; this is primarily the result of high suspended solids and turbidity (ADEQ 1996b). There are no known perennial streams, springs, wetlands, riparian areas, or water developments on these selected lands.

Casa Grande. The selected lands in the Casa Grande area are within the Santa Cruz River watershed. As shown in Figure 3-4, the topography of the area is fairly flat and the most prominent surface water feature in the area is the Santa Cruz Wash, an ephemeral stream which trends northwest approximately 30 miles to its confluence with the Gila River. There are no known perennial streams, springs, wetlands, riparian areas, or water developments on these selected lands in the Casa Grande area.

There is no published water quality information for the Santa Cruz River near Casa Grande, and there are no NPDES permits allowing discharges of wastewater in the area (L. Lawson, ADEQ, pers. comm, 1996).

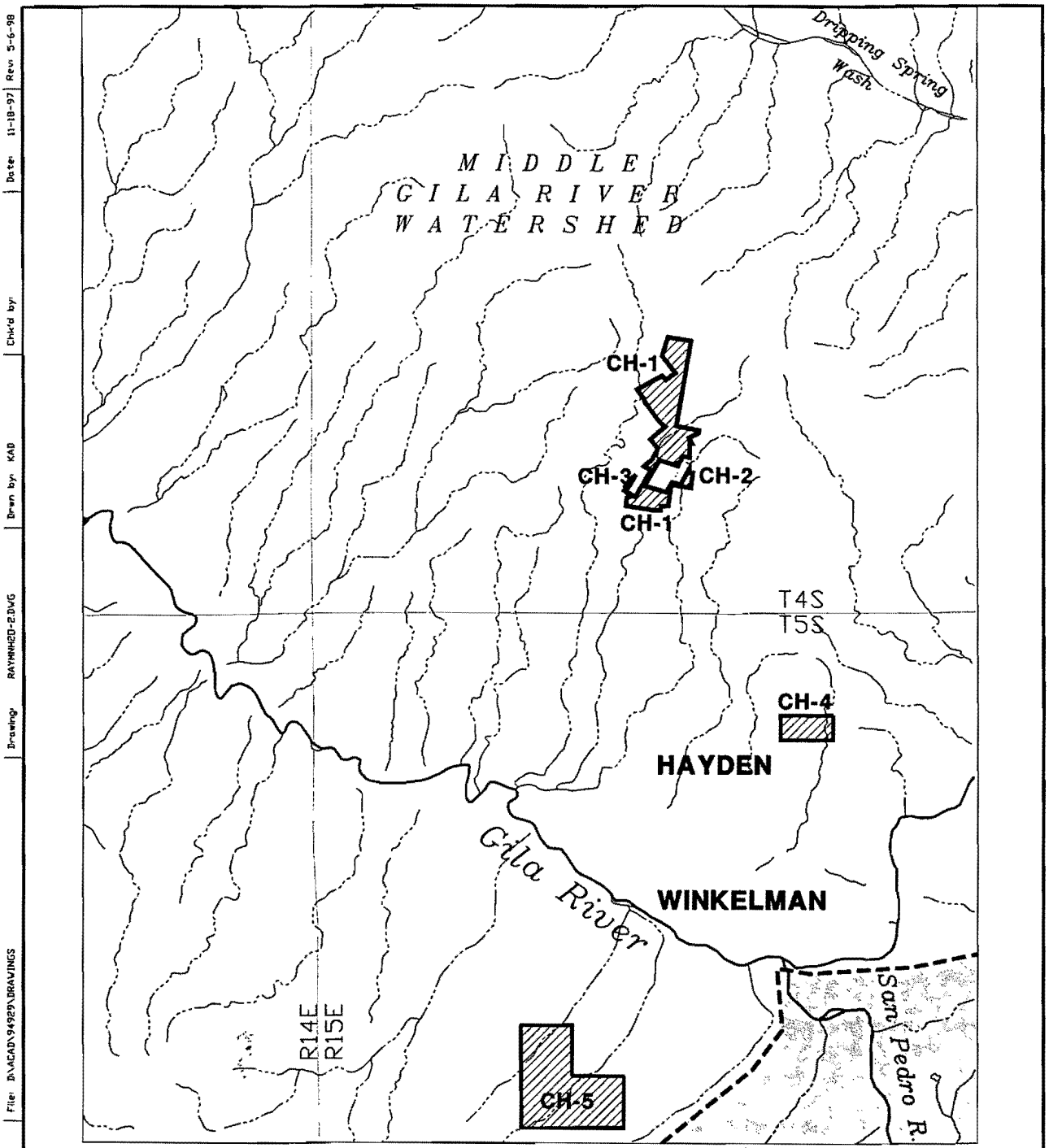
3.2.2.2 Groundwater

Ray Complex, Copper Butte/Buckeye, Chilito/Hayden. As shown in Figure 3-9, the selected parcels in these areas fall into two groundwater basins: 1) the basin that contains the Gila River from the head of the San Carlos Reservoir to Kelvin (GSK), and 2) the Lower Santa Cruz (LSC) basin (USGS 1995). Depths to groundwater in the area range from approximately 200 to 400 feet (Freethey and Anderson 1986). Groundwater in the vicinity of the selected lands generally flows in a northeasterly direction (J. Das, Project Hydrologist, ADEQ 1997). Groundwater quality in the area has shown elevated levels of metals in some wells; this contamination may be natural or created by mining activities (ADEQ 1996b). Parcel CB-3 contains one abandoned stockwell, England Well.

Casa Grande. The BLM does not own or control the land surface of these parcels. Parcels CG-1, CG-2, and CG-3 occur within the lower Santa Cruz (LSC) groundwater basin. USGS wells within the LSC basin showed depths to water ranging from 470 to 560 feet, with the depth to water increasing from east to west in the area of the Casa Grande parcels (USGS 1995; ADWR 1989).

Groundwater quality in the Casa Grande Area may exceed certain standards and guidelines. This is based on the following:

- USGS wells in the LCS basin outside of Parcels CG-1, CG-2, and CG-3 showed exceedences of Aquifer Water Quality Standards for pH, nitrate (N), and fluoride (F) (USGS 1995; ADEQ 1996b).
- Based on the Pinal AMA Second Management Plan, Parcel CG-1 appears to be in an area with sulfate and total dissolved solids (TDS) in excess of EPA's secondary maximum contaminant levels (MCLs), which are non-enforceable guidelines for drinking water. In the area of Parcel CG-1, sulfate appears to be 500 mg/l and TDS appears to be 1000 mg/l; the MCLs for these substances are 250 mg/l and 500 mg/l, respectively.
- Parcel CG-3 appears to be in an area with TDS concentration above 500 mg/l (ADWR 1991).


Dripping Spring Wash
MIDDLE GILA RIVER WATERSHED
CH-1
CH-3
CH-2
CH-1
T4S
T5S
CH-4
HAYDEN
Gila River
WINKELMAN
San Pedro R.
R14E
R15E
CH-5
KEY
SELECTED PARCEL
SAN PEDRO WATERSHED
PERRENNIAL STREAM
EPHEMERAL DRAINAGE
WATERSHED BOUNDARY
Scale
0 4000 8000
FEET
Sources:
Hydrography - USGS 1:100,000 scale DLG
Transportation - USGS 1:100,000 scale DLG
Archaeological sites digitized from maps using USGS 7.5' quads as base maps.
CO/MAPS Santa Fe, New Mexico
RAY LAND EXCHANGE/PLAN AMENDMENT EIS
Pinal County, Arizona
SURFACE WATERS IN THE VICINITY OF THE CHILITO/HAYDEN AREA SELECTED LANDS
FIGURE 3-8
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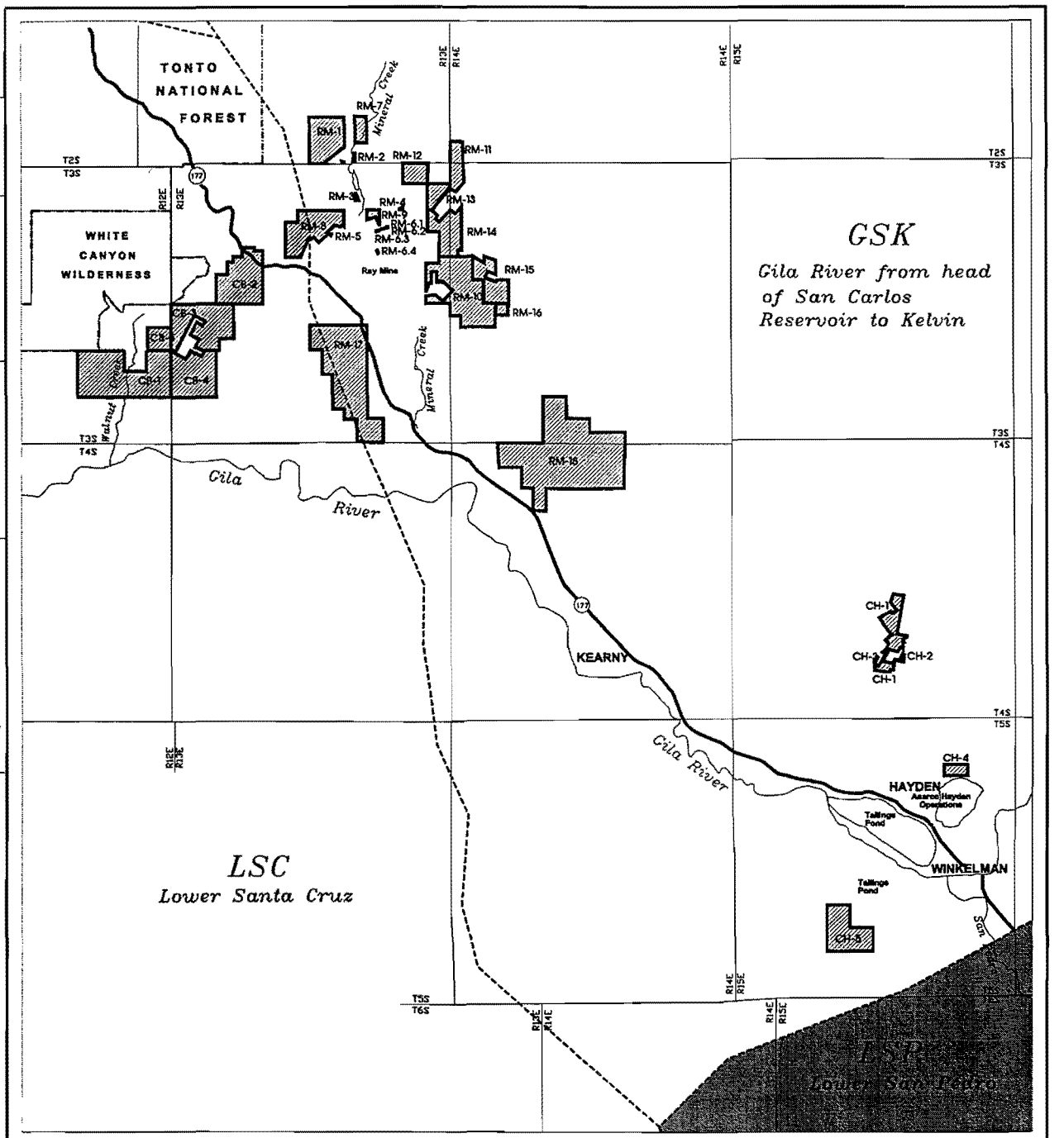


RAY LAND EXCHANGE/PLAN AMENDMENT EIS

Pinal And Gila County, Arizona

GROUNDWATER BASINS IN THE SELECTED LANDS AREA

FIGURE 3-9

Proj. #: 86-94929 | File: D:\ACAD\94929\DRAWINGS | Drawing: RAYGW.DWG | Drawn by: KAD/JLJ | Chk'd by: NS | Date: 8-18-96 | Rev: 5-6-98

3.2.2.3 Surface Water Rights/Well Permits

Surface water rights are issued by the Arizona Department of Water Resources (ADWR) through a permit system of prior appropriation. Surface water rights are attached to the place of use. Under A.R.S. §45-151, surface water rights may be permitted for several purposes, including domestic, municipal, irrigation, stock watering, water power, recreation, wildlife (including fish), artificial groundwater recharge, and mining uses.

Groundwater in Arizona is owned by the state and its use can be obtained by permit from ADWR. In certain hydrologic basins, called Active Management Areas (AMAs) and Irrigation Non-Expansion Areas (INAs), groundwater use is more intensely managed under the 1980 Groundwater Management Act. In other areas of the state, groundwater is governed by the doctrine of "reasonable use."

All water sources on the selected lands (Tables 3-9, 3-10) are located within the Upper Gila River Watershed of the ongoing Gila River System and Source General Water Rights Stream Adjudication (ADWR 1995, 1997). The Upper Gila River Watershed underwent a partial adjudication in 1935 with the Globe Equity Decree No. 59. This Decree settled surface water rights to the main stem of the Gila River for the Gila River Indian Community, the San Carlos Apache Indian Tribe and a number of non-Indian users, including Kennecott Copper Corporation (Asarco's predecessor). ~~To date, however, no water rights claimed in the Upper Gila River Watershed have been adjudicated (i.e., the validity, relative priority dates, and ownership of these water rights have yet to be fully determined by the courts).~~

Table 3-10. Registered wells on the selected lands in the Ray Complex Area, Copper Butte/Buckeye, and Chilito/Hayden Areas
Information on yield was not available for any of these wells. Wells used for mineral exploration are not included in this table.

Parcel	Township	Range	Sec.	Owner	Well registration number	Well Uses	Water Uses
RM-10	3S	13 E	13	Asarco, Inc.	531840	Piezometer	Monitoring
RM-17	3S	13E	26	Asarco, Inc.	549769	Test	Seismic holes
CB-3	3S	13E	19	Jesse Aldridge	645885	Water Production	Livestock
RM-2	2S	13E	34	Asarco, Inc.	535148	Piezometer	Test

Source: SWCA 1997f

Ray Complex, Copper Butte/Buckeye, Chilito/Hayden. As shown in Table 3-11, surface water rights are located on Parcels CB-1, CB-2, CB-3, and RM-18. These surface water rights are held by BLM and several private parties for stockwatering, wildlife, and recreation purposes. BLM holds 12 water rights for three stockponds and nine springs, totaling 16.6 acre-feet per year (af/yr), and the private parties hold five water rights for springs, totaling 4.28 af/yr.

Because the selected lands are not located in an AMA or INA, ADWR's authority is limited primarily to the oversight of well drilling. All registered wells on these selected lands with water uses are shown in Table 3-10; there are no BLM-registered wells.

Casa Grande. The BLM does not own or manage the surface of these parcels; there are no surface water rights or BLM-registered wells on Parcels CG-1, CG-2, or CG-3.

Table 3-11. Surface Water Rights on the Selected Lands

Surface Water Right Number (Adjudication Number)	Holder Name	Water Source	Annual Volume (acre-ft)	Use[1]	Location[2]				Selected Parcel	Foreseeable Use Classification[3]
					S	T	R	¼ Sec		
33-0090240 (39-0062839)	BLM-Phoenix District	Rincon Reservoir	0.50 0.50	S W	26	3S	12E	NW, SW	CB-1	LRP
38-0018061	BLM	Dunn Stock Tank No.1	6.20	S, W	17	3S	13E	SE, SW	CB-2	INT
38-0019167	BLM	Dunn Stock Tank No.2	6.20	S, W	19	3S	13E	NW, NW	CB-3	INT
33-90066 (39-62792)	BLM	Alice Spring No. 1	0.50 0.50	S W	33	3S	14E	NE, NW	RM-18	INT/TRANS/POS
36-20707 (39-62817)	BLM	Alice Spring No. 2	n/a	R, S, W	33	3S	14E	SW, NW	RM-18	INT/TRANS/POS
PWR 107 (39-62809)	BLM	Upper Ash Spring	n/a	R, S, W	33	3S	14E	SW, SE	RM-18	POS
33-90058 (39-62758)	BLM	Upper Ash Spring Dev.	0.40 for S 0.40 for W	SW	33	3S	14E	SW, SE	RM-18	POS
36-20714 (39-62808)	BLM	Kane Spring No. 4	n/a	R, S, W	34	3S	14E	SE, SW	RM-18	POS
33-90245 (39-62799)	BLM	Kane Spring Dev.	0.30 0.30	S W	34	3S	14E	SE, SW	RM-18	INT/TRANS/POS
36-20705 (39-62807)	BLM	Anderson Spring Dev.	n/a	R, S, W	3	4S	14E	NW, NW	RM-18	POS
33-90241 (39-62795)	BLM	Unnamed Spring	0.40 0.40	W S	3	4S	14E	SW, NW	RM-18	POS
36-20748 (39-62806)	BLM	Ash Spring No. 2	n/a	R, S, W	5	4S	14E	NE, NE	RM-18	POS
36-21177	J.H. Dunn	Johnny Water	0.61	S	3	4S	14E	NW, NW	RM-18	POS
36-21185	J.H. Dunn	Ash	0.92	S	5	4S	14E	NE, NE	RM-18	POS
36-68736.3	Kevin and Lori Kirby	Alice Spring No. 1	1.53	S	33	3S	14E	NE, NW	RM-18	INT/TRANS/POS
36-68737.3	Kevin and Lori Kirby	Alice Spring No. 2	0.77	S	33	3S	14E	SW, NW	RM-18	INT/TRANS/POS
4A-0004594.2	H&J Shumway Farms	Velma Spring	0.45	S	25	3S	12E	SW, SE	CB-1	INT
		TOTAL	**20.88**							

[1] R = Recreation, S = Stock watering, W = Wildlife, O = Other
[2] Location = place of use if available, otherwise location = point of diversion.
[3] INT = Intermittent Use, POS = Production Operation and Support, LRP = Long Range Prospect, INT/TRANS/POS = legal description not specific enough to discern whether water right falls within Intermittent Use, Transition Use, or Production Operation and Support area. n/a = not available
Sources: Lin Fehlmann, BLM, pers. Comm 1996, 1997; ADWR 1995, 1997; USDI BLM 1983.

3.2.2.4 Air Quality

3.2.2.4.1 Airsheds

Air quality of an area is measured and categorized into three classes, which are in compliance with EPA's National Ambient Air Quality Standards (NAAQS). Class I areas have the smallest increments and thus allow only a small degree of air quality deterioration. Class II areas can accommodate normal well-managed industrial growth, and Class III areas have the largest increments and thereby provide for a larger amount of development than either Class I or Class II areas. Therefore, facilities in Class II airsheds that are in close proximity to a Class I airshed may have stricter emission limits based on their potential impact to the Class I airshed. Class III areas are those in which air pollution may reach the national standards; there are no Class III areas designated in the U.S. Figure 3-10 shows all the Class I airsheds in the vicinity of the selected lands.[20]

Congress has established as a national goal the prevention of any future, and the remedying of any existing, man-made impairment to visibility in mandatory Class I areas (42 U.S.C. § 7491). Currently, EPA, state and county regulations, designed to protect visibility, apply almost exclusively to new major sources and modifications to major sources in areas that have attained the NAAQS (40 CFR § 52.21). Last year, EPA proposed a more comprehensive visibility program, but it has not yet acted on that proposal.

Ray Complex, Copper Butte/Buckeye, Chilito/Hayden. The selected lands in the Chilito/Hayden area including portions of Parcel RM-18 are within a non-attainment area for PM_{10} and SO_2. The remaining parcels within the Ray Complex and Copper Butte/Buckeye areas are within a non-attainment areas for PM_{10} (Figure 3-11). There are six Class I airsheds within 62 miles of either the Copper Butte/Buckeye area, the Ray Complex, or the Chilito/Hayden area (Figure 3-10). The closest is the Superstition Wilderness, which is about 13 miles to the north. The others are the Galiuro Wilderness (29 miles), the Sierra Ancha Wilderness (40 miles), Saguaro National Park - West (48 miles), Saguaro National Park - East (52 miles), and the Mazatzal Wilderness (55 miles).

Casa Grande. The Casa Grande parcels and the surrounding region are designated as Class II (40 CFR §81.303). There are two Class I airsheds within 62 miles of the Casa Grande area: the Superstition Wilderness, approximately 45 miles to the northwest; and Saguaro National Park - West, approximately 55 miles to the southeast.

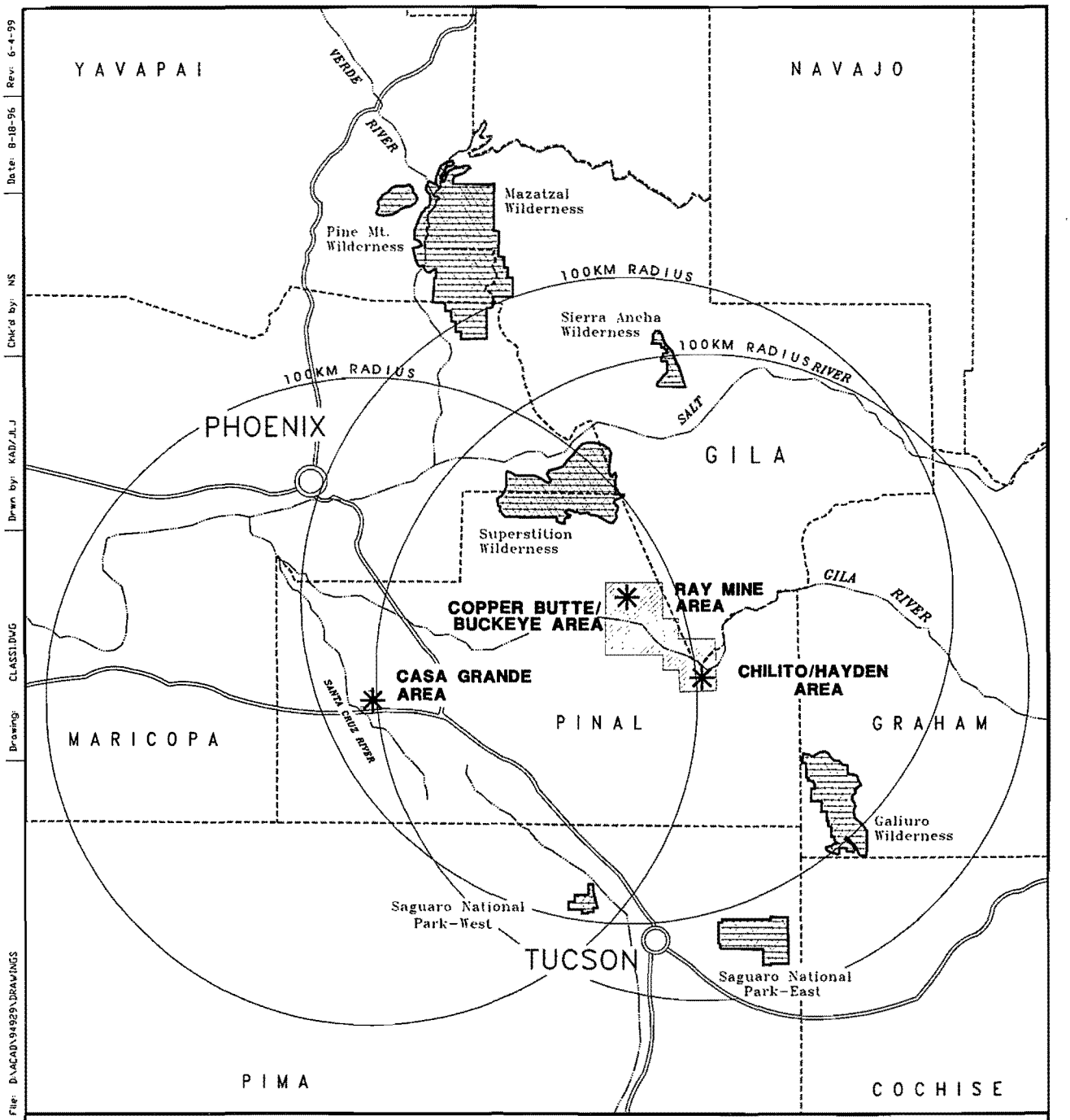
3.2.2.4.2 Pollutants

Federal air quality standards set limits on the ambient air concentration of six major pollutants: ozone (O_3), carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), particulate matter less than 10 microns in size (PM_{10}),[21] and lead (Pb). Based on the concentration of these pollutants, commonly referred to as *criteria pollutants*,[22] areas within Arizona are designated as: 1) *non-attainment* (areas in which ambient pollutant concentrations exceed one or more of the federal standards); 2) *attainment* (areas meeting federal standards); or 3) *unclassifiable* (areas for which there is a lack of available information to determine if standards are met).

[20] While there are no formal regulatory guidelines regarding the areal extent of air quality impact analysis, the assessment of potential impacts to Class I airsheds is frequently performed within a 100-km (or 62-mile) radius of a proposed project area.

[21] Particulate matter (PM) is fine liquid or solid particles such as dust, smoke, mist, fumes, or smog, found in air or emissions. PM_{10} is any particulate matter that is 10 microns or less in aerodynamic size.

[22] Other non-criteria air pollutants potentially emitted by mine operations, such as asbestos, chlorofluorocarbons, volatile organic compounds, and sulfuric acid mist, are also regulated under the Clean Air Act Amendments of 1990.



KEY

- CLASS 1 AIRSHED AREA
- STUDY AREA
- CENTER OF 100KM RADIUS

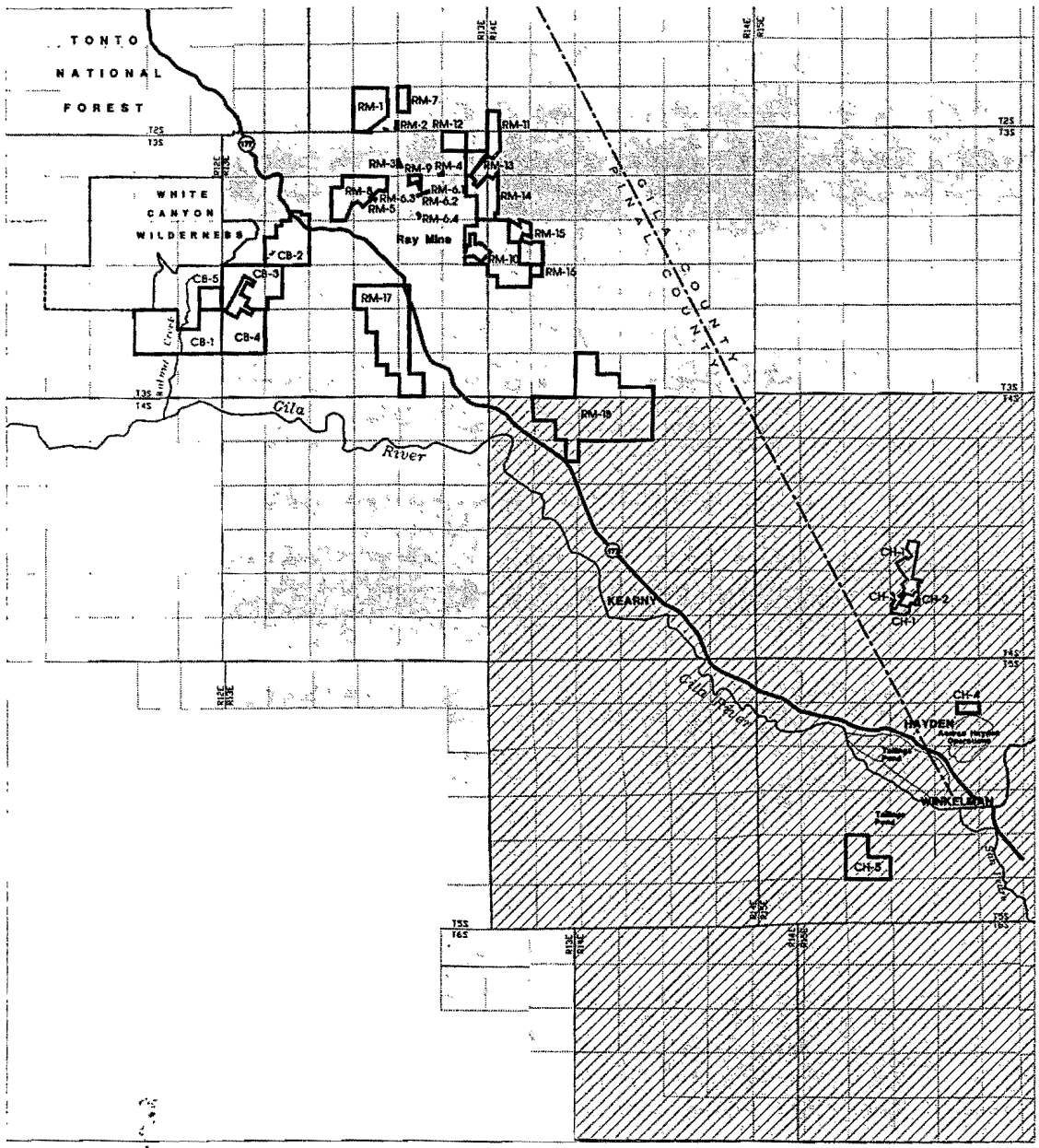
Scale
0 15 30
MILE

RAY LAND EXCHANGE/PLAN AMENDMENT EIS

LOCATION OF MANDATORY CLASS 1 AIRSHEDS RELATIVE TO SELECTED LANDS

FIGURE 3-10

Rev: 6-4-99 | Date: 8-18-96 | Chk'd by: NS | Drwn by: KAD/JLJ | Drawing: CLASS1.DWG | File: D:\ACAD\94929\DRAWINGS | Proj. #: 86-94929



KEY

- NON-ATTAINMENT SO_2
- NON-ATTAINMENT PM_{10}
- SELECTED PARCELS
- RIVER

Scale

0 2 4

MILE

RAY LAND EXCHANGE/PLAN AMENDMENT EIS

Pinal and Gila County, Arizona

AIR QUALITY ATTAINMENT STATUS
RELATIVE TO SELECTED LANDS IN THE
RAY COMPLEX AREA

FIGURE 3-11

Conformity. A portion of the proposed Ray Land Exchange/Plan Amendment is to be located in the EPA-designated Hayden/Miami non-attainment area for the annual and 24-hour NAAQS for PM_{10} and SO_2. The federally-required State Implementation Plan (SIP) for the Hayden area has been developed and submitted by the ADEQ to the EPA. Conformity with the applicable SIP must be demonstrated for all pollutants for which the are is designated non-attainment and for which the project has the potential to emit total emissions (both process and non-process) in an amount exceeding the de minimis threshold of 100 tons per year.

The determination that a project conforms with an applicable SIP is made by assuring that direct and indirect emissions from the project will not: 1) Cause or contribute to any new violation of any standard in the area; 2) Interfere with provisions in the applicable SIP for maintenance of any standard; 3) Increase the frequency or severity of any existing violation of any standard in the area; and 4) Delay timely attainment of any standard or any required interim emission reductions or other milestones in the SIP. The assurance of conformity of such a plan shall be an affirmative responsibility of the agency, and that agency shall not support, permit or approve any activity which causes a delay in attainment or maintenance of the NAAQS, or increase the frequence or severity of any existing violations (as in a non-attainment areas) (42 U.S.C § 7506).

ADEQ collects data on the concentration of selected air pollutants at sites throughout the state, including sites in Casa Grande, Hayden, and Winkelman. Available data from these locations are summarized below.

Ray Complex, Copper Butte/Buckeye and Chilito/Hayden. For the selected lands, ADEQ collects air quality data for three criteria pollutants: Pb, PM_{10}, and SO_2. Pb and PM_{10} samples are collected at one site in Hayden. SO_2 samples are collected at five sites in the Hayden, Winkelman and Chilito area. The Ray Complex, Copper Butte/Buckeye and Chilito/Hayden parcels are all within a non-attainment area for PM_{10}, and the Chilito/Hayden parcels near Asarco's Hayden operations are within a non-attainment area for SO_2 (Figure 3-11).

Table 3-12 shows the average annual ambient PM_{10}, Pb and SO_2 concentrations from 1990 to 1996 in the Ray Complex (ADEQ Office of Air Quality 1996a, 1997). For all of these years combined, the average ambient PM_{10} concentration was 33 µg/m^3, Pb concentration was .33 µg/m^3 and SO_2 concentration was 18 µg/m^3. The federal standard[23] for average annual ambient PM_{10} concentration is 50 µg/m^3, Pb concentration is 1.5 µg/m^3, and SO_2 concentration is 80 µg/m^3.

Casa Grande. In the Casa Grande areas, ADEQ collects air quality data for CO, O_3, and PM_{10}. Two of these pollutants (CO and O_3) are collected in most of Arizona's urbanized areas, and are due primarily to automobile traffic. Mining activities do not significantly increase levels of CO and O_3; however, mining and construction activities can produce sufficient quantities of airborne particulates to affect ambient PM_{10} concentrations.

Table 3-12 shows the average annual ambient PM_{10}, CO and O_3 concentrations from 1990 to 1996 in the Casa Grande area (ADEQ Office of Air Quality 1996a, 1997). For all of these years combined, the average ambient PM_{10} concentration was 29 µg/m^3, CO concentration was 2.5 ppm, and O_3 concentration was .09 ppm.

3.2.2.4.3 Air Quality Permits

Two classes of air quality permits are available from ADEQ and Pinal County Air Quality Control Division (PCAQCD): 1) Class I (Class A for PCAQCD), and 2) Class II (Class B for PCAQCD). Class I, or Class A, permits are regulated under Title V of the Clean Air Act (CAA), and are also referred to as Title V permits. Class I permits are required for "major sources," which are sources that have the potential to emit 100 tons

[23] Standards are not to be exceeded more than once per year with two exceptions. In the case of ozone and PM_{10}, compliance is determined by the number of days on which the O_3 or PM_{10} standard is exceeded. The number of exceedences days per year, based on a 3-year running average, is not to exceed 1.0.

Table 3-12. Average Annual Ambient Concentrations of PM_{10}, Pb and SO_2 for Ray Complex, Copper Butte/Buckeye, Chilito/Hayden and PM_{10}, CO and O_3 for the Casa Grande Areas

Year	Average Ambient Concentration (µg/m³)*					
	Ray Complex, Copper Butte/Buckeye, Chilito/Hayden			Casa Grande		
	PM_{10}	SO_2	Pb	PM_{10}	CO (ppm)	O_3 (ppm)
1990	35	[illegible]	[illegible]	32	[illegible]	[illegible]
1991	36	[illegible]	[illegible]	29	[illegible]	[illegible]
1992	35	[illegible]	[illegible]	30	[illegible]	[illegible]
1993	27	12	09	31	2.4	08
1994	26	22	34	27	4.2	09
1995	34	[illegible]	[illegible]	29	1.8	08
1996	41	22	55	30	1.6	104
AVERAGE	**33**	**18**	**33**	**29**	**2.5**	**09**

* The federal standard for average annual ambient PM_{10} concentration is 50 µg/m³, 80 µg/m³ for SO_2, and 1.5 µg/m³ for Pb. Federal standards for CO is 1.6 ppm and O_3 is .12 ppm.
Source of data: ADEQ Office of Air Quality 1996a, 1997. [illegible] Data Not Available

per year (tpy) of most conventional air pollutants, 10 tpy of any hazardous air pollutant, or 25 tpy of any combination of hazardous air pollutants. Class II permits are required for all other sources that do not require Class I permits but have the potential to emit greater than 1 tpy of any pollutant, or 2.5 tpy of any combination of pollutants, or, for Pinal County, 5.5 pounds per day of any pollutant.

Asarco's current air quality permits for facilities associated with the selected land parcels are listed in Table 3-13. There are no permits associated with the Copper Butte/Buckeye selected land parcels or Chilito/Hayden selected land parcels.

Table 3-13. Air Quality Permits Held by Asarco for Facilities Associated with the Selected Land Parcels

Facility (associated selected land parcels)	Agency	Permit	Notes
Santa Cruz Joint Venture (Casa Grande Area)	PCAQCD	B30505	Class B permit.
Ray Operations (Ray Mine)	PCAQCD	20148	Class A, Title V permit application filed May 5, 1997. PCAQCD has not yet issued the permit.
Hayden Copper Smelter (Chilito/Hayden)	ADEQ	0308-85	Class I, Title V permit application filed 10/31/94. ADEQ letter dated 12/20/94 referenced this application as permit 1000042. Permit has not been issued.
Copper Concentration, Hayden Plant (Chilito/Hayden)	ADEQ	0341-86	Class I, Title V permit application filed 4/29/94. During Asarco/ADEQ phone conversation, 12/20/94, ADEQ referenced this application as permit M070399P1. Permit has not been issued.

Source: SWCA 1997g

3.2.2.5 Soils

Ray Complex. The soils in the Ray Complex area are comprised of three units (NRCS 1971): 1) Andesite and Basalt Rock land (arid/semi-arid); 2) Granite and Schist Rock land (arid/semi-arid); 3) Granite and Schist Rock land (subhumid). A description of these units are as follows:

- **Andesite and Basalt Rock land (arid/semi-arid)**. This unit includes mountains and buttes composed mainly of andesite and basalt with inclusion areas of tuffs and tuff agglomerate rocks, dacite, rhyolite and sedimentary rocks. Rock outcrop makes up approximately 50 to 75 percent of this unit. The remaining 25 to 50 percent is shallow and very shallow, gravelly, cobbly, or stony soils interspersed between rock outcrops. The slope of the soil areas ranges from 5 to 50 percent.

- **Granite and Schist Rock land (arid/semi-arid)**. This unit includes mountains and buttes of granite and schist. Rock outcrop makes up approximately 60 to 75 percent of this unit, and consists of granite and schist. There are small inclusion areas of basic igneous rock outcrop. Slopes of the rock outcrop portion of this unit range from 15 to 75 percent. The remaining 20 to 45 percent of this unit is dominantly shallow and very shallow, gravelly, cobbly and or stony soils with minor inclusions of moderately deep soils. The shallow soils portion of this unit has a slope range of 5 to 60 percent. These shallow, well drained, residual, skeletal soils have minimal to moderate profile development.

- **Granite and Schist Rock land (subhumid).** This unit consists of mountainous areas of granite and schist rocks. Rock outcrop makes up approximately 50 to 60 percent of the unit and consists of granite and schist. There are small inclusion areas of basic igneous rock outcrop. Slopes in this unit range from 15 to 75 percent. The remaining 40 to 50 percent of the unit is dominantly shallow and very shallow, gravelly, cobbly and or stony soils interspersed between rock outcrop areas. There are minor inclusions of moderately deep soils. The shallow soils portion of this unit has a slope range of 5 to 50 percent. These shallow, well drained, residual, skeletal soils have minimal to moderate profile development.

Copper Butte/Buckeye. The soils in the Copper Butte/Buckeye area are similar to those in the Ray Complex area and are comprised of two soil units: the Andesite and Basalt Rock land (arid/semi-arid) unit and the Granite and Schist Rock land (subhumid) unit.

Chilito/Hayden. This area is comprised of Rough broken land (miscellaneous land types). This unit consists mainly of steep and very steep, deeply dissected landforms. The soils in these areas consists of minimal profile development, with a wide variability in profile depth, textures, and coarse fragments.

Casa Grande. The soils in the Casa Grande area of the proposed selected parcels are a complex of the Casa Grande-Mohall-Dateland series (NRCS 1986). These soils are on relict basin floors, old alluvial fans, and stream terraces. This complex of deep, nearly level soils formed in alluvium from mixed sources and eolian deposits. Slopes of these soils range from 0 to 8 percent.

The Casa Grande soils are deep and well drained. They have slow to very slow runoff and have moderate permeability. These soils are loamy throughout and extend to a depth of 60 inches or more. The Casa Grande soils have pH levels of 7.9 to 9.0 in the surface layers, and increase to 9.0 in the subsurface and substratum. Salinity levels of the Casa Grande series range from 8 to 16 mmhos/cm in the profile, resulting in identified saline sodic conditions. The Casa Grande soils have a gravel content of less than 35 percent by volume on the surface and throughout the profile.

The Mohall soils are deep and well drained. They have slow runoff and have moderately slow permeability. These soils are loamy throughout and extend to a depth of 60 inches or more. The Mohall soils have pH levels of 7.9 to 8.4 throughout the profile. Salinity levels of the Mohall series are typically less than 4 mmhos /cm. throughout the profile, but can range to as high as 10. The Mohall soils have a gravel content averaging less than 15 percent by volume on the surface and to a depth of 37 inches. The gravel content increases to a range of 15 to 35 percent below 37 inches to the bottom of the profile.

The Dateland soils are deep and well drained. They have slow runoff and have moderate permeability. These soils are loamy throughout and extend to a depth of 60 inches or more. The Dateland soils have pH levels of 7.9 to 8.4 throughout the profile. Salinity levels of the Dateland series are less than 4 mmhos/cm. in the profile. The Dateland soils have a gravel content of less than 35 percent by volume on the surface and throughout the profile.

3.2.3 Mineral Resources

Ray Complex, Copper Butte/Buckeye. Most of the Ray Complex area is located in the Mineral Creek Mining District within the Basin and Range Province, which covers most of southern and western Arizona. The Basin and Range Province is characterized by a series of north-to-northwest-trending, elongated mountain ranges of variable structure and are separated by broad alluvial valleys. The oldest rocks in this region are metamorphic rocks of Precambrian Age Pinal Schist. These rocks record a complex structural and depositional history that has included repeated episodes of tectonic uplift; faulting; erosion; and deposition of sedimentary, volcanic, and metamorphic materials.

The physiographic features of the Ray Complex area are the Dripping Springs Mountains, the Gila River Valley, and the Tortilla Mountains. The basement rock within these physiographic features consist of the Precambrian Pinal Schist that is intruded with Precambrian granite and diabase. Locally, upper Precambrian sedimentary rocks of the Apache Group rest unconformably on the eroded surface of the Pinal Schist. The Apache Group is, in turn, separated from Paleozoic limestones and quarzites by another erosional surface. During the Laramide, approximately 65 million years ago, compressional deformation caused folding of strata and basement thrusting in the Ray Complex region. Deformation was accompanied by metamorphism and plutonism associated with the emplacement of many large porphyry copper deposits. Erosion during the last several million years in this area has removed portions of these deposits, exposing the older formation.

Chilito/Hayden. The Chilito/Hayden parcels are located within the Banner Mining District, which has been the site of periodic prospecting and mining activities since the late 1800s. The largest copper producing mine in this district is the Christmas Mine, located about three miles east of the Chilito/Hayden parcels.

Casa Grande. The selected lands in the Casa Grande area lie along the eastern margin of a northwest-southeast-trending, elongated sedimentary basin which is about 10 miles wide and between 15 to 30 miles long. In the central part of the sedimentary basin, the depth to basement rock ranges between 6,400 and 8,000 feet (BLM 1996c). The SCJV parcels are covered by alluvium and surficial deposits of Pleistocene to Recent age.

3.2.3.1 Mineral Potential

Mineral resources are defined as a concentration of naturally occurring solid, liquid, or gaseous materials in or on the Earth's crust in such form that economic extraction of a mineral resource is currently or potentially feasible (BLM 1996c). "Potential" refers to the potential for occurrence of a concentration of one or more mineral resources. This evaluation is based on review of the general geologic environment, core samples and drilling data collected and provided by Asarco, and field reconnaissance. The mineral potential of each parcel was determined to be one of five categories (zero [0], low [L], moderate [M], high [H], not determined [ND]) with four levels of certainty (A - D), as defined below.

Potential for occurrence:

0 = The geological environment, the inferred geologic processes, and the lack of mineral occurrences do not indicate potential for accumulation of mineral resources.

L = The geologic environment and the inferred geologic processes indicate low potential for accumulation of mineral resources.

M = The geologic environment, the inferred geologic processes, and the reported mineral occurrences or valid geochemical/geophysical anomaly indicate moderate potential for accumulation of mineral resources.

H = The geologic environment, the inferred geologic processes, the reported mineral occurrences and/or valid geochemical/geophysical anomaly, and the known mines or deposits indicate high potential for accumulation of mineral resources. The "known mines and deposits" do not have to be within the area that is being classified, but have to be within the same type of geologic environment.

ND = Mineral(s) potential not determined due to lack of useful data. This notation does not require a level of certainty qualifier.

Level of certainty:

A = The available data are insufficient and/or cannot be considered as direct or indirect evidence to support or refute the possible existence of mineral resources within the respective area.

B = The available data provide indirect evidence to support or refute the possible existence of mineral resources.

C = The available data provide direct evidence but are qualitatively minimal to support or refute the possible existence of mineral resources.

D = The available data provide abundant direct and indirect evidence to support or refute the possible existence of mineral resources.

Ray Complex. Moderate mineral potential for metallic minerals was determined on portions of Parcels RM-4, RM-5, RM-11, RM-12, RM-13, RM-14, RM-15 and RM-18 with a level of certainty of B (BLM 1997c). Moderate mineral potential was typically found along faults within a parcel, typically near or adjacent to a mine and amounted to a few acres, while the remainder of the parcel was found to have low mineral potential with a level of certainty of C . High mineral potential for metallic minerals was determined on portions of Parcels RM-6.4, with a level of certainty of D, and on RM-10 (level of certainty of B and C). The remainder of the selected lands in the Ray Complex were determined to have low mineral potential with a level of certainty of C.

Copper Butte/Buckeye. Low mineral potential for metallic minerals in the Copper Butte/Buckeye area was determined on a majority of the parcels (BLM 1997c). Portions of Parcels CB-1, CB-3 and CB-4 were determined to have moderate and high mineral potential with levels of certainty of C and D. High mineral potential in Parcels CB-3 and CB-4 occur near the Copper Butte deposit under Asarco's patented claims.

Chilito/Hayden. The majority of the Chilito/Hayden parcels were determined to have low mineral potential for metallics with a level of certainty of C (BLM 1997c). However, portions of CH-1 and CH-2 were determined to have moderate mineral potential with a level of certainty of B and C.

Casa Grande. The potential on Parcels CG-1 and CG-2 is low for occurrence of copper and other metallic minerals, as well as other locatable or saleable minerals (BLM 1997c). Although alluvium and surficial materials (flood plain deposits) cover the entire area, no salable mineral deposits of commercial value occur in the area.

The potential for occurrence of copper on Parcel CG-3 is moderate and prospectively valuable for low-temperature geothermal resources (waters with temperatures less than 212°F). Potential for other locatable or salable minerals on this parcel is low.

3.2.3.2 Mineral Rights

The selected lands are encumbered by a total of 751 mining claims. Every parcel of selected land in this area is encumbered except Parcel CH-5. Of these 751 mining claims, 747 (99.5%) are held by Asarco, and 4 (0.5%) are held by a third party (Velasco), which are located on Parcel CH-1 (BLM 1997a).

As part of the exchange process, the BLM segregated the selected lands from further mineral entry for a period of five years. Segregation prevents additional mining claims from being made on the selected lands while the environmental review process for the proposed land exchange is underway. The BLM has not entered into any mineral leases (such as for oil, coal, and gas) or salable mineral contracts (such as sand and gravel) within the selected lands (SWCA 1997k).

Ray Complex. For most of the areas adjacent to Asarco's patented holdings around the Ray Mine, Asarco has covered the Federal mineral estate lands with unpatented lode or mill site claims. Nine of the selected lands are unpatented fractions between patented claims. There are no unpatented claim conflicts on the selected lands in the Ray Complex.

Copper Butte/Buckeye. Within the Copper Butte area, Asarco holds a number of unpatented claims that surround its existing patented lands (Figure 3-12).

Chilito/Hayden. Portions of Asarco's unpatented mining claims in the Chilito/Hayden area were overstaked by the Good Hope claims, located in the northern portion of Parcel CH-1. This claim conflict may require court action to resolve the status of the these claims (BLM 1997b, Figure 3-13). Other claim holders adjacent to Asarco's private lands include: Inspiration Corporation (part of Cyprus Amax Minerals) and Kullman McCoal Mining.

Casa Grande. Fifty mining claims encumber the Casa Grande parcels, and these are all held by SCJV.

3.2.4 Land Use

The selected lands are currently managed by BLM to maintain existing uses, which include public access, dispersed recreation, grazing, mineral development, and rights-of-way. No other uses are known to occur or are authorized on the selected lands. Land ownership[24] for each area is depicted on Figure 2-6 for the Casa Grande, Chilito/Hayden, Copper Butte/Buckeye, and Ray Complex areas. Land ownership is summarized in Tables 3-14 and 3-15.

3.2.4.1 Land Ownership

Pinal County contains approximately 3,448,470 acres, for a total area of 6,198 square miles. Gila County is somewhat smaller at approximately 3,039,000 acres, or 4,748 square miles. Approximately 90 percent of the selected lands are located within Pinal County, and approximately 10 percent are located within Gila County. The Casa Grande, Copper Butte, Ray Mine, and three of the five Chilito/Hayden Parcels (CH-1 through CH-3) are located in Pinal County. The remaining two Chilito/Hayden Parcels (CH-4 and CH-5) are located in Gila County. Land ownership in Pinal and Gila Counties is shown in Table 3-16.

Ray Complex, Copper Butte/Buckeye, Chilito/Hayden. Land Ownership within an approximately 161,220-acre management study area surrounding and including the selected lands depicted on Figure 2-6 includes private and state-owned parcels, as well as federal lands managed by the BLM and the U.S.D.A. Forest Service (USFS). The majority landowner in this area is BLM (48 percent), followed by the State of Arizona (22 percent), and Asarco (18 percent). The USFS owns approximately seven percent, and private entities other than Asarco own approximately four percent. Approximately one percent of Asarco's holdings are surface-estate only, with the mineral estate administered by the BLM. These split-estate lands are not included in the total acreage of Asarco's private lands as presented in Table 3-14.

Casa Grande. The Casa Grande study area includes 24,086 acres of surface land owned by the Santa Cruz Joint Venture[25] (SCJV) (24 percent), the State of Arizona (8 percent), private land (63 percent), and SCJV land intermixed with private residential lots (5 percent) (Table 3-15). Within the 24,086 acres, BLM administers the mineral rights on five parcels, totaling 1,280 acres, and has no surface ownership. The selected lands (CG-1, CG-2, and CG-3) consist of three of these five parcels, totaling 637 acres. All five parcels are considered as "split estate," where the surface estate is owned by SCJV and the mineral rights or "mineral estate" are administered by BLM (Figure 2-8).

[24] The term "land ownership" is used loosely to include ownership of private lands as well as state or federal administration of lands that are technically owned" by the public.

[25] Technically speaking, the surface estate of the Casa Grande area lands is owned by ASARCO Santa Cruz, Inc. (ASCI) which is owned by ASARCO Incorporated (Asarco) and Freeport-McMoRan, Inc., doing business jointly as the Santa Cruz Joint Venture (SCJV).

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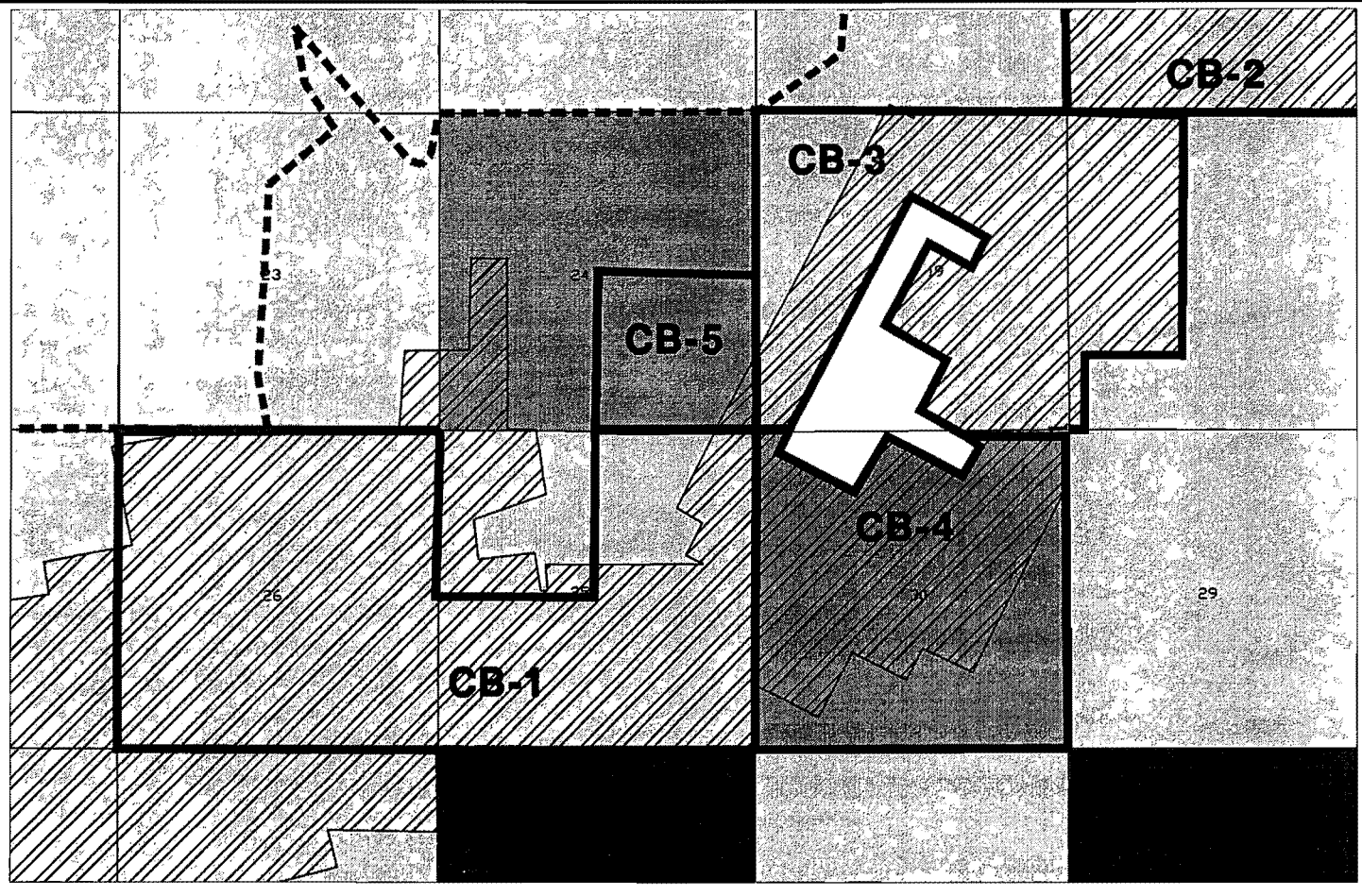


KEY

- SELECTED PARCEL
- WHITE CANYON WILDERNESS BOUNDARY
- ASARCO PATENTED CLAIMS
- ASARCO UNPATENTED CLAIMS
- FEDERAL SURFACE AND FEDERAL MINERAL
- STATE SURFACE AND MINERAL
- STATE SURFACE AND FEDERAL MINERAL

Scale

0 1,500 3,000

FEET

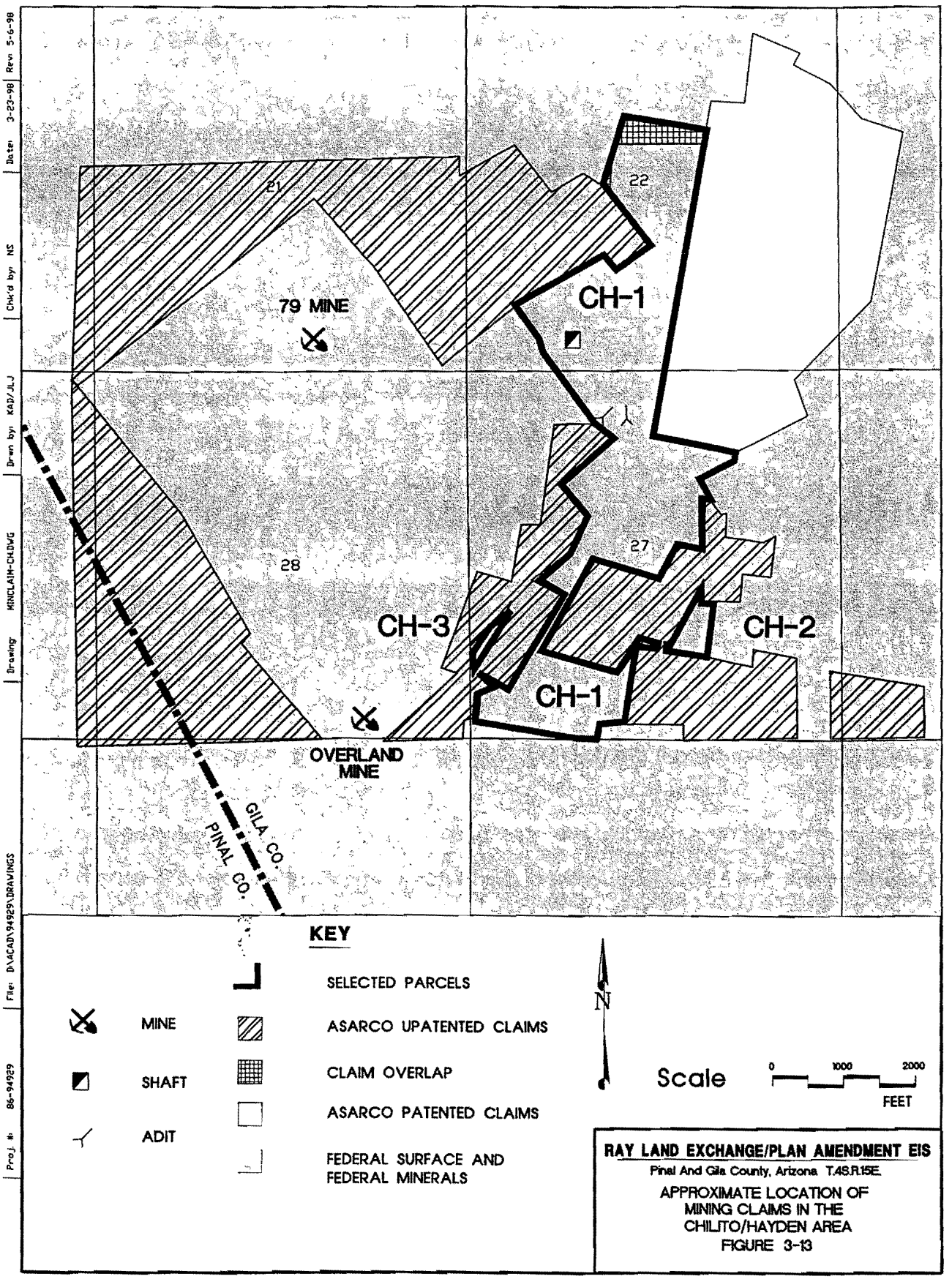
N

RAY LAND EXCHANGE/PLAN AMENDMENT EIS

Pinal County, Arizona T.3S.R.13E.

APPROXIMATE LOCATION OF MINING CLAIMS IN THE COPPER BUTTE/BUCKEYE AREA

FIGURE 3-12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OVERLAND MINE
GILA CO.
PINAL CO.
KEY
SELECTED PARCELS
MINE
ASARCO UPATENTED CLAIMS
SHAFT
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RAY LAND EXCHANGE/PLAN AMENDMENT EIS
Pinal And Gila County, Arizona T.4S.R.15E.
APPROXIMATE LOCATION OF MINING CLAIMS IN THE CHILITO/HAYDEN AREA
FIGURE 3-13

Table 3-14. Existing Surface Estate Land Ownership Within the Ray Complex Area

Land Ownership	Approximate Acreage	Percent of Study Area
BLM-administered	77,339	48%
Asarco private	29,082	18%
Asarco surface/BLM-administered mineral estate	2,143	1%
State of Arizona	35,247	22%
Non-Asarco private	6,017	4%
USFS-administered	11,392	7%
TOTAL	**161,220**	**100**

Source: SWCA 1997h

Table 3-15. Existing Surface Estate Land Ownership Within the Casa Grande Study Area

Land Ownership	Approximate Acreage	Percent of Study Area
SCJV private	5,682	24%
SCJV private intermixed with private residential lots	1,248	5%
State	2,026	8%
Non-SCJV private	15,130	63%
TOTAL	**24,086**	**100%**

Source: SWCA 1997h

Table 3-16. Summary of Land Ownership in Pinal and Gila County

Ownership	Pinal County			Gila County		
	acres	miles^2	Percent	acres	miles^2	Percent
BLM	405,760	634	11.8 %	60,800	95	2.0 %
Forest Service	221,440	346	6.4 %	1,703,040	2,661	56.1 %
State of Arizona	1,219,350	1,905	35.5 %	30,389	48	1.0 %
Indian Reservation	702,720	1,098	20.4 %	1,125,120	1,758	37.0 %
Private	899,200	1,405	26.0 %	119,040	190	3.9 %
TOTAL	**3,448,470**	**6,198**	**100%**	**3,039,000**	**4,748**	**100%**

Source: USDA 1997

3.2.4.2 Management of Public Lands

This section summarizes the BLM's administrative management responsibilities on and near the selected lands, describes relevant Special Management Areas, and discusses manageability of public lands. Special Management Areas are congressionally or administratively designated geographic areas within a BLM field office requiring explicit management to achieve BLM's special objectives. Such areas include Wilderness, Areas of Critical Environmental Concern, National Conservation Areas, Riparian National Conservation Areas, and Wild and Scenic Rivers. Two special management areas—White Canyon Wilderness and the White Canyon Area of Critical Environmental Concern (ACEC)—are located in close proximity to selected lands in the Ray Complex and Copper Butte/Buckeye areas (Figure 2-6). No National Conservation Areas, Riparian National Conservation Areas, or designated or potentially eligible segments of the National Wild and Scenic Rivers System are present on or near any selected lands.

The term "manageability" as used in this document refers to the relative ease or difficulty in effectively managing any given parcel of land. Manageability is a function of a wide range of quantifiable and unquantifiable variables, but for purposes of this analysis, manageability refers to quantifiable variables related to land ownership, such as parcel size, fragmentation, boundary length, and access (SWCA 1997h).

Ray Complex. BLM's administrative responsibilities for public lands in the Ray Complex include, but are not limited to, maintaining public access for recreation, maintaining rights-of-way, and administering grazing allotments. These subjects are discussed in detail in subsequent sections. The BLM also oversees mining on public lands in the Ray Complex. BLM's administrative responsibilities for oversight of mining activities[26] on federal lands are set forth in 43 CFR § 3809, which established "procedures to prevent unnecessary and undue degradation of federal lands which may result from operations authorized by the mining laws" (43 CFR § 3809.0-1), and could include authorization of one or more MPOs, should Asarco choose to submit them in the future.

The total perimeter of all the parcels in the Ray Complex is approximately 53 miles, of which approximately 25 percent is adjacent to BLM land, 18 percent is adjacent to State land, two percent is adjacent to private land and 55 percent is adjacent to Asarco's private lands. The proximity to Asarco's lands, number of encumbered parcels combined with difficult physical access make the selected lands in the Ray Complex difficult to manage (Figure 2-7).

Copper Butte/Buckeye. BLM's administrative responsibilities for public lands in the Copper Butte/Buckeye study area include, but are not limited to, maintaining public access to the White Canyon Wilderness, administering grazing allotments, continuing management of the White Canyon ACEC, and planning for designating trail alignments for the Great Western and Arizona Trails. Some of BLM's planned actions to ease management of this area include, but are not limited to, acquire the remaining 480 acres of State land in Section 24 and manage as an ACEC, prohibit land use authorizations except along existing roads, initiate mineral withdrawal[27] on federal mineral estate lands within ACEC, and prohibit surface oil/gas development (BLM 1988).

The total perimeter of all the parcels in the Copper Butte/Buckeye area is approximately 23 miles, of which approximately 66 percent is adjacent to BLM land, 17 percent is adjacent to State land, and 17 percent is adjacent to Asarco's private lands (Figure 2-7).

Chilito/Hayden. Some of BLM's administrative responsibilities in the Chilito/Hayden area include, but are not limited to, maintaining public access to adjacent public lands, maintaining grazing allotments, and overseeing mining activities on public lands.

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[26] Mining on federal lands is authorized by the General Mining Law of 1872 (as amended) (30 USCA §§ 21-42), the Mining and Minerals Policy Act of 1970 (30 USCA § 21a), the Federal Land Policy and Management Act (FLPMA) of 1976 (as amended) (43 USCA §§ 1701-84), and the National Materials and Minerals Policy, Research and Development Act of 1980 (30 USCA §§ 1601-05).

[27] Nonfederal lands acquired within the ACEC boundary would be considered closed to mining operations where mining claims do not currently exist.

The total perimeter of all the parcels in the Chilito/Hayden area is approximately 12 miles, of which approximately 65 percent is adjacent to BLM land, nine percent is adjacent to private land, and 26 percent is adjacent to Asarco's private lands. The number of encumbered parcels combined with difficult physical access make the selected lands in the Chiltio/Hayden area difficult to manage (Figure 2-9).

Casa Grande. In this study area, BLM-administered lands consist of the mineral estate of three parcels totaling 637 acres. Although the mineral estate of the selected lands is administered by the federal government, BLM has no regulatory responsibilities for oversight of mining activities, other than administration of mining claims.

The total perimeter of all the parcels in the Casa Grande area is approximately seven miles, of which approximately 29 percent is adjacent to private land and 71 percent is adjacent to Asarco's private lands (SCJV). The proximity to the SCJV property combined with subsurface management make the selected lands in the Casa Grande area difficult to manage (Figure 2-8).

3.2.4.3 Access and Recreation

3.2.4.3.1 Access

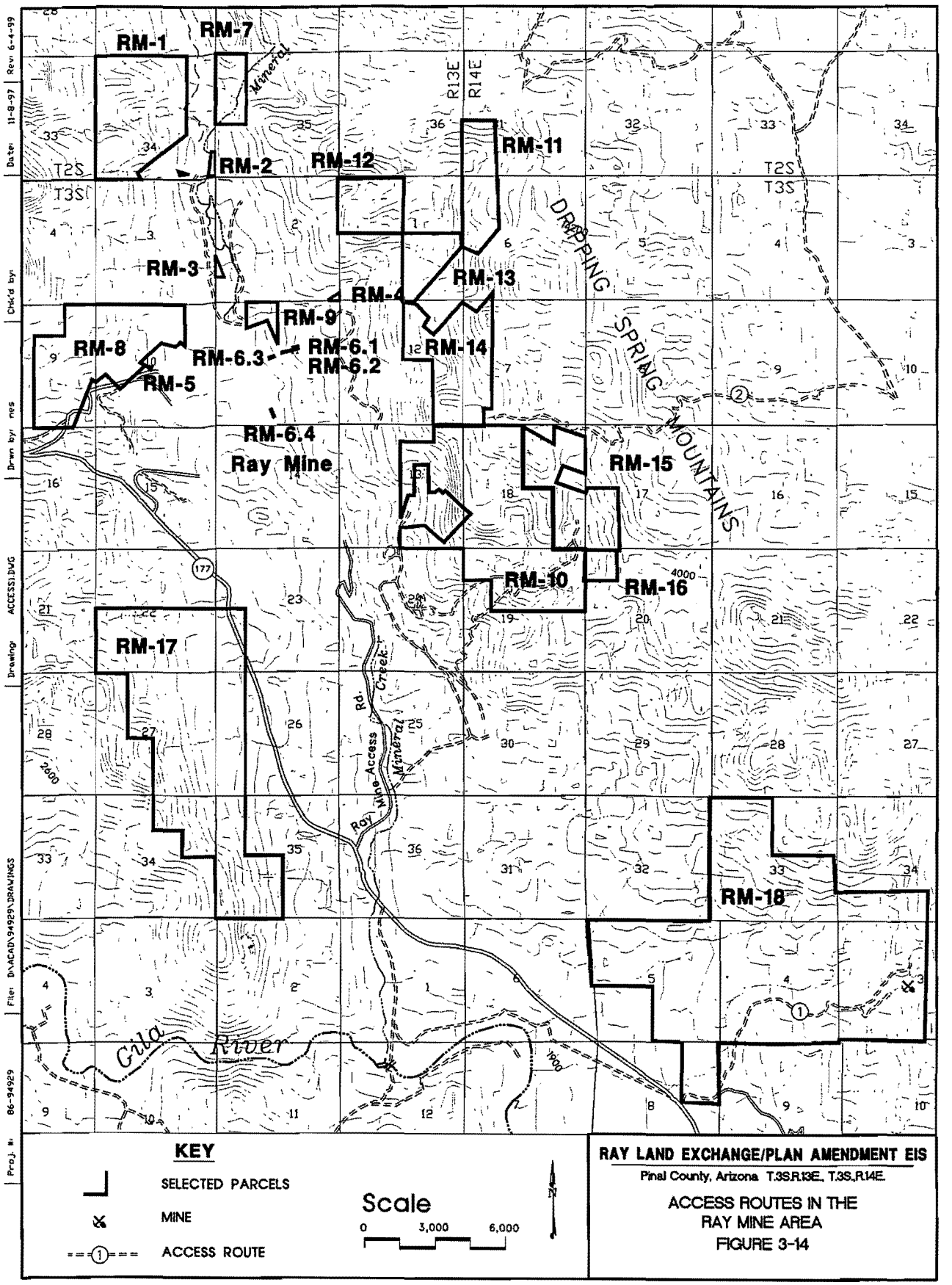
Physical access routes are roads and trails that provide points of ingress and egress. Public access routes are roads and trails that are open to public use. Legal access, e.g., rights-of-way and easements, is discussed in the section entitled Rights-of-Way.

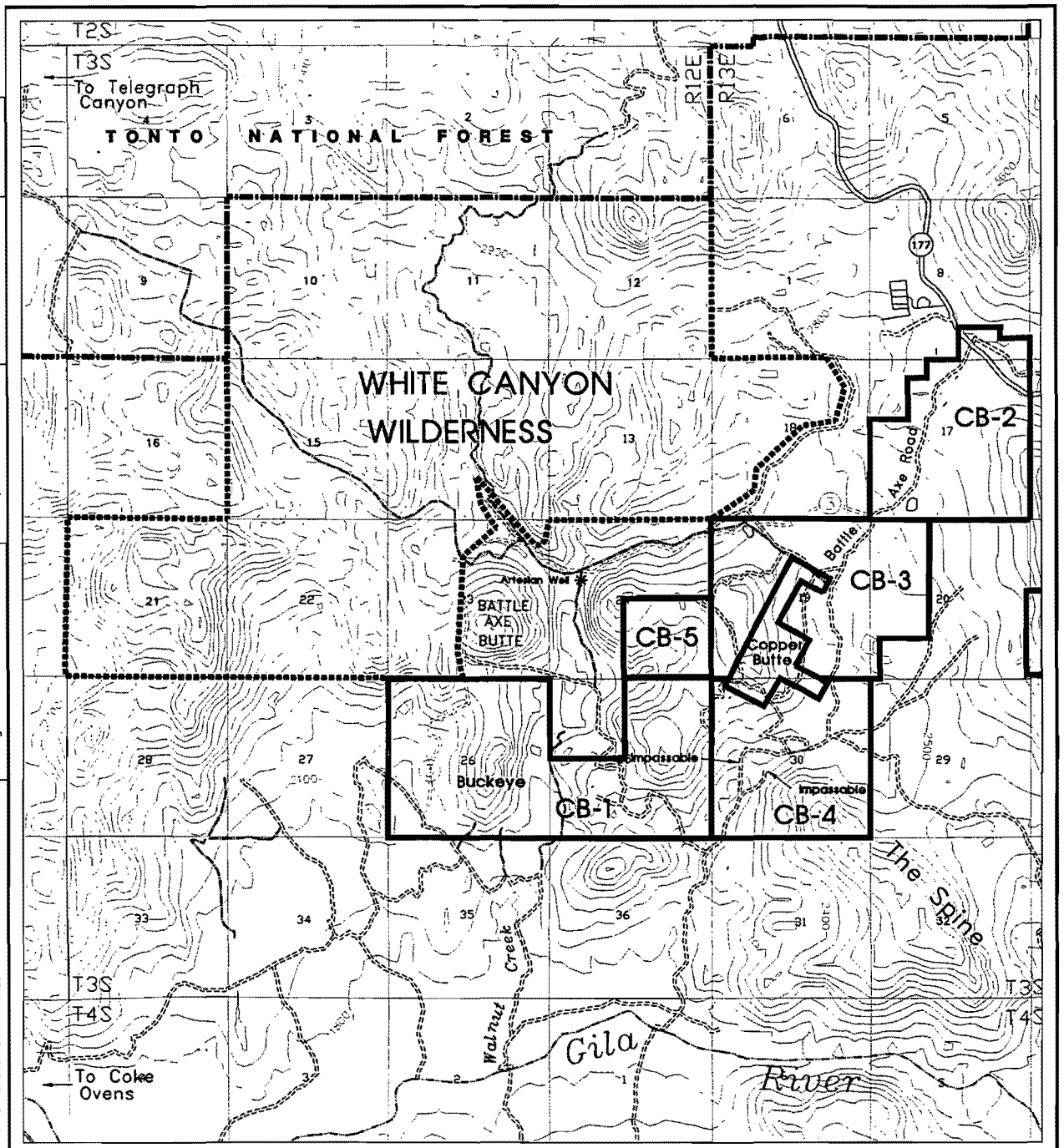
Ray Complex. Two public access routes cross portions of the selected lands in the Ray Complex. Each route has a name (e.g., Battle Axe Road) or a numeric identifier (#1 to #3) as referred to in Table 3-17 and in Figures 3-14 and 3-15. Two routes, State Route 177 and Battle Axe Road, cross multiple parcels and provide access to adjacent public lands.

Table 3-17 Public Access Routes Crossing Selected Land Parcels in the Ray Complex, Copper Butte/Buckeye and Chilito/Hayden Areas

Route ID, type	Parcel(s)	Destination of access route	Estimated No. Users
Route 177, Hwy	RM-17, CB-2	N. to Tonto National Forest, Superior, U.S. Rte. 60; S. to Kearny, Hayden, Winkelman, State Rte. 77	>1,000 people/year
#1, unimproved	RM-18	Vanadium mine in Section 3	<25 people/year
#2, unimproved	RM-10	Dripping Springs Mountains	<25 people/year
#3, unimproved	CB-1, CB-3	White Canyon Wilderness, Artesian Well, Coke Ovens	>1,000 people/year
Battle Axe Road, improved	CB-2, CB-3, CB-4	Segment #3 and Copper Butte	>1,000 people/year

Physical access to many of the selected lands parcels (e.g., Parcels RM-1 through RM-16) is via unimproved roads through Asarco-owned property adjacent to Highway 177 (Figure 3-14). Portions of Parcels RM-17 and RM-18 are directly accessible from Highway 177. Many of the isolated tracts (Parcels RM-2 through RM-13) have no physical access. An unimproved road (segment #2, Figure 3-14) crosses the Dripping Spring Mountains and approaches the northeastern edge of Parcel RM-10; however, vehicular access via this road is currently blocked by a large boulder (N. Gambell, Asarco, pers. comm. 1996). Visitor use along this segment is estimated to be fewer than 25 people/year. An unimproved four-wheel-drive road (segment #1) crosses Parcel RM-18 and provides access from State Route 177 to an old vanadium mine. Visitor use along this segment is estimated to be fewer than 25 people/year.


RM-1
RM-7
RM-2
RM-12
RM-11
RM-3
RM-13
RM-4
RM-9
RM-8
RM-6.3
RM-6.1
RM-6.2
RM-14
RM-5
RM-6.4
Ray Mine
RM-15
RM-10
RM-16
RM-17
RM-18
Mineral Rd.
Ray Mine Access
Creek
Gila River
DRIPPING SPRING MOUNTAINS
R13E
R14E
T2S
T3S
KEY
SELECTED PARCELS
MINE
ACCESS ROUTE
Scale
0 3,000 6,000
N
RAY LAND EXCHANGE/PLAN AMENDMENT EIS
Pinal County, Arizona T.3S.R.13E., T.3S.,R.14E.
ACCESS ROUTES IN THE
RAY MINE AREA
FIGURE 3-14



KEY

- SELECTED PARCELS
- STREAMS
- NATIONAL FOREST BOUNDARY
- WILDERNESS BOUNDARY

ACCESS ROUTES

- IMPROVED
- UNIMPROVED
- TRAIL
- ACCESS ROUTE

CONTOUR INTERVAL 100 FEET

Scale
0 1/2 1
MILE

RAY LAND EXCHANGE/PLAN AMENDMENT EIS
Pinal County, Arizona T.3S.,R.12E., T.3S.,R.13E.

ACCESS ROUTES IN
COPPER BUTTE/BUCKEYE AREA

FIGURE 3-15

Rev: 5-6-98 | Date: 2-14-96 | Chk'd by: NS | Drwn by: KAD/JLJ | Drawing: ACCESS.DVG | File: D:\ACAD\94929\DRAWINGS | Proj. #: 86-94929

Copper Butte/Buckeye. The Copper Butte/Buckeye selected lands (CB-1 through CB-5) are physically accessible via Battle Axe Road, which begins at Highway 177, then branches into a network of unimproved roads (Figure 3-15). This road network, bounded to the north by White Canyon Wilderness, heads generally southwestward toward the Gila River and an area known to back country driving recreationists as the Coke Ovens (G. Keller, Arizona State Association of Four Wheel Drive Clubs, scoping letter #43a,1995). These roads provide access to the selected parcels and surrounding public lands for BLM administrative and public recreational purposes. Route segment #3 provides access to a trailhead for White Canyon Wilderness visitors located in Section 14, Township 3 South, Range 12 East (Figure 3-15).

A segment of the Arizona Trail, a 750-mile, non-motorized trail that traverses Arizona from Mexico to Utah, and a segment of the Great Western Trail, a trail stretching from Mexico to Canada, are proposed for the general region surrounding the Copper Butte/Buckeye area. ~~At this time, no specific routes have been proposed for these segments.~~ Planning for the trails will be addressed in separate environmental analysis by the BLM. Please see general response no.3 in Chapter 7 for a discussion of the Arizona Trail.

No physical limitations, such as locked gates, to public access in the Copper Butte/Buckeye area exist at this time; however, continued access is not guaranteed. Since Asarco owns the surface estate within Section 19 and Section 30 (Township 3 South, Range 13 East), the public could be denied physical access to those properties. The portion of Battle Axe Road within Sections 17 and 19 is encumbered by a Pinal County right-of-way (AZA 21389) (SWCA 1997c), but the segment that continues onto state land in Section 24 has no right-of-way nor any other legal instrument guaranteeing public access (S. McCafferty, Arizona State Land Department, pers. comm. 1996).

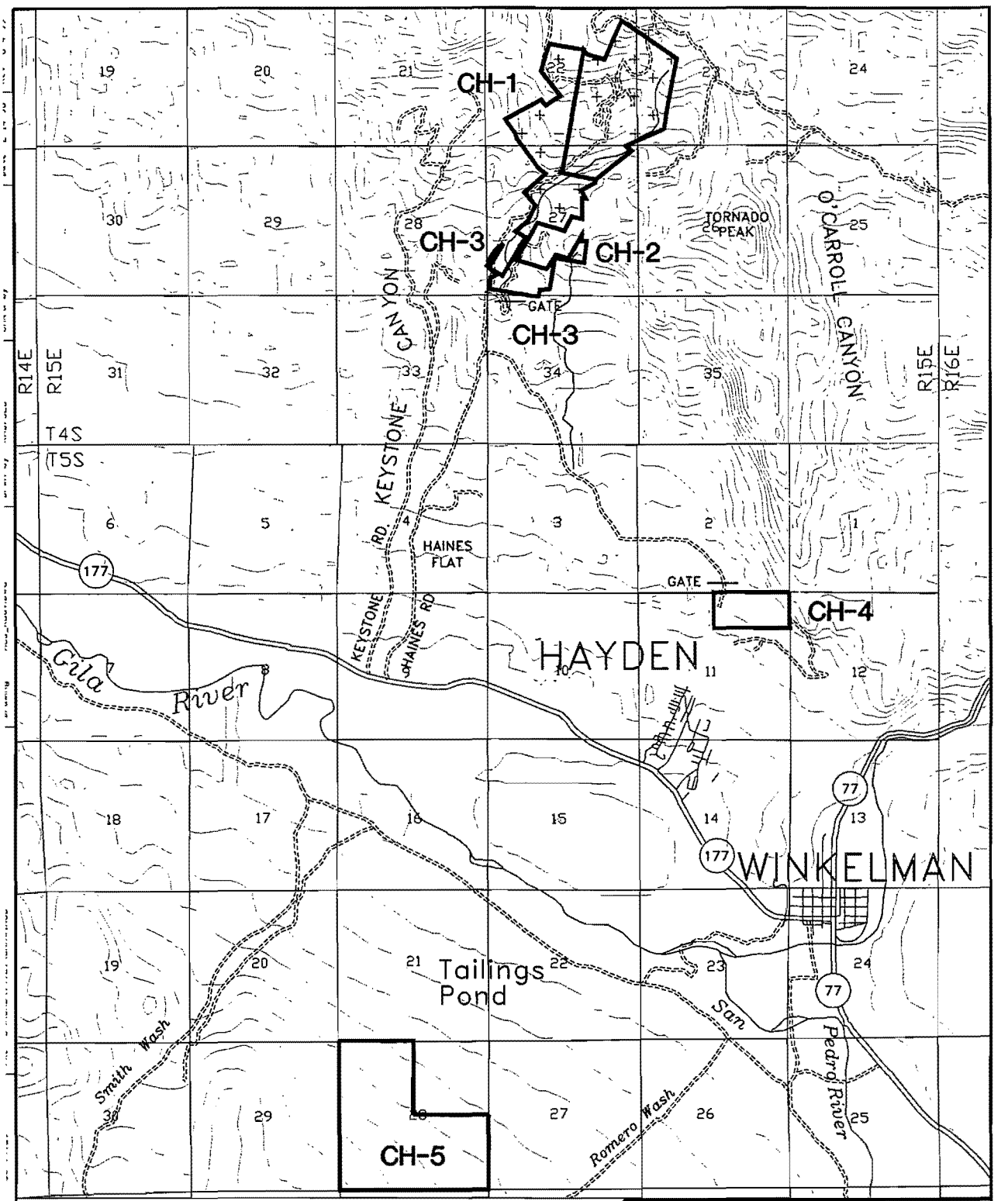
Chilito/Hayden. The Chilito/Hayden parcels are physically accessible via two unimproved roads, Keystone Road and Haines Road, that intersect State Route 177 approximately two miles northwest of Hayden (Figure 3-16). However, public access via Haines Road is controlled just east of parcel CH-1 by an Asarco gate (N. Gambell, Asarco, pers. comm. 1996), and Keystone Road becomes a trail as it approaches parcel CH-1. Public access to the selected parcels is controlled from the north by gates on the Christmas Mine property owned by Cyprus Amax Mineral Company (ibid). Public access to public lands adjacent to these selected lands is not dependent on roads or trails that pass through them. Parcel CH-4 is physically accessible by an unimproved road originating within the Asarco Hayden Operations area; however, public access is controlled by the Asarco Hayden Operations entry gate. An unimproved road that stems from the Haines Road provides public access up to an Asarco gate on the northern edge of parcel CH-4 (ibid).

Parcel CH-5 is adjacent to an existing tailings impoundment. It is not directly accessible by any roads or trails; however, unimproved roads that parallel Smith Wash and Romero Wash provide physical and public access within about one-half mile of the parcel.

Casa Grande. The selected parcels in the Casa Grande area are physically accessible via unimproved roads through SCJV-owned property adjacent to State Highway 84, which intersects Interstate 10 in Casa Grande (Figure 3-4). Physical access to the parcels is possible via these roads; however, since the surface estate of these selected lands is not in public ownership, public access is not authorized. Public access to public lands adjacent to the selected lands is not dependent on roads or trails that pass through selected lands.

3.2.4.3.2 Recreation

The selected parcels contain no developed recreational facilities. Recreational uses of this area are primarily dispersed activities, such as seasonal hunting, hiking, and back country driving. The selected land parcels in the Ray Complex area are within Arizona Game Fish Department (AGFD) hunt units 24a and 37b, which cover approximately 2,085 square miles. About 15 percent of the combined hunt units is private land, leaving approximately 1,770 square miles of state and federal land. The selected land parcels within the hunt units (excluding parcels in which Asarco owns the surface estate) cover approximately seven square miles (0.4 percent of the public land within the hunt unit). Visitor use on the two hunt units is estimated to be 11,500 visitors per year (A. Alexander, AGFD, pers. comm. 1996).


CH-1
CH-2
CH-3
CH-3
CH-4
CH-5
GATE
GATE
TORNADO PEAK
O'CARROLL CANYON
KEYSTONE CANYON
KEYSTONE RD.
HAINES RD.
HAINES FLAT
HAYDEN
WINKELMAN
Gila River
Tailings Pond
San Pedro River
Smith Wash
Romero Wash
R14E
R15E
R15E
R16E
T4S
T5S
177
77
Scale
0 1/2 1
MILE
CONTOUR INTERVAL 100 FEET
KEY
SELECTED PARCELS
ACCESS ROUTES
IMPROVED
UNIMPROVED
RAY LAND EXCHANGE/PLAN AMENDMENT EIS
Pinal And Gila County, Arizona T.4S.R.15E., T.5S.,R.15E.
ACCESS ROUTES IN THE CHILITO/HAYDEN AREA
FIGURE 3-16

Ray Complex. Given the limited public access and proximity to existing mining activities, little dispersed recreation takes place on selected lands in this area. Parcel RM-10, the Limestone Quarry parcel, is accessible for hiking or hunting from unimproved roads in the Dripping Springs Mountains; however, only minimal dispersed recreation use of this parcel has been observed (N. Gambell, Asarco, pers. comm. 1996).

Parcel RM-18 is accessible for hiking or hunting via a four-wheel drive road and trails that lead to Kane Springs Canyon in Sections 3, 4, and 8, T4S R14E; however, only minimal dispersed recreation has been observed (ibid).

Copper Butte/Buckeye. Although the Copper Butte/Buckeye parcels contain no developed recreational facilities, these parcels and the adjacent BLM, State, and Asarco lands are used for dispersed recreation. Recreationalists come from nearby communities, such as Kearny, Hayden, Florence, Superior, and Winkelman, and from the Phoenix and Tucson metropolitan areas. The primary recreational uses are back country driving, hiking, backpacking, camping, hunting, picnicking, and wildlife viewing.

Recreation in the Copper Butte/Buckeye area depends on public access via Battle Axe Road and the network of unimproved roads. This is a popular back country driving recreation area providing numerous loop trails and access to various scenic views. A water source known as the "artesian well," located on State land in Section 24, Township 3 South, Range 12 East, is a popular destination for recreationists. In addition, people travel through this area to reach other popular destinations such as the Coke Ovens and the Gila River.

No formal records exist of visitor use in the region of the Copper Butte/Buckeye selected land parcels except for the visitor log at the entrance to the White Canyon Wilderness (B. Gibson, BLM, pers. comm. 1996). BLM conducted an informal survey to estimate visitor use in the area in 1995 (Ragsdale 1995). The survey referenced an area of approximately 23,740 acres, which includes 22,890 acres of state and federal land (Figures 2-7 and 3-15). Table 3-18 provides a summary of the estimated visitors per year in each recreation category based on the survey. The visitor use estimate for hiking, backpacking, and camping is based on the informal survey and the visitor log at the entrance to the White Canyon Wilderness (B. Gibson, BLM, pers. comm. 1996). In addition, the AGFD estimates that about 325 hunters use the area, which is in AGFD hunt unit 37B, each year (Ragsdale 1995).

Table 3-18. Summary of BLM Visitor Estimates and Recreation Activities for the 23,740-acre Region, Including Copper Butte/Buckeye Selected Lands

Activity	Estimated Visitors/year	Description
Back country driving	936	Motorized vehicle travel in four-wheel-drive or high clearance vehicles along the Battle Axe Road, Segment #3, Segment #2, Segment #1, and along the network of undeveloped roads, both to travel through the area and to use loops within the Ray Complex area
Hiking, backpacking, and camping	337	Non-motorized foot travel in the Copper Butte/Buckeye area and into White Canyon Wilderness, via the BLM trailhead in Section 14, Township 3 South, Range 12E.
Hunting	325	225 big game hunters (deer and javelina) and 100 small game hunters (quail/dove) in Hunt unit 37B
Picnicking	250	Day-use of the artesian well located on State land in Section 24, Township 3 South, Range 12 East
Wildlife viewing	40	Day and evening use for wildlife viewing
TOTAL	**1,888**	

Source: J. Ragsdale 1995

Chilito/Hayden. Back country vehicle recreation and access to hunting opportunities are unlikely on the Chilito parcels because of existing gates or intervening private property that limit access to these lands. The Chilito/Hayden area selected parcels contain no developed recreational facilities, and no records exist of dispersed recreational use of the parcels (J. Ragsdale, BLM, pers. comm. 1996). Local citizens use the roads paralleling Smith Wash and Romero Wash for back country vehicle recreation and hunting access (ibid).

Casa Grande. The selected parcels in the Casa Grande area are retired agricultural land (Parcels CG-2 and CG-3) and disturbed desert (Parcel CG-1) (SWCA 1995a and USBM 1994). They contain no developed recreational facilities and offer no dispersed recreational opportunities

3.2.4.4 Rights-of-Way

Twelve authorized rights-of-way[28] (ROWs) occur on the selected lands (BLM 1997b). Four of the twelve ROWs are for roads, four are for electric power transmission lines, two are for communication lines, one is for a natural gas pipeline and one is for a tramroad. These ROWs are summarized in Table 3-19 and depicted on Figures 3-17, 3-18 and 3-19. More detailed descriptions are provided below.

Ray Complex. Two ROWs cross Parcel RM-17 in the Ray Mine area (Figure 3-17). One is an electric power transmission line granted to Salt River Project Public Lands Division (AZA 2146), and the other is a ROW for the Arizona Highway Department (AZAR 024241).

Copper Butte/Buckeye. Eight ROWs cross the Copper Butte/Buckeye selected lands, all of which cross parcel CB-2 (Figure 3-18). Three are for electric power transmission lines (one was granted to Salt River Project Public Lands Division [AZPHX 086749], and two were granted to Arizona Public Service Company [AZA 8778, AZAR 033336]). Two highway ROWs were granted to the Arizona Highway Department (AZAR 04524, AZAR 04525) (Figure 3-18), and one county road ROW was granted to the Pinal County Board of Supervisors (AZA 21389). The remaining two ROWs include a natural gas pipeline ROW granted to Southwest Gas Corporation (AZAR 02148) and a communication line ROW granted to US West Communications Inc. (AZA 6541).

Chilito/Hayden. Two ROWs cross the Chilito/Hayden selected lands, an aerial communication line ROW granted to US West Communications, Inc. (AZA 24678) crosses parcels CH-1, CH-2, and CH-3, and a tramroad ROW granted to Asarco Inc. (AZA 1000) crosses parcel CH-4 (Figure 3-19).

Casa Grande Area. No ROWs cross the Casa Grande area selected lands.

3.2.4.5 Grazing

Ray Complex. Three range allotments encompass portions of the selected lands within the Ray Complex: the Sleeping Beauty Mountain, Rafter Six, and Troy Allotments (SWCA 1997j, BLM 1997c) (Table 3-20, Figures 3-20 and 3-21). Existing conditions for each allotment, selected lands acreage within allotment, stocking capacity in Animal Unit Months (AUMs) associated with BLM allotment and the selected lands portion of the allotment, and registered range improvements) are provided in Table 3-21 and discussed in general below. The locations of range improvements within selected lands are mapped on Figures 3-20, and 3-21.

- **Sleeping Beauty Mountain Allotment** The Sleeping Beauty Mountain Allotment includes approximately 742 acres of Parcels RM-1, RM-2, RM-3, RM-4, RM-5, RM-6, RM-12, and RM-13, which support approximately 100 AUMs. Parcels RM-7, RM-8 and RM-9 are also within this allotment; however, the surface estate of these parcels is not administered by the BLM, therefore

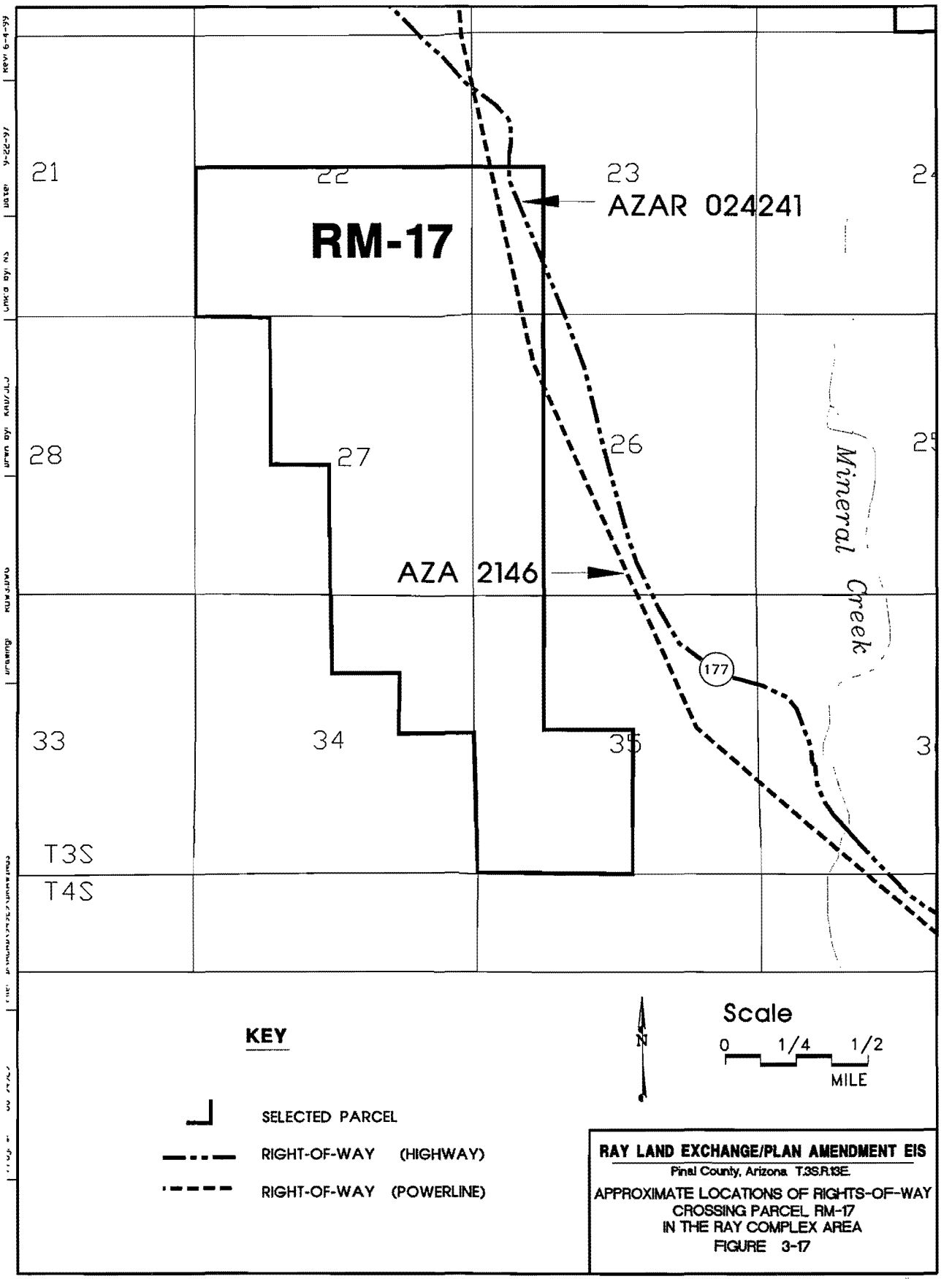
[28] Rights-of-way authorize a specific use or activity on public land for specific periods of time. Common ROWs include pipelines, roadways, and electric transmission lines. Each ROW contains individual terms and conditions and grants specific land use privileges to the holder.

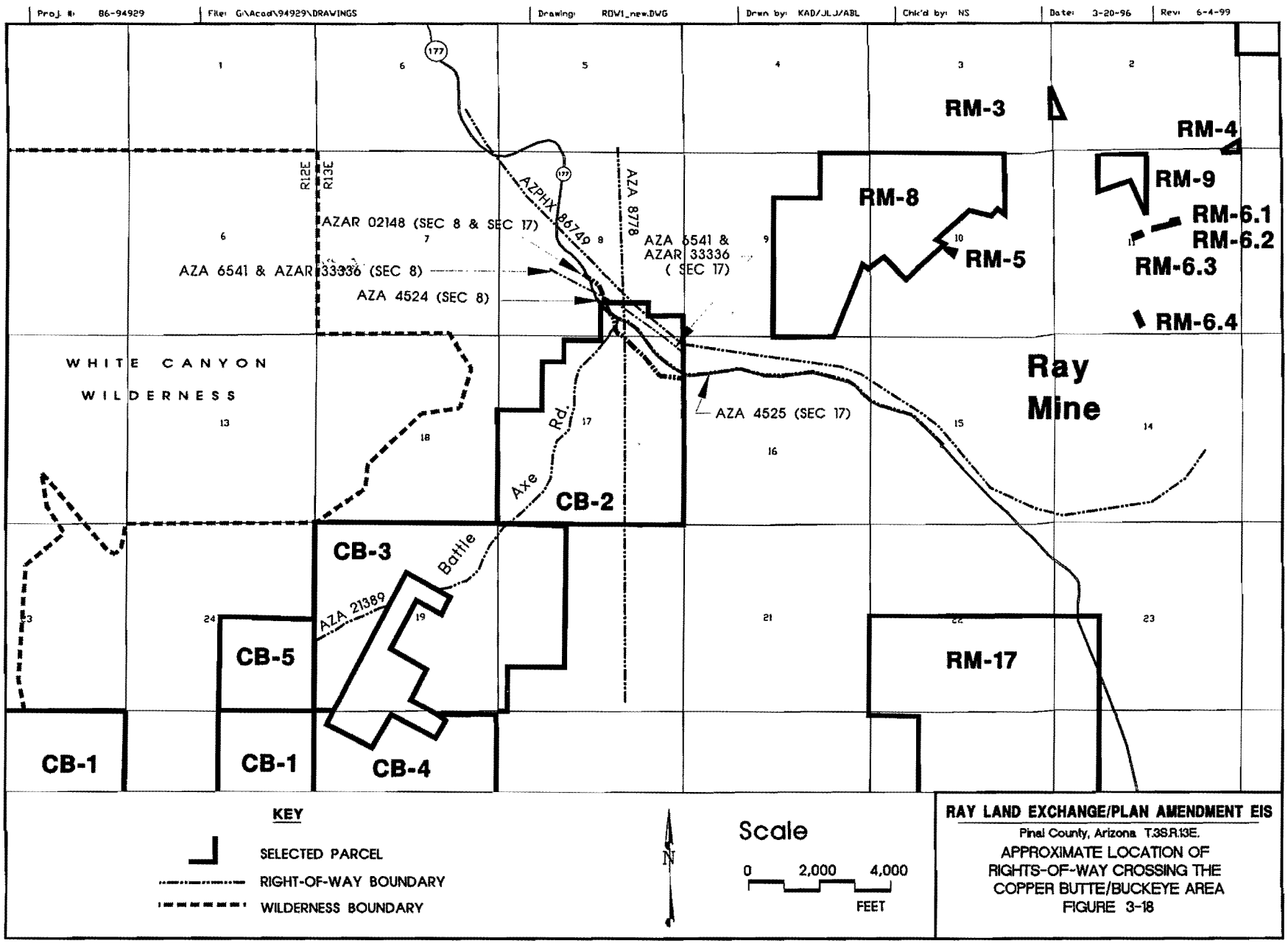
Table 3-19. Rights-of-way on the Selected Lands Parcels

Parcel	Type of Right-of-way (ROW #)	Holder	Width (feet)	Location
CHILITO/HAYDEN				
CH-1, CH-2, CH-3	Communication Line; (AZA 24678)	US West Communications, Inc.	20	SE¼ SW¼,W½SE¼, sec. 22; NE¼NW¼, W½SW¼, sec. 27, T. 4 S., R. 15 E.
CH-4	Tramroad; (AZA 1000)	ASARCO, Inc.	100	NW¼NE¼, sec. 11, T. 5 S., R. 15 E.
COPPER BUTTE/BUCKEYE				
CB-2	Highways; (AZAR 04524, AZAR 04525)	Arizona Highway Department	132	S½SE¼, sec. 8;sec. 17, NE¼NE¼, T.3 S, R. 13 E.
CB-2	Natural gas pipeline;(AZAR 02148)	Southwest Gas Corp.	20	SW¼SE¼, sec. 8; N½NE¼, sec. 17, T. 3 S., R. 13 E.
CB-2	Electric Line;(AZA 8778)	Arizona Public Service Co.	200	SW¼SE¼, sec. 8, E½W½E½, sec 17, T. 3 S., R. 13 E.
CB-2	Communication Line; (AZA 6541)	US West Communications Inc.	20	S½SE¼, sec. 8, NE¼NE¼NE¼, sec 17, T. 3 S., R. 13 E.
CB-2, CB-3	County Road; (AZA 21389)	Pinal County Board of Supervisors	100	SW¼ SE¼, sec 8 ;NW¼NE¼, E½W½, SW¼SW¼, sec. 17; lots 3, 4, 5, 7, NE¼NE¼, sec. 19; NW¼NW¼, sec. 20, T. 3 S., R.13 E.
CB-2	12 KV Electric Line; (AZAR 033336)	Arizona Public Service Company	40	S½ SE¼, sec. 8; NE¼NE¼NE¼, sec 17, T.3 S., R.13 E.
CB-2	Electric Line; (AZPHX 086749)	Salt River Project Public Lands Division	130	S½SE¼, sec. 8, NE¼NE¼NE¼, sec. 17, T. 3 S., R. 13 E.
RAY COMPLEX				
RM-17	Electric Line; (AZA 2146)	Salt River Project Public Lands Division	130	W½SW¼, sec 23, W½NW¼, sec 26, T. 3 S., R. 13 E.
RM-17	Highway; (AZAR 024241)	Arizona Highway Department	400	W½SW¼, sec 23, T.3 S., R. 13 E.

Table 3-20. Total Acres of Selected Lands (Surface Estate Only) Within Each Grazing Allotment

Selected Lands	LEN	Battle Axe	Sleeping Beauty Mountain	Rafter Six	Troy	Hidalgo	Smith Wash
Ray Complex	0	0	742	3,873	400	0	0
Copper Butte/Buckeye	800	1,627	0	0	0	0	0
Chilito/Hayden	0	0	0	0	0	274	480
Casa Grande	0	0	0	0	0	0	0
TOTAL	**800**	**1,627**	**742**	**3,873**	**400**	**274**	**480**


21
22
23
RM-17
AZAR 024241
28
27
26
Mineral Creek
AZA 2146
177
33
34
35
T3S
T4S
KEY
SELECTED PARCEL
RIGHT-OF-WAY (HIGHWAY)
RIGHT-OF-WAY (POWERLINE)
N
Scale
0 1/4 1/2
MILE
RAY LAND EXCHANGE/PLAN AMENDMENT EIS
Pinal County, Arizona T.3S.R.13E.
APPROXIMATE LOCATIONS OF RIGHTS-OF-WAY
CROSSING PARCEL RM-17
IN THE RAY COMPLEX AREA
FIGURE 3-17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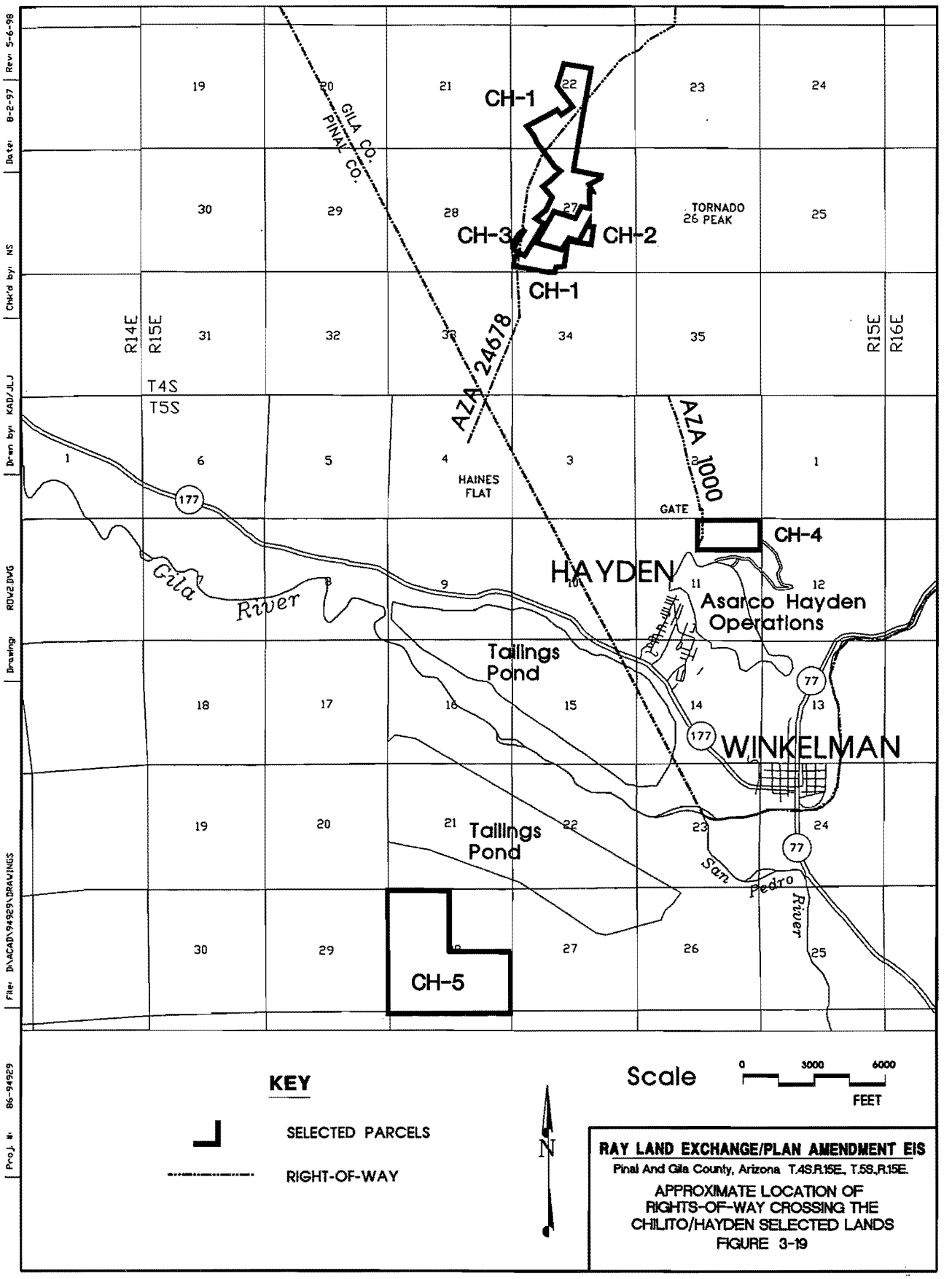
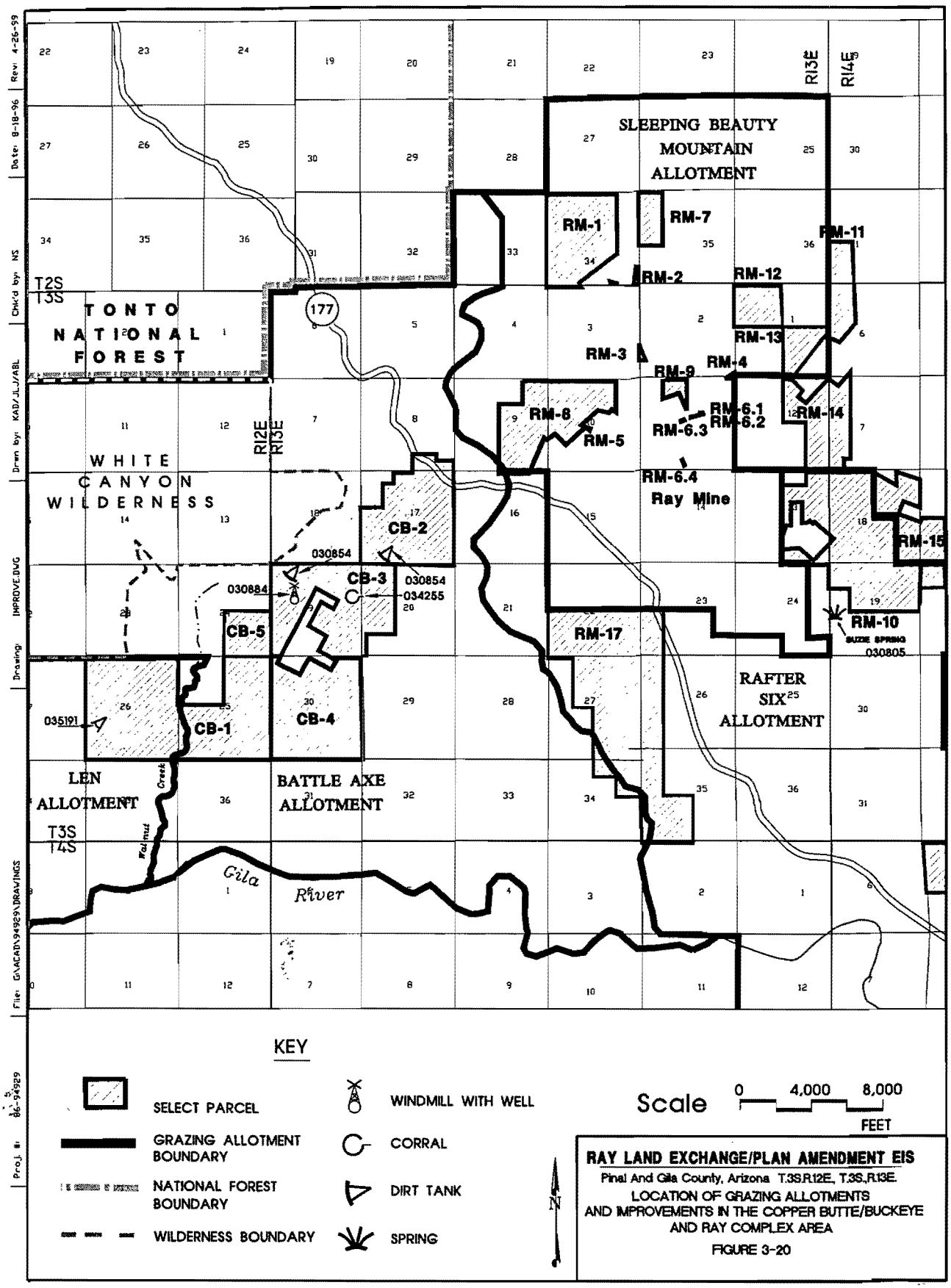
Drawing: RDW1_new.DWG
Drawn by: KAD/JLJ/ABL
Chk'd by: NS
Date: 3-20-96
Revi 6-4-99
RM-3
RM-4
RM-9
RM-8
RM-6.1
RM-6.2
RM-5
RM-6.3
RM-6.4
Ray Mine
WHITE CANYON WILDERNESS
AZAR 02148 (SEC 8 & SEC 17)
AZA 6541 & AZAR 33336 (SEC 8)
AZA 4524 (SEC 8)
AZPHX 86749
AZA 8778
AZA 6541 & AZAR 33336 (SEC 17)
AZA 4525 (SEC 17)
R12E
R13E
Axe
Rd.
Battle
AZA 21389
CB-2
CB-3
CB-5
CB-1
CB-1
CB-4
RM-17
KEY
SELECTED PARCEL
RIGHT-OF-WAY BOUNDARY
WILDERNESS BOUNDARY
N
Scale
0 2,000 4,000
FEET
RAY LAND EXCHANGE/PLAN AMENDMENT EIS
Pinal County, Arizona T.3S.R.13E.
APPROXIMATE LOCATION OF RIGHTS-OF-WAY CROSSING THE COPPER BUTTE/BUCKEYE AREA
FIGURE 3-18


CH-1
CH-2
CH-3
CH-4
CH-5
GILA CO.
PINAL CO.
AZA 24678
AZA 1000
TORNADO PEAK
HAINES FLAT
GATE
HAYDEN
Asarco Hayden Operations
Tailings Pond
Tailings Pond
WINKELMAN
Gila River
San Pedro River
R14E
R15E
R15E
R16E
T4S
T5S
177
77
KEY
SELECTED PARCELS
RIGHT-OF-WAY
N
Scale
0
3000
6000
FEET
RAY LAND EXCHANGE/PLAN AMENDMENT EIS
Pinal And Gila County, Arizona T.4S.R.15E., T.5S.,R.15E.
APPROXIMATE LOCATION OF RIGHTS-OF-WAY CROSSING THE CHILITO/HAYDEN SELECTED LANDS
FIGURE 3-19


SLEEPING BEAUTY MOUNTAIN ALLOTMENT
TONTO NATIONAL FOREST
WHITE CANYON WILDERNESS
RAFTER SIX ALLOTMENT
LEN ALLOTMENT
BATTLE AXE ALLOTMENT
Gila River
Walnut Creek
RM-1
RM-2
RM-3
RM-4
RM-5
RM-6.1
RM-6.2
RM-6.3
RM-6.4
Ray Mine
RM-7
RM-8
RM-9
RM-10
RM-11
RM-12
RM-13
RM-14
RM-15
RM-17
CB-1
CB-2
CB-3
CB-4
CB-5
030854
034255
030884
035191
030805
T2S
T3S
T3S
T4S
R12E
R13E
R13E
R14E
177
KEY
SELECT PARCEL
GRAZING ALLOTMENT BOUNDARY
NATIONAL FOREST BOUNDARY
WILDERNESS BOUNDARY
WINDMILL WITH WELL
CORRAL
DIRT TANK
SPRING
Scale
0
4,000
8,000
FEET
N
RAY LAND EXCHANGE/PLAN AMENDMENT EIS
Pinal And Gila County, Arizona T.3S.R.12E., T.3S.,R.13E.
LOCATION OF GRAZING ALLOTMENTS AND IMPROVEMENTS IN THE COPPER BUTTE/BUCKEYE AND RAY COMPLEX AREA
FIGURE 3-20

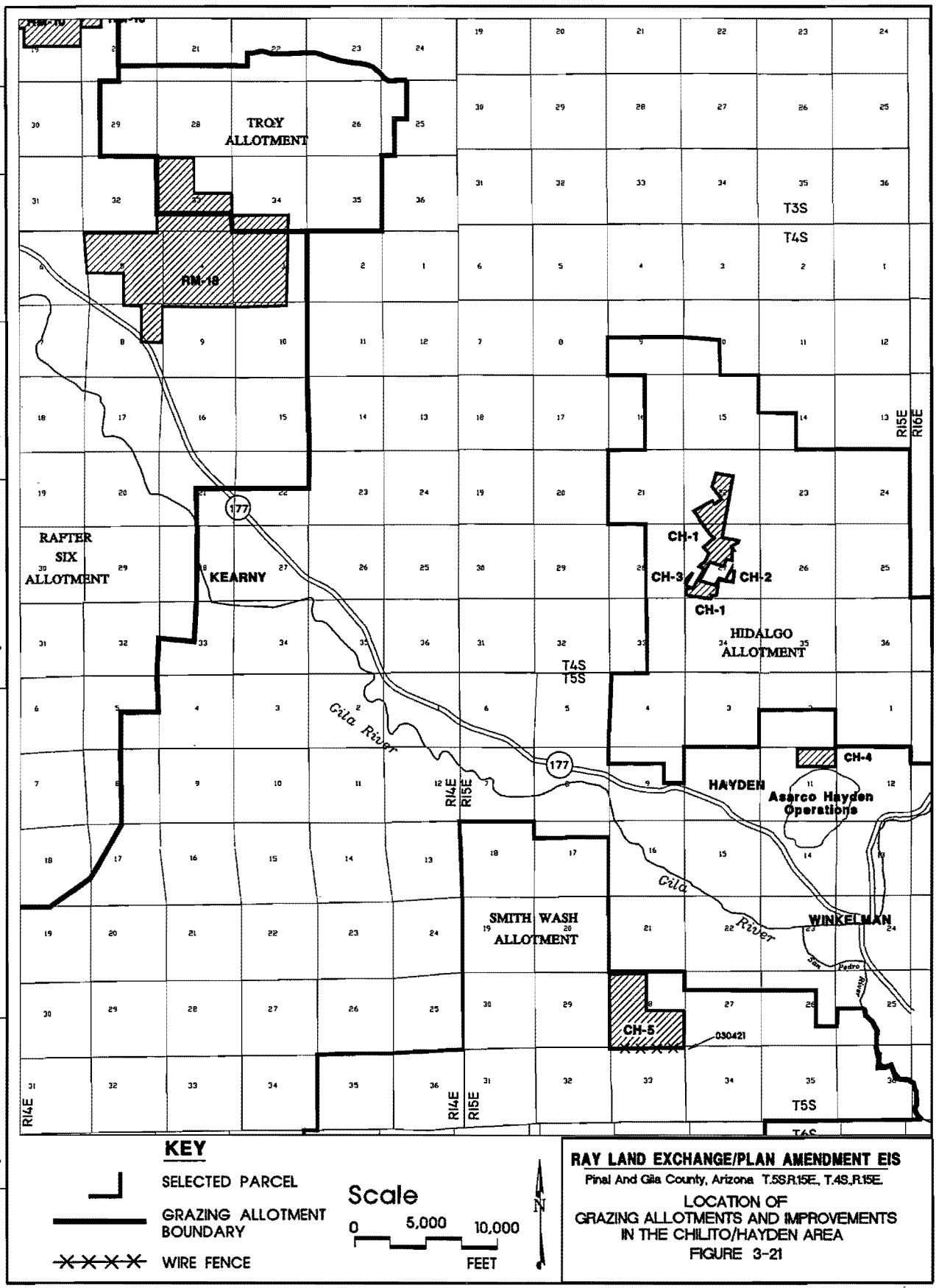

TROY ALLOTMENT
RM-18
RAFTER SIX ALLOTMENT
KEARNY
177
CH-1
CH-3
CH-2
CH-1
HIDALGO ALLOTMENT
T3S
T4S
T5S
R15E
R16E
R14E
R15E
Gila River
CH-4
HAYDEN
Asarco Hayden Operations
SMITH WASH ALLOTMENT
WINKELMAN
CH-5
030421
KEY
SELECTED PARCEL
GRAZING ALLOTMENT BOUNDARY
WIRE FENCE
Scale
0 5,000 10,000
FEET
N
RAY LAND EXCHANGE/PLAN AMENDMENT EIS
Pinal And Gila County, Arizona T.5S.R.15E., T.4S.,R.15E.
LOCATION OF GRAZING ALLOTMENTS AND IMPROVEMENTS IN THE CHILITO/HAYDEN AREA
FIGURE 3-21

Table 3-21. Existing Conditions for BLM-administered Portions of Range Allotments within the Selected Lands in the Ray Complex, Copper Butte/Buckeye and Chilito/Hayden Areas

ALLOTMENT INFORMATION		ALLOTMENT SIZE			STOCKING CAPACITY			RANGE IMPROVEMENTS
Allotment Name (Selected parcels located within that allotment)	Operator	Total acreage of BLM-administered land in allotment	Total acreage of selected lands in allotment	Selected lands as percent of total BLM acreage in allotment	Total AUMs for BLM-administered land in allotment	Total AUMs for BLM-administered selected lands	Selected lands AUMs as percent of total AUMs in allotment	Registered improvements within BLM administered selected lands (Improvement number)
LEN (CB-1)	Don Lann	25,552	800	3%	2,956	93	3%	1. Rincon Reservoir (035191)
Smith Wash (CH-5)	V. & D. Haverfield	5,890	480	8%	552	45	8%	1. Fence (030421)
Battle Axe (CB-1 to CB-4)	~~Scott R. Jackson~~ Battle Axe L.L.C	21,491	1,627	8%	2,256	171	8%	1. Earthen StockTank #2 (030854) 2. Earthen StockTank #1 (030854) 3. England Well (030884) 4. Copper Butte Corral & Trough (034255)
Sleeping Beauty Mountain (RM-1 to RM-9)	ASARCO Inc.	893	742	83%	120	100	83%	None
Hidalgo (CH-1 to CH-3)	ASARCO Inc.	12,847	274	2%	979	21	2%	None
Rafter Six (RM-10)	James & Mary Dunn c/o Bill A. Dunn Jr.	15,962	3,902	24%	1,664	407	24%	1. Suzie Spring (030805)
Troy (RM-18)	~~Kevin & Lori Kirby~~ Carlos Amado	4,367	400	9%	883	81	9%	None
	TOTAL	**87,004**	**8,225**	**9%**	**9,410**	**918**	**10%**	**7 Improvements**

grazing on these lands is not discussed. The selected lands in this allotment contain no range improvements registered with the BLM.

- **Rafter Six Allotment** The Rafter Six Allotment includes approximately 3,902 acres of Parcels RM-10, RM-16, RM-17 and RM-18, which support approximately 407 AUMs. The selected lands in this allotment contain one range improvement registered with the BLM: Suzie Spring (registration number 030805).

- **Troy Allotment** The Troy Allotment includes approximately 400 acres of selected lands (Parcel RM-18), which supports approximately 81 AUMs. The selected lands contain no range improvements registered with the BLM.

Copper Butte/Buckeye. Two range allotments encompass portions of the selected lands within the Copper Butte/Buckeye area: the LEN and Battle Axe Allotments (SWCA 1997j) (Figure 3-20).

- **LEN Allotment** The LEN Allotment includes approximately 800 acres of Parcels CB-2, CB-3 and portions of Parcel CB-1, which support approximately 93 AUMs. The surface estate of Parcels CB-4 and CB-5 is not administered by the BLM, therefore grazing on these lands is not discussed. The selected lands in this allotment contain one range improvement registered with the BLM: the Rincon Reservoir (registration number 035191).

- **Battle Axe Allotment** The Battle Axe Allotment includes approximately 1,627 acres of Parcels CB-1, CB-2 and CB-3, which support approximately 171 AUMs. The selected lands in this allotment contain four range improvements registered with the BLM: Earthen Stock Tank #1 (registration number 030854), Earthen Stock Tank #2 (registration number 030854), Well with Windmill (registration number 030884), and Copper Butte Corral and Trough (registration number 034255).

Chilito/Hayden. Two range allotments encompass portions of the selected lands within the Chilito/Hayden area: the Hidalgo and Smith Wash Allotments (SWCA 1997j) (Figure 3-21). Parcel CH-4, totaling approximately 80 acres, is not part of any BLM range allotment.

- **Hidalgo Allotment** The Hidalgo Allotment includes approximately 274 acres of Parcels CH-1, CH-2, and CH-3, which support approximately 21 AUMs. The selected lands in this allotment contain no range improvements registered with the BLM Smith Wash Allotment.

- **Smith Wash Allotment** The Smith Wash Allotment includes approximately 480 acres of Parcel CH-5, which support approximately 45 AUMs. The selected lands in this allotment contain one range improvement registered with the BLM: a fence (registration number 030421).

Casa Grande. No grazing is authorized on any of the Casa Grande parcels.

3.2.4.6 Visual Quality

Visual quality analysis focused on a 35-square-mile study area encompassing the Copper Butte/Buckeye selected lands (CB-1, CB-2, CB-3, CB-4 and CB-5), White Canyon Wilderness, and Tonto National Forest land adjacent to the Wilderness (SWCA 1997i). A Geographic Information System (GIS) modeling technique called seen-unseen analysis was used to determine the location of potential visual quality impacts resulting from foreseeable mining uses. The seen-unseen analysis utilized thirty meter resolution digital elevation model (DEM) data derived from the U.S. Geological Survey (USGS) 1:24,000 scale North Butte, Grayback, Mineral Mountain, and Teapot Mountain quadrangles. The DEM data was then converted into a grid-based IDRISI (Clark University, 1994) GIS database.

Ray Complex. The Ray Mine selected land parcels are within or adjacent to the existing Ray Mine site, which is highly modified from its natural state.

Copper Butte/Buckeye. The Copper Butte/Buckeye selected lands have been subjected to past exploratory mining activity and a number of primitive roads; however, areas outside of these disturbances are essentially natural. Within the White Canyon Wilderness, scenic quality is free from modifications in the bottom of White Canyon and other arroyos and washes. Scenic quality outside the canyon bottoms is diminished because of the noticeable roads and mines outside the wilderness (BLM 1986, Figure 4-2).

Chilito/Hayden. Parcels CH-1, CH-2, and CH-3 have no existing mining. Several roads and disturbances associated with past mining activities occur throughout the parcels. The parcels are adjacent to Asarco private land used for mining copper and/or silica flux.

Parcel CH-4 is located approximately one quarter mile north of the Hayden smelter. Portions are disturbed by mining related activity, including a small refuse dump site.

Parcel CH-5 has no existing mining disturbance. An existing tailings impoundment is located about one quarter of a mile north of the parcel.

Casa Grande. The Casa Grande selected land parcels are retired agricultural land. The selected lands and the surrounding lands have been extensively modified from their natural state.

3.2.4.7 Wilderness/Special Management Areas

Special Management Areas are congressionally or administratively designated geographic areas within a BLM field office requiring explicit management to achieve BLM's special objectives. Such areas include Wildernesses, Areas of Critical Environmental Concern, National Conservation Areas, Riparian National Conservation Areas, and Wild and Scenic Rivers. Two Special Management Areas—White Canyon Wilderness and the White Canyon Area of Critical Environmental Concern (ACEC)—are located in close proximity to selected lands in the Copper Butte/Buckeye area. No National Conservation Areas, Riparian National Conservation Areas, or designated or potentially eligible segments of the National Wild and Scenic Rivers System are present on or near any selected lands.

The Copper Butte/Buckeye selected lands are immediately adjacent to the White Canyon ACEC, designated by BLM in 1988 and further delineated in 1998 (Figure 1-1). BLM took this action in recognition of the area's outstanding scenic, wildlife, and cultural values after the area was recommended as "not suitable" for wilderness designation in the Phoenix Wilderness Final Environmental Impact Statement (BLM 1986). The White Canyon ACEC is closed to off-highway vehicle use outside of existing roads and trails, which are prohibited under the current Phoenix Resource Management Plan, as amended in 1998 (BLM 1988, Appendix I). No selected lands are located within the ACEC, and the ACEC designation does not affect BLM management of the selected lands.

The Copper Butte area selected land parcels (CB-1through CB-5) are located adjacent to or in close proximity to the White Canyon Wilderness (Figure 1-1). Other Wildernesses within a 20-mile radius of the Ray Complex area are the Needles Eye Wilderness, about 10 miles northeast of Hayden on the Gila River; the Aravaipa Canyon Wilderness, about 16 miles southeast of Hayden; and the Superstition Wilderness, about 13 miles north of the Ray Mine parcels. White Canyon Wilderness was established by the Arizona Desert Wilderness Act of 1990 (Public Law 101-628). The Arizona Desert Wilderness Act clearly focuses wilderness management on lands within boundaries of designated wildernesses, as stated in the following excerpt from the Act:

> *The Congress does not intend for the designation of wilderness areas in the State of Arizona pursuant to this title to lead to the creation of protective perimeters or buffer zones around any such wilderness area. The fact that nonwilderness activities or uses can be seen or heard from areas within a wilderness shall not, of itself, preclude such activities or uses up to the boundary of the wilderness area* (PL 101-628 Section 101(d)).

The Wilderness Act of 1964 (PL 88-577) defined wilderness areas to be "...land retaining its primeval character...which is protected and managed so as to preserve its natural conditions...has outstanding

opportunities for solitude or a primitive and unconfined type of recreation...and...may also contain other features of ...historical value."

The White Canyon Wilderness encompasses approximately 5,800 acres in the rugged portions of the Mineral and Teapot Mountains, with the Rincon, a well-known topographical feature, located in the southern portion of the wilderness. The southern boundary is defined by a road segment off Battle Axe Road, which originates at Highway 177. The eastern boundary consists of a portion of Walnut Creek, and the northern boundary is defined by the Tonto National Forest. Existing conditions in White Canyon Wilderness regarding its wilderness values are described in the *Phoenix Final Wilderness Environmental Impact Statement* (BLM 1986) and summarized below:

- **Naturalness.** The major topographic features of White Canyon Wilderness are White Canyon; its numerous side canyons; and the Rincon, a large escarpment over looking the southern outwash plain. Human imprints include livestock developments and unmaintained roads. Human imprints ~~out~~inside the wilderness include one unmaintained road (~~the Arizona Trail route~~ former mining route) and one livestock development (a well in the eastern portion of the Wilderness) which affect the natural character of White Canyon Wilderness~~; however, visitors can escape these impacts within the walls of White Canyon and its side canyons (BLM 1986)~~. Portions of Battle Axe Road within the selected lands are visible from high elevations within White Canyon Wilderness.

- **Solitude.** White Canyon Wilderness offers outstanding opportunities for solitude within White Canyon and its tributaries. Opportunities for solitude outside the canyons are less than outstanding because of roads and mines outside White Canyon Wilderness (BLM 1986).

- **Primitive and Unconfined Recreation.** Primitive recreation opportunities are confined by the relatively small size of White Canyon Wilderness. Visitors access White Canyon Wilderness from the north, through Tonto National Forest, and from the south via Battle Axe Road and an undeveloped trailhead located in Township 3 South, Range 12 East, Section 14 (B. Gibson, Planning and Environmental Specialist, BLM Phoenix, pers. comm. 1996). Most visitors spend one or two days in the Wilderness (BLM 1986). Hiking and hunting are the dominant activities, with the majority of use occurring within the first two miles of the southern trailhead. Trails within the central portion of the wilderness, and along the western portion, are popular as well (ibid.). White Canyon Wilderness visitors are from the Phoenix metropolitan area (56%); the Tucson metropolitan area (23%); and the immediate Kearny, Winkelman, Superior, and Hayden area (10%). The remaining 11percent are from other areas. A total of 337 visitors registered at the southern trailhead between April 1995 and May 1996 (Gibson, Planning and Environmental Specialist, BLM Phoenix, pers. comm., 1996).

- **Special Features.** Special features of White Canyon Wilderness include scenic values resulting from the rugged terrain, cliffs, colorful rock formations, variety of vegetation, and several significant cultural resource sites (BLM 1986).

3.2.5 Cultural Resources

3.2.5.1 Archaeological Resources

Eight archaeological surveys, which provided complete coverage of the selected lands (SWCA 1997d), recorded 80 archaeological sites. In assessing the eligibility of these sites for nomination to the National Register of Historic Places (NRHP), the BLM concluded that additional information was needed to evaluate the information potential and the NRHP eligibility of 39 of the 80 sites. During late 1998, these sites were investigated in accordance with a research design and testing plan approved by the BLM (SWCA 1998e). The investigations involved additional mapping, limited test excavations, and artifact analyses. The investigations revealed that one site was a natural feature, rather than an archaeological site, and hat another site was outside the boundaries of the proposed land exchange. Therefore, the selected lands include 78 archaeological sites, ~~including 57 prehistoric or Native American sites, 19 historic period sites, and 4 sites containing both Native American and historic components. Twenty of these sites are regarded~~

~~as eligible for the National Register; 21 sites are regarded as not eligible because they have little potential to yield further important information; and 39 sites need to be tested to gain information needed to determine eligibility~~ Mitigation through data recovery has been completed at eight sites in conjunction with proposed transfers from the Arizona State Lands Department (ASLD) to private ownership.

Forty sites are regarded as eligible for the NRHP for their information potential. Thirty sites are regarded as not eligible, for their lack of integrity or limited potential to yield important information. Eight sites are regarded as no longer eligible for their information potential, due to the completion of data recovery investigations in conjunction with completed or proposed transfers from state to private ownership. No sites are regarded as eligible under criteria other than information potential. National Register evaluations are summarized in Appendix D. The BLM will make final eligibility determinations after the SHPO and Native American tribes have been given the opportunity to comment.

The selected lands include 56 sites on BLM-administered surface; 11 sites on private land owned by Asarco, with federal mineral estate, and 11 sites on land administered by the Arizona State Land Department (ASLD), with federal mineral estate. There are 52 prehistoric sites that appear to have been affiliated primarily with the Hohokam tradition, and 15 historic period sites related to mining and ranching. There are 11 "multi-component" sites that contain evidence of use during both prehistoric and historic times. The test investigations revealed several multi-component sites previously regarded as dating to a single time period.

The Native American sites include limited activity sites, such as resource procurement and processing areas; habitation and camp sites, some of which may contain structures; agricultural areas; rock art sites; and rockshelters that may contain perishable materials. Several prehistoric villages existed along the Gila River, south of the selected lands, and people from these villages may have used the adjacent upland zones for hunting and gathering activities. While the sites appear to date to the prehistoric period, some may contain materials from later Native American occupations.

The historic period sites consist primarily of mining-related features including mines, roads, and campsites. The camps probably were occupied by miners or prospectors, although one appears to have been used by cowboys involved in ranching activities.

The culture history of the Middle Gila region involves five periods of occupation. During the Paleoindian period (10,000-8500 B.C.), which bridged the transition from Late Pleistocene (Ice Age) to Holocene environments, people depended on the hunting of wild animals and the gathering of wild foods. The hunted animals included mammoths and other "megafauna" that became extinct at the end of the Pleistocene. Little evidence of a Paleoindian presence has been recorded near the Asarco project area.

During the Archaic period (8,500 B.C.-A.D. 300), groups exploited a variety of plant and animal foods, following a "subsistence round" that involved seasonal movement to the locations of desired resources. As a result, archaeological remains of this period include campsites and areas where resources were obtained or processed for later use. Archaic sites have been recorded in the vicinity of the selected lands, and some of the sites in the project area may contain materials dating to this period.

The Hohokam culture of the Salt-Gila Basin can be divided into the pre-Classic period (A.D. 300-1150) and the Classic period (A.D. 1150-1500). The Hohokam settled in villages and practiced irrigation agriculture and other farming techniques, but wild resources remained an important source of food. The pre-Classic period is marked by the appearance of pottery and houses built over shallow pits. The Classic period saw changes in architecture, pottery production, and other cultural characteristics. Hohokam villages of both periods existed along the Gila River, and many of the sites on the selected lands may have been occupied or used by the Hohokam.

The territories of three Native American tribes included the area of the selected lands during the protohistoric and early historic periods (A.D. 1500-1850). The San Carlos subtribe of the Western Apache, the Yavapai, and the Pima (Akimel O'odham) depended on varying mixes of agricultural products and wild resources. No known villages were located in the project area or along the Gila River to the south. No Native American sites in the project area have been clearly identified as dating to the protohistoric or historic periods.

Spanish and American military expeditions, trappers, and prospectors traveled through the area during the early historic period. In 1697, Eusebio Francisco Kino traveled along the Gila River from its confluence with the San Pedro River to the Casa Grande (Debowski et al. 1976). Mining played a significant role in the settlement of the region during the late historic period (A.D. 1850-1940). Mining claims were established at the future location of the Ray Mine in the early 1870s, and the Ray Copper Company was incorporated in 1884. It was not, however, until the 1910s that mining technology had developed to the point that the relatively low-grade copper ores of the Ray Mine could be profitably exploited. The Ray Mine operated as an underground mine into the 1950s (Dunning 1966: 83, 116, 185-186, 266-267).

Ray Complex. Field surveys identified ~~44~~ 43 archaeological sites on five of the selected lands parcels within the Ray Complex (see Appendix D). ~~Ten~~ Twenty-two of these sites have been determined or are regarded as eligible for inclusion on the National Register of Historic Places (NRHP), for their potential to yield important information relating to prehistory and history.[29] The BLM has determined that ~~six~~ 21 of the sites are not eligible (see Appendix D). ~~because they have been fully recorded and lack either integrity or the potential to yield important information.~~ Five of the sites are located on parcels of State trust land with underlying federal minerals. ~~In addition, 28 sites need further investigation to determine their eligibility. These investigations will be conducted during mid-1998, in accordance with a testing plan approved by the BLM.~~ The State Historic Preservation Office (SHPO) and Native American tribes have been ~~and will be~~ given the opportunity to comment on eligibility determinations.

Copper Butte/Buckeye. Field surveys identified ~~36~~ 35 archaeological sites on the five selected lands parcels within this area (see Appendix D). ~~Ten~~ Eighteen of these sites have been determined or are regarded as eligible for inclusion on the NRHP, for their potential to yield important information relating to prehistory and history. The BLM has determined that ~~15~~ 17 of the sites are not eligible~~, and that 11 sites need further investigation to determine their eligibility.~~ Also, eight of the ~~15~~ 17 sites have been determined as no longer eligible due to the completion of data recovery undertaken in conjunction with completed or proposed transfers from State to private ownership. The Copper Butte/Buckeye parcels include 18 sites on BLM-administered land, 11 sites on private land owned by Asarco, and 6 sites on State trust land in Section 24. ~~These investigations will be conducted, in accordance with a testing plan, in mid-1998.~~ The SHPO and Native American tribes have been ~~and will be given~~ the opportunity to comment on the eligibility determinations.

Chilito/Hayden. No archaeological sites were found during surveys on any of the Chilito/Hayden parcels.

Casa Grande. No archaeological sites were found during surveys on any of the Casa Grande selected lands.

3.2.5.2 Places of Traditional Importance to Native Americans

Identification of places of traditional importance to Native Americans is being conducted in accordance with the National Historic Preservation Act, as amended in 1992, the American Indian Religious Freedom Act, and Executive Order 13007. Tribal consultations conducted by the BLM in 1995 and 1997 did not identify any locations of importance. A literature review has been completed to identify tribal occupation or uses of the selected lands and potential locations of traditional cultural importance (SWCA 1998d). Early in 1998, the tribes listed in Table 3-22 were sent a copy of the literature review and the archaeological synthesis report (SWCA 1997d). The two tribes in bold print below responded by the DEIS printing, however, additional work needed to identify places of traditional importance will be determined in consultation with interested tribes and prior to the Final EIS. Places of traditional importance identified through tribal consultations is being evaluated to determine if they are traditional cultural properties eligible for the National Register of Historic Places in accordance with National Register Bulletin 38.

[29] According to 36 CFR 60, to be eligible for listing on the National Register, a site must be a tangible property; must retain integrity of location, design, setting, materials, workmanship, feeling, and association; and must demonstrate significance under at least one of four National Register criteria. The 40 eligible sites on the selected lands possess the qualities of tangibility and integrity and are thought to demonstrate significance under criterion (d), defined as the potential to yield information important in prehistory or history.

Table 3-22. Tribal Governments Contacted for the Ray Land Exchange/Plan Amendment

Ak-Chin Indian Community Council	**San Carlos Apache Tribe**
Colorado River Indian Tribes	Tohono O'Odham Nation
Fort Mohave Tribe	Tonto Apache Tribe
Gila River Indian Community	White Mountain Apache Tribe
Pueblo of Zuni	**Yavapai-Apache Tribe**
Hualapai Tribe	Yavapai-Prescott Tribe
Hopi Tribe	
Ft. McDowell Mohave-Apache Tribal Council	
Salt River Pima-Maricopa Community	

Since 1995, BLM has consulted with 15 tribes who may have an interest in cultural resources on the selected lands. During April and May 1999, BLM conducted field tours of archaeological sites, in response to tribal requests for representatives of the Tohono O'odham, Ak-Chin and Hopi Tribes. The San Carlos and White Mountain Apache tribes have expressed an interest in field visits as well. Additional tours will be conducted in response to requests. During the field visits, three types of places were identified as being of interest to the three tribes: rock shelters and caves with deposits, rock art sites, and specific archaeological features, some of which are on Asarco and State surfaces. As of June 1999, none of the tribes consulted had identified any TCPs as defined by Bulletin 38[30]; however, tribal consultations will continue regarding National Register eligibility and treatment of sites.

3.2.6 Socioeconomic Resources

Socioeconomic issues raised during the scoping process included potential impacts of the land exchange on population and demographics, minority populations, local employment and income, the local tax base, and the regional economy. These issues are addressed below under the categories of Population and Demographics and Local and Regional Economies. Information for this section was provided by a socioeconomic analysis prepared by the Western Economic Analysis Center (WEAC 1997a,b,c,d).

Socioeconomic issues are analyzed according to three geographic areas which contain distinct groups of selected parcels. These areas are: the Ray Complex, Copper Butte/Buckeye area, the Chilito/Hayden area, and the Casa Grande area.

- The Ray Complex and Copper Butte/Buckeye parcels are located in eastern Pinal County, adjacent to the Ray Mine (RM-1 through RM-18, and CB-1 through CB-5, Figure 1-1). Communities in the area (within 30 miles of the parcels) include Kearny, Superior, Mammoth, Dudleyville, Oracle, and San Manuel. Nearly all of the selected parcels of this area lie within the Ray Unified School District of Pinal County.

- The Chilito/Hayden area include the Chilito/Hayden Parcels in Pinal and Gila Counties (CH-1 through CH-5, Figure 1-1). Communities within the vicinity of these parcels include Hayden, Winkelman, Globe, Miami, Claypool, Central Heights, and Midland City. Primary and secondary education in the Chilito/Hayden area is provided by the Hayden-Winkelman Unified School District.

[30] Bulletin 38 defines a TCP as a property that may be "eligible for inclusion in the National Register because of its association with cultural practices or beliefs of a living community that a) are rooted in that community's history, and b) are important in maintaining the continuing cultural identity of the community" (Parker and King 1994).

- The Casa Grande area includes the Casa Grande Parcels in western Pinal County (CG-1, CG-2, CG-3, Figure 1-1). Communities in the Casa Grande area (within 30 miles of the parcels) include Casa Grande, Florence, Apache Junction, Eloy, and Coolidge. The Gila Indian Reservation also lies within 30 miles on the selected parcels. Primary and secondary education in the immediate area of the parcels is provided by the Casa Grande and Stanfield Elementary School Districts and the Casa Grande Union High School District[31].

3.2.6.1 Population and Demographics

Ray Complex, Copper Butte/Buckeye. In 1990, the population of Pinal County was 116,379. About 15 percent (almost 18,000 people) of Pinal County's population lived in the eastern part of the county, within 30 miles of Asarco's existing copper producing operation near Kearny (United States Bureau of the Census). That population included people living in the communities presented in Table 3-23.

Table 3-23. Populations in 1990 of Pinal County Communities Within a 30 Mile Radius of the Ray Complex

Community	1990 Population
Town of Kearny	2,262
Town of Superior	3,468
Town of Mammoth	1,845
Dudleyville	1,356
Oracle	3,043
San Manuel	4,009
TOTAL	**15,983**

Source: WEAC, 1997b, based on data from the United States Bureau of the

Since the 1990 Census, the population of Pinal County is estimated to have grown by almost 24 percent. A large part of this recent growth has occurred in the western part of the county in the Casa Grande and Apache Junction areas, not in the mining communities of eastern Pinal County.

Chilito/Hayden. In 1990, the population of Gila County was 40,216 persons. About a third of the county population (13,000 people) lived in Globe and Miami and the unincorporated communities between them. Less than five percent of the county's population (1,800 people) lived in the Hayden-Winkelman area (United States Bureau of the Census). Part of the San Carlos Apache Reservation also lies within a 30 mile radius of the selected lands, which had an estimated population of 7,294 in 1990[32].

Since the 1990 Census, the population of Gila County is estimated to have grown by almost 13 percent. In contrast, the population in the Hayden-Winkelman area has declined slightly since the 1990 Census. By mid-1996, the populations of Hayden and Winkelman had dropped to less than three percent of the county's total population.

[31] Other schools districts which service the area include the Apache Junction Unified School District, the Coolidge Unified School District, the Eloy Elementary School District, the J.O. Combs Elementary School District, the Maricopa Unified School District, the Picacho Elementary School District, the Sacaton Elementary School District, and the Toltec Elementary School District.

[32] Total enrollment for the San Carlos Apaches in 1995 was 10,500.

Casa Grande. The population and demographics of Pinal County is described above under the Ray Complex area. About 75 percent of the population of Pinal County (almost 85,000 people) lived in the western part of the county, within 30 miles of Santa Cruz Joint Venture's proposed copper producing operations near Casa Grande. That population included people living in the communities of Casa Grande (19,082 persons), Florence (7,510 persons), Apache Junction (17,931 persons), Gila River Indian Reservation (6,772 persons).

3.2.6.1.1 Minority and Low-Income Populations/Environmental Justice

On February 11, 1994, Executive Order 12898 "Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations" (Order) was published in the Federal Register (59 F.R. 7629). The order requires federal agencies to identify and address disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.

Ray Complex, Copper Butte/Buckeye. In 1990, 74 percent of the Pinal County population was over 16 years of age and available for participation in the work force. Hispanics comprise the single largest ethnic minority group in Pinal County at 25 percent. The next largest racial or ethnic minority group consisted of American Indians, who made up seven percent of the Pinal County population over 16 years of age[33]. Those classified as Black made up nearly three percent of the Pinal County over 16 years of age[34]. Other racial minorities made up only one half of one percent of Pinal County's population over 16 years of age.

Low-income populations are determined by the average residential property value (ARPV) per student within a given school district and is an indicator for average personal income within that district (WEAC 1997b). For the Ray Unified School District, in which the selected lands are located, the ARPV in 1996 amounted to $84,919 per elementary school student. This average is 18 percent below the average for Pinal County. In the Superior Unified School District, the ARPV in 1996 was 28 percent below the county average. The ARPV for the Mammoth San Manuel Unified School District was a little more than half of the county average.

BLM has assumed that the community of Silver Creek may be a low-income, minority community even though it is a collection of residences. The community lies 1/4 to 1/2 mile from the Battle Axe Road (Figure 4-1). The community is composed of twenty-six residents and is a mixture of minorities, non-minorities, and low-income residents. Many residents are currently employed or were employed by the mine because of its proximity. Please see Chapter 7 for a detailed discussion of project impacts and public outreach to this community.

Chilito/Hayden. In 1990, more than three-quarters (76%) of the Gila County population was over 16 years of age and available for participation in the labor force. The largest single ethnic minority group (17%) was described as being of Hispanic origin. The next largest racial or ethnic group consisted of American Indians, who made up approximately 11 percent of the Gila County population over 16 years of age[35]. Other racial minorities made up only one half of one percent of Gila County's population over 16 years of age in 1990.

The Hayden-Winkelman area stands out as a relatively low personal income area despite the relatively high wages paid by the copper industry in the region. In the Hayden-Winkelman Unified School District, in which the selected lands are located, the ARPV in 1996 amounted to $32,760 per elementary school student, one-fifth the average for the entire county ($152,253).

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[33] A substantial number of this minority group live on the Gila River Indian Reservation and the Tohono O'odham Indian Reservation, both in close proximity to the Casa Grande area.

[34] Many residents of this minority group live in the agricultural area of western Pinal County, particularly in and around Coolidge and Eloy.

[35] A substantial number of American Indians in Gila County reside on the San Carlos Reservation, a portion of which lies within a 30 mile radius of the selected lands.

Casa Grande. In the Casa Grande Elementary School District, where the selected lands are located, the ARPV of residential property in 1996 amounted to $87, 813 per elementary school student, approximately 15 percent below the county-wide average. In the Stanfield Elementary School District, the ARPV in 1996 amounted to $32,558 per elementary school student, less than half the county ARPV average of $103,361. The relatively high rate of unemployment on the Gila River Indian Reservation also indicates the presence of a significant number of low-income households on the Reservation. Unemployment on the reservation in 1996 averaged 22.8 percent, almost four times the countywide rate (employment is discussed in more detail in the following section).

3.2.6.2 Local and Regional Economy

3.2.6.2.1 Employment

Ray Complex, Copper Butte/Buckeye. In 1996, the civilian labor force in Pinal County averaged 56,630 people, while the number of employed averaged 53,310 people and an average unemployment rate of 5.9 percent. The highest unemployment rate for Eastern Pinal County was in Superior of 6.4 percent and the lowest was in Kearny of 2.8 percent. The average unemployment rate for Eastern Pinal County was 4.2 percent, well below the county average. For the three labor markets closest to the Ray Complex and Copper Butte/Buckeye area (Kearny, Superior, and Dudleyville) the combined unemployment rate in 1996 averaged 5.0 percent.

Although the structure of employment for Pinal County is relatively diverse, the residents of eastern Pinal County, and particularly the residents of the Kearny-Superior-Dudleyville area, are heavily dependent upon copper mining for employment opportunities. Mining employs about 9.8 percent of the total employed in Pinal County (Table 3-24).

Table 3-24. Employment by Sector in Pinal County, 1996 (Non-Agricultural)

Employment Sector	Number of Persons	Percent of Total
Government	12,600	29.4%
Services	9,700	22.7%
Wholesale and Retail Trade	8,200	19.2%
Manufacturing	5,100	11.9%
Mining	4,200	9.8%
Construction	1,500	3.5%
Transportation and Public Utilities	800	1.9%
Finance, Insurance, and Real Estate	700	1.6%
TOTAL	**42,800**	**100.0%**

Source: Source: Arizona Department of Commerce 1997

The ethnic composition of the Pinal County labor force and unemployed is shown in Table 3-25. Of the 1,620 persons employed by the Ray Mine Complex, 50% describe themselves as white, 48% describe themselves as Hispanic, 0.8% describe themselves as Native American, and 0.12% describe themselves as black. Of the 13 Native Americans employed by the Ray Mine Complex, 10 live on the San Carlos Apache Indian Reservation.

Table 3-25. Ethnic Composition of the Total Labor Force and Unemployed in Pinal County, 1993

Ethnic Group	Percent of Total Labor Force	Percent of Total Unemployed[36]
White, not Hispanic	63%	44%
Hispanic	28%	35%
American Indian	6%	18%
Black	2%	n/a
Other racial minorities	less than 1%	less than 3%

Source: WEAC, 1997b

Chilito/Hayden. In 1996, the civilian labor force in Gila County averaged 18,890, while the number of employed averaged 17,490 — resulting in an average unemployment of 7.7 percent. Data for the Hayden-Winkelman labor market are not available, but are estimated to be comparable to the Dudleyville labor market. Unemployment in Dudleyville in 1996 averaged 6.1 percent, reflecting demand for labor from the copper industry in the area. The residents of southernmost Gila County, particularly the residents of the Hayden-Winkelman area, are heavily dependent upon copper mining for employment opportunities.

The percentage of various ethnic groups among the total labor force and the unemployed of Gila County in 1993 is shown in Table 3-26.

Table 3-26. Ethnic Composition of the Total Labor Force, Employed Labor Force, and Unemployed in Gila County, 1993

Ethnic Group	Percent of Total Labor Force	Percent of Employed Labor Force	Percent of Unemployed
White, not Hispanic	72%	74%	57%
Hispanic	17%	17%	22%
American Indian	10%	8%	21%
Other racial minorities	0.5%	0.6%	none

Source: WEAC, 1997c

Casa Grande. Employment information, including the total labor force and unemployment rates for Pinal County, is discussed under the section on the Ray Complex area. In the immediate Casa Grande labor market, the unemployment rate in 1996 averaged only 4.7 percent, reflecting the strong demand for workers from manufacturing, trade, and service activities and the proximity to the larger job market of the Phoenix area. Unemployment rates in the other nearby labor markets are shown in Table 3-26.

The highest was in Gila River Indian Reservation at 22.8 percent and the lowest was in Apache Junction at 4.1 percent, the unemployment rate in 1996 averaged 6.9 percent. For the two local labor markets closest to the proposed Santa Cruz Joint Venture operation (the Casa Grande and Gila River Indian Reservation), the combined unemployment rate in 1996 averaged 8.9 percent.

[36] Approximately 3,320 persons were unemployed in Pinal County in 1993. The percentages presented in this column demonstrate the racial/ethnic composition of these unemployed persons.

Information on the percent of ethnic minorities in the labor force and on personal income in Pinal County are discussed above under the section on the Ray Complex area.

3.2.6.2.2 Income

Ray Complex, Copper Butte/Buckeye. The total amount of personal income received by Pinal County residents in 1995 approached $2.1 billion. About two-thirds of the total personal income received by residents of Pinal County in 1995 came in the form of wages, salaries, and profits earned from current productive effort. In the eastern part of the county, most of the earned income came from mining. In the western part of the county, much of the earned income came from agriculture, trade, and services. Sources of personal income for Pinal County residents in 1995 is shown in Table 3-27.

Table 3-27. Sources of Basic Personal Income by Residents of Pinal County, 1995

Source of Basic Income	Amount of Income	Percent of Basic Income
Retirement and Welfare	$468,743,000	41.4%
Mining	$222,519,000	19.6%
Agriculture, Forestry, and Related	$185,169,000	16.4%
State Government Employment	$148,685,000	13.1%
Manufacturing for Export	$52,494,000	4.6%
Federal Government Employment	$33,208,000	2.9%
Tourism	$22,391,000	2.0%
Total	**$1,133,209,000**	**100%**

Source: WEAC, 1997b

Chilito/Hayden. The total amount of personal income received by those living in Gila County exceeded $700 million in 1995, the latest year for which reliable estimates are available. A little more than half (53%) of personal income received by Gila County residents came in the form of wages, salaries, and profits earned from current productive effort. Residents of the Globe-Miami area and the Hayden-Winkelman area received most of the earned income from mining. Sources of personal income for Gila County residents in 1995 is shown in Table 3-28.

Casa Grande. Income information for Pinal County is discussed above under the section on the Ray Complex area.

3.2.6.2.3 Taxes

Ray Complex, Copper Butte/Buckeye. Pinal County gets part of its revenues from property taxes and part from the disbursement of severance, sales, and other taxes from the State of Arizona. In the fiscal year ended June 30, 1996, Pinal County received $10,232,326 from the state government through such revenue disbursements. That same year, Pinal County levied $28,044,695 in county property taxes.

Table 3-28. Sources of Basic Personal Income by Residents of Gila County, 1995

Source of Basic Income	Amount of Income	Percent of Basic Income
Retirement and Welfare	$228,306,000	61.5%
Copper Production	$96,080,000	25.9%
Federal Government Employment	$22,470,000	6.0%
State Government Employment	$15,734,000	4.2%
Agriculture, Forestry, and Related	$4,444,000	1.2%
Tourism	$4,349,000	1.2%
Total	**$371,383,000**	**100%**

Source: WEAC, 1997c

Additionally, Pinal County receives some revenues from the Federal Government as "payments in lieu of taxes" (PILT) to offset the limited property tax base that results from federal government land ownership. These PILT are established, and limited in the total amount payable to any one county, by a complex set of formulas involving the county's population, acreage of certain classes of federal lands, amounts of other federal payments to the county, and other variables. In the 1995-1996 fiscal year, the Federal Government paid Pinal County $376,259 in PILT.

In the 1995-1996 fiscal year, the Ray Unified School District had total revenues of $4,405,972. Of that total, $3,022,258 (69%) came from local sources, mostly through property taxes. Another $1,102,873 (25%) came from state aid, mostly through the direct distribution of sales and severance tax revenues collected by the State of Arizona. The remaining revenue came from federal aid (5%) and special appropriations from Pinal County (1%). Mining property currently forms almost 80 percent of the private property base of the Ray Unified School District.

Chilito/Hayden. In the fiscal year ended June 30, 1996, Gila County received $4,548,098 from the state government through revenue disbursements. That same year, Gila County levied $10,588,296 in county property taxes. Additionally, Gila County receives PILT for lands that the Federal Government owns. In the 1995-1996 fiscal year, the Federal Government payed Gila County $760,687 in PILT.

In the 1995-1996 fiscal year, the Hayden-Winkelman Unified School District had total revenues of $3,323,236. Of that total, $2,344,224 (70%) came from local sources, mostly the property tax. Another $818,208 (25%) came from state aid, mostly through the direct distribution of sales and severance tax revenues. The remaining revenue came from federal aid (3%) and special appropriations from Pinal County (2%). Mining forms almost 88 percent of the property tax base of the Hayden-Winkelman Unified School District.

Casa Grande. The tax base for Pinal County, including PILT, is discussed under the Ray Complex area. In the 1995-1996 fiscal year, the Casa Grande Union High School and the Casa Grande and Stanfield elementary school districts had total revenues of $39,070,368. Of that total, $14,098,325 (36%) came from local sources, mostly the property tax. Another $21,180,635 (54%) came from state aid, mostly through the direct distribution of sales and severance tax revenues. The remaining revenue came from federal aid (8%) and special appropriations from Pinal County (2%). Mining property currently comprises less than one percent of the property tax base of the Casa Grande Union High School District. Because SCJV owns the surface estates for the selected lands in this area, it currently pays $382,700 (in 1996 dollars) per year in property taxes to Pinal County[37].

[37] Specifically, Asarco would pay a county property tax of $123,800 a school property tax of $208,100 a community college property tax of $42,600 and other property taxes of $8,200 (in 1996 dollars) per year.

3.3 EXISTING CONDITIONS OF THE OFFERED LANDS

3.3.1 Biological Resources

This section is divided into the following subsections: upland plant communities, riparian plant communities, wildlife/wildlife habitats, and special status species.

3.3.1.1 Upland Plant Communities

The offered lands lie predominantly within the Sonoran desertscrub (Arizona Upland subdivision) and Mojave desertscrub, biotic communities (Brown 1994). Small portions lie within the Great Basin Conifer Woodland, and Interior Chaparral biotic communities (Brown 1994).

Gila River Parcel at Cochran. Sonoran desertscrub vegetation occurs on alluvial soils and pediment in upland portions of this parcel. Common plant species include saguaro, foothill paloverde, jojoba, mesquite, triangle-leaf bursage (*Ambrosia deltoidea*), creosotebush (*Larrea tridentata*), and several species of cholla and prickly pear cacti (*Opuntia* spp.). Much of the upland on the east side was burned by a recent fire and portions of this site have been disturbed through past human activities.

Sacramento Valley Parcel. The majority of this parcel is within the Mojave desertscrub biome. Common and conspicuous plant species include creosotebush, white bursage (*Ambrosia dumosa*), green brittlebush (*Encelia frutescens*), ocotillo, Mojave yucca (*Yucca schidigera*), beavertail cactus (*Opuntia basilaris*), catclaw, shrubby buckwheat (*Eriogonum fasciculatum*), and desert trumpet (*E. inflatum*). Upland plants are generally widely spaced and few are more than 1.5 meters tall (SWCA 1997l).

Knisely Ranch Parcels. Upland habitat consists of elements of Great Basin Conifer Woodland, Interior Chaparral and Mojave desertscrub biotic communities. Uplands on Parcel #1 are dominated by single-leaf pinyon (*Pinus californiarum* ssp. *fallax*) and blackbrush (*Coleogyne ramosissima*), however, Yerba santa (*Eriodyctyon augustifolium*) is co-dominant on portions of the Parcel. Blackbrush is the dominant upland species on Parcel #2. The northern upland slopes on Parcel #3 are dominated by single-leaf pinyon, Mojave yucca, and agave (*Agave mckelveyana)*, whereas southern slopes are dominated by snakeweed, Mojave yucca, and buckhorn cholla (*Opuntia acanthocarpa*). The Knisely Ranch parcels may contain potential habitat for the striped horsebrush (*Tetradymia argyraea)*, a BLM sensitive plant species, which is known to occur in the Cerbat Mountains (SWCA 1997l).

Tomlin Parcels. Upland habitat consists of elements of Sonoran desertscrub and Interior Chaparral. In general, uplands on north-facing slopes are variously dominated by foothill paloverde, shrubby buckwheat, California juniper (*Juniperus californicus*), and crucifixion thorn (*Canotia holacantha*). Uplands on south facing slopes are variously dominated by brittlebush, foothill paloverde, and snakeweed. Other species present in the upland habitats include saguaro, barrel cactus (*Ferocactus cylindraceus*), cholla and prickly pear cacti, ocotillo, and creosotebush (SWCA 1997l).

McCracken Mountains Parcels. Sonoran desertscrub, Mojave desertscrub and Interior Chaparral biotic communities compose the upland habitat on these parcels. Uplands on north-facing slopes are variously dominated by foothill paloverde, shrubby buckwheat, California juniper, and crucifixion thorn. Uplands on the south facing slopes are variously dominated by saguaro, brittlebush, foothill paloverde, and snakeweed. Joshua trees (*Yucca brevifolia*) are widely scattered over the parcel. Other species in upland habitats include barrel cactus, cholla and prickly pear cacti, ocotillo, and creosotebush (SWCA 1997l).

3.3.1.2 Riparian Plant Communities

Three riparian biotic communities were identified on the offered lands: Xeroriparian Scrub, Hydroriparian Scrub and wetland.

Gila River Parcel at Cochran. Riparian habitat occurs within the floodplain of the Gila River and covers approximately 146 acres (Kingsley 1996) (46%) of the parcel. Overstory vegetation in this mesquite dominated community is very dense. Common associates include tamarisk (*Tamarix ramosissima*), seep willow, blue paloverde (*Cercidium floridum*), and desert hackberry (*Celtis spinosa*). Understory vegetation is dominated by low-growing grasses and forbs. Along the river's edge are scattered Fremont cottonwood (*Populus fremontii*), Goodding willow, and cattail (*Typha* sp.) (SWCA 1997l).

Sacramento Valley Parcel. Riparian plant communities include Xeroriparian Scrub. Vegetation includes ironwood, catclaw, foothill paloverde, jojoba, and creosotebush (SWCA 1997l).

Knisely Ranch Parcels. No riparian or wetland habitats were observed on parcels #1 and #2. Pine Canyon in parcel #3 is dominated by mesquite and catclaw (SWCA 1997l).

Tomlin Parcels. Xeroriparian habitats here are variously dominated by mesquite, catclaw, tamarisk, and blue paloverde. Common xeroriparian associates include canyon ragweed (*Ambrosia ambrosioides*), burrobush (*Hymenoclea monogyra*), wolfberry (*Lycium* sp.), sweetbush (*Bebbia juncea*), and seep willow. Hydroriparian Scrub along the banks of the Big Sandy River, on Tomlin Parcel #4 is dominated by seep willow, arrow weed (*Pluchea sericea*), tamarisk, and mesquite. Wetland habitat on the flooded sand-flats along the Big Sandy River is dominated by emergent cattail, rush (Juncus), and sedge (*Carex* sp.). The Kingman Field Office has prioritized riparian and wetland areas under its jurisdiction for implementation of management strategies designed to restore and maintain these areas to functional conditions. The Big Sandy River was ranked fifth of 24 riparian areas in the resource area (SWCA 1997l). Riparian habitat within Tomlin Parcel #4 totals ~~6.1~~ 25.8 acres (pers. comm., ~~Karen Simms~~ Rebecca Peck, Wildlife Biologist, BLM,~~1998~~ 1999).

McCracken Mountains Parcels. Common xeroriparian associates include burrobush, wolfberry, sweetbush, mesquite and catclaw (SWCA 1997l).

3.3.1.3 Wildlife/Wildlife Habitats

Wildlife presence or abundance in any given area is dependent on a variety of habitat attributes including vegetation structure, plant species composition, and presence of certain physical features (BLM 1986). Sixty percent of all wildlife in Arizona depend upon riparian and aquatic habitats (BLM 1991). These habitats support biologically diverse, abundant plant communities and supply food, water and shelter for wildlife. in Arizona, 28 priority species, require riparian/aquatic areas while only 0.5 percent of land in Arizona provides riparian/aquatic habitat (BLM 1991). These habitats are therefore important to wildlife out of proportion to their spatial extent.

Riparian habitats are present on only a small proportion of the offered lands parcels but they support a large proportion of the biological diversity of the area and are a focal point for wildlife species in a desert environment. The variety of upland habitats including Sonoran desertscrub, Mohave deserstcrub, Great Basin Conifer Woodland and Interior Chaparral on the various offered lands parcels provide a wide array of habitat features for wildlife.

The following section describes the wildlife present in the various habitats on each offered lands parcel group. This section deals only with general wildlife and wildlife habitats. Special status, and Threatened/Endangered (T&E) species will be addressed in Sections 3.3.1.4 and 3.3.1.5.

Gila River Parcel at Cochran. This parcel provides important wintering and breeding bird habitats and serves as an important analog of former conditions along much of the Gila River (Rea 1983). One amphibian species, 33 birds, and 9 mammals were observed during three field visits to the parcel (SWCA 1997l). No reptiles were observed during these visits, but several species of snakes and lizards are likely to occur. No desert tortoise or evidence of their occurrence was observed on the east side of the parcel (the west side was not visited due to restricted access). However, tortoises are known from areas nearby and may occur on the parcel. No fishes were observed, but AGFD sampled for fishes on the Gila River at

Cochran using backpack electroshock methods in 1995 and 1996. Eight species of fish, three native and five non-native, were captured during these sampling efforts.

Sacramento Valley Parcel. Although no wildlife was directly observed during a field visit to the Sacramento Valley Parcel (SWCA 1997l), the parcel provides habitat for a variety of desert dwelling species. Absence of wildlife observations is attributable to the timing of the visit which coincided with inclement winter weather.

The Black Mountains provide the largest contiguous block of desert bighorn sheep (*Ovis canadensis mexicana*) habitat in Arizona and are considered critical to the continued existence of the species in Arizona (SWCA 1997l). The Sacramento Valley parcel is adjacent to high value bighorn sheep habitat in the Black Mountains (ibid).

Knisely Ranch Parcels. The Knisely Ranch Parcels provide habitat for a variety of wildlife species. Species observed during a field visit include: Gambel's quail (*Callipepla gambelii*), northern flicker (*Colaptes auratus*), scrub jay (*Aphelocoma coerulescens*), cactus wren (*Campylorhynchus brunneicapillus*), phainopepla (*Phainopepla nitens*), sage sparrow (*Amphispiza belli*), chipping sparrow (*Spizella passerina*), dark-eyed junco (*Junco hyemalis*), black-tailed jackrabbit (*Lepus californicus*), coyote (*Canis latrans*), and mule deer (*Odecoileus hemionus*) (SWCA 1997l).

Tomlin Parcels. The Tomlin Parcels provide habitat for a variety of wildlife species. Mule deer *(Odecoileus hemionus)* scat and tracks were observed on a field visit to the parcel (SWCA 1997l). Birds observed on the parcel include: ladder-backed woodpecker *(Picoides scalaris)*, northern flicker *(Colaptes auratus)*, Gila woodpecker *(Melanerpes uropugialis)*, mallard *(Anas platyrhynchos)*, northern pintail *(Anas acuta)*, red-tailed hawk *(Buteo jamaicensis)*, gambel's quail (Callipepla gambelli), scrub jay *(Aphelocoma coerulescens)*, common raven *(Corvus corax)* and several species of song birds (SWCA 1997l).

McCracken Mountains Parcels. The McCracken Mountains Parcels provide habitat for a variety of desert dwelling wildlife species. Coyote *(Canis latrans)*, three squirrel species, white-throated woodrat *(Neotoma albigula)*, red-tailed hawk *(Buteo jamaicensis)* and five bird species were observed on a field visit to the parcel (SWCA 1997l). Two AGFD wildlife water guzzlers are located on public lands adjacent to these parcels.

3.3.1.4 State and BLM Special Status Species

The current Arizona and BLM special status species for the offered lands are listed in Table 3-29 and are discussed in Section 3.2.1.4 of this chapter.

3.3.1.4.1 State and BLM Special Status Plants

Of the 28 species of special interest to the BLM and/or AGFD listed in Table 3-29, seven plants were identified for detailed evaluation: acuña cactus (*Echinomastus erectocentrus acunensis*), San Carlos wild buckwheat (*Eriogonum capillare*), Pima indian-mallow (*Abutilon parishii*), Mexican shrub mallow (*Malvastrum bicuspidatum*), Gila rock daisy (*Perityle gilensis*), Varied fishhook cactus (*Mammillaris viridiflora*), and striped horsebrush (*Tetradymia argyaea*). With the exception of acuña cactus, which is a federal candidate species, and the striped horsebrush designated as a BLM special status species, all are included in the AGFD Heritage Data Management System. The Varied fishhook cactus has been found within five miles of the Tomlin Parcels and Pima Indian-mallow, and Acuña cactus have been found within five miles of the Gila River Parcel at Cochran.

Gila River Parcel at Cochran. No special status plant species are known to occur on the Gila River Parcel at Cochran. The Acuña cactus (*Echinomastus erectocentrus var acunensis*) and Pima Indian-mallow (*Abutilon parishii)* are known to occur within five miles of this parcel (SWCA 1997l).

Sacramento Valley Parcel. No special status plants are known to occur on or near the Sacramento Valley Parcel (SWCA 1997l).

Table 3-29. Special Status Species with the Potential to Occur on the Offered Lands (by Parcel Group)

Occurrence codes are as follows: 1=species is unlikely to occur in the area (habitats are not typical of those known to be used or the area is well outside of the species normal range); 2=species may occur infrequently in the project area (no individuals were recorded during species specific surveys); 3=species may occur regularly in the project area (species are known to occur within five miles of the project area) (AGFD, 1997); 4=species has been recorded in the project area.

Species	Status	Gila River at Cochran	Sacramento Valley	Tomlin	Knisely Ranch	McCracken Mtns
California leaf-nosed bat *(Macrotus californicus)*	BLM / WSCA	2	2	4	1	3
Greater western mastiff-bat *(Eumops perotis californicus)*	BLM / WSCA*	2	2	2	1	1
Small-footed myotis *(Myotis ciliolabrum)*	BLM**	1	2	2	1	1
Fringed myotis *(Myotis thysanodes)*	BLM	1	2	2	1	1
Yuma myotis *(Myotis yumanensis)*	BLM	1	2	4	1	1
Cave myotis *(Myotis velifer)*	BLM	2	2	2	1	1
Townsend's big-eared bat *(Plecotus townsendii pallescens)*	BLM / WSCA	1	2	4	1	1
Ferruginous hawk *(Buteo regalis)*	BLM / WSCA	2	1	1	1	1
Western burrowing owl *(Athene cunicularia hypugea)*	BLM	4	1	1	1	1
Common black-hawk *(Buteogallus anthrocinus)*	WSCA	3	1	2	1	1
Desert tortoise (Sonoran population) *(Gopherus agassizii)*	BLM / WSCA	3	4	4	1	4
Chuckwalla *(Sauromalus obesus)*	BLM	1	1	4	1	3
Lowland leopard frog *(Rana yavapiensis)*	BLM / WSCA	3	1	4	1	1
Roundtail chub *(Gila robusta)*	BLM / WSCA	1	1	3	1	1
Longfin dace *(Agosia chrysogaster)*	BLM / WSCA	1	1	4	1	1
San Carlos wild buckwheat *(Eriogonum capillare)*	AGFDHDMS***	2	1	1	1	1

Table 3-29, continued. Special Status Species with the Potential to Occur on the Offered Lands (by Parcel Group)

Occurrence codes are as follows: 1=species is unlikely to occur in the area (habitats are not typical of those known to be used or the area is well outside of the species normal range); 2=species may occur infrequently in the project area (no individuals were recorded during species specific surveys); 3=species may occur regularly in the project area (species are known to occur within five miles of the project area) (AGFD, 1997); 4=species has been recorded in the project area.

Species	Status	Gila River at Cochran	Sacramento Valley	Tomlin	Knisely Ranch	McCracken Mtns
Pima Indian-mallow *(Abutilon parishii)*	AGFDHDMS	3	1	1	1	1
Mexican shrub mallow *(Malvastrum bicuspidatum)*	AGFDHDMS	2	1	1	1	1
Gila monster *(Heloderma suspectum)*	BLM	3	1	1	1	4
Western yellow - billed cuckoo *(Coccyzus americanus occidentalis)*	WSCA	3	1	1	1	1
Harris' hawk *(parabuteo unicinctus)*	BLM	3	1	1	1	1
Gila rock daisy *(Perityle gilensis)*	AGFDHDMS	2	1	1	1	1
Varied fishhook cactus (*Mammillaria viridiflora*)	AGFDHDMS	2	2	3	2	2
Acuna cactus *(Echinomastus erectocentrus acunensis)*	USFWS Candidate	3	1	1	1	1
Striped horsebrush *(Tetradymia argyraea)*	BLM	1	1	1	1	1

*WSCA = Wildlife of Special Concern in Arizona
**BLM = BLM Special Status Species
***AGFDHDMS = Arizona Game and Fish Department Heritage Data Management System

Knisely Ranch Parcels. The Knisely Ranch parcels may contain potential habitat for the striped horsebrush (*Tetradymia argyraea*), a BLM sensitive plant species, which is known to occur on the northern end of the Cerbat Mountains (SWCA 1997l).

Tomlin Parcels. The only special status plant species known to occur within five miles of the Tomlin Parcels is the varied fishhook cactus *(Mammillaria virdiflora)* (SWCA 1997l).

McCracken Mountains Parcels. No special status plants are known to occur on or near any of these parcels (SWCA 1997l).

3.3.1.4.2 State and BLM Special Status Fish and Wildlife

A total of 19 special status wildlife species were identified as having the potential to occur on the offered lands (Table 3-29). The following species were identified for analysis: California leaf-nosed bat (*Macrotus californicus*), greater western mastiff-bat (*Eumops perotis californicus*), small-footed myotis (*Myotis ciliolabrum*), fringed myotis (*Myotis thysanodes*), Yuma myotis (*Myotis yumanensis*), cave myotis (*Myotis velifer*), Townsend's big-eared bat (*Plecotus townsendii pallescens*), Ferruginous hawk (*Buteo regalis*), western burrowing owl (*Athene cunicularia hypugea*), common black-hawk (*Buteogallus anthrocinus*), western yellow billed cuckoo (Coccyzus americanus occidentalis), Harris' hawk (Parabuteo unicinctus), desert tortoise (*Gopherus agassizii*) (Table 3-30), chuckwalla (*Sauromalus obesus*), lowland leopard frog (*Rana yavapiensis*), Gila monster (*Heloderma suspectum*), roundtail chub (*Gila robusta*), and longfin dace (*Agosia chrysogaster*).

Table 3-30. Summary of Desert Tortoise Habitat on Offered Lands

Parcel	Acres	Desert Tortoise Habitat Category
Sacramento Valley Parcel	120	I
McCracken Mountains Parcels	6,384	I
Tomlin Parcels	320	II
Gila River Parcel at Cochran	320	II
Knisely Ranch Parcels	0	-
TOTAL	**7,144**	

Gila River Parcel at Cochran. Special status species known or likely to occur on this parcel include western burrowing owl, common black-hawk, desert tortoise (Table 3-30), lowland leopard frog, Harris' hawk, and Gila monster (SWCA 1997l). The AGFD Habitat Branch reports that spikedace (*Meda fulgida*) and western yellow-billed cuckoo (*Coccyzus americanus occidentalis)* have been documented as occurring within 1.5 miles of the parcel.

Sacramento Valley Parcel. Special status animal species known or likely to occur on the parcel include desert tortoise. The Sacramento Valley Parcel occurs within an area designated as BLM Category I desert tortoise habitat (Appendix F). In 1990 and 1993, the BLM funded the East Bajada one-square mile desert tortoise study plot in Section 26 (abutting the southern boundary of the Sacramento Valley Parcel). Woodman et al. (1994) captured 46 tortoises on the plot. McLuckie et al. (1996) reported that tortoises on the east bajada of the Black Mountains are genetically and morphologically similar to tortoises occurring in the Mojave Desert, west of the Colorado River, and that they most often inhabit creosote bush/white bursage bajada habitat as opposed to the rocky slopes where most Arizona tortoise populations occur. Therefore, tortoises in this region appear to be unique among Arizona tortoise populations.

Knisely Ranch Parcels. No special status species are known to occur on any of the Knisely Ranch Parcels.

Tomlin Parcels. Special status animal species known to occur on or within 1.5 miles of the Tomlin Parcels include lowland leopard frog, roundtail chub, longfin dace, California leaf-nosed bat, yuma myotis, Townsend's big-eared bat, chuckwalla and Sonoran desert tortoise (AGFD 1997). Lowland leopard frog and roundtail chub are likely to occur on Tomlin #4. All of the Tomlin Parcels occur within BLM designated Category II desert tortoise habitat (Appendix F). AGFD reports that the Gila monster occurs within five miles of the Tomlin Parcels and rocky upland habitats on the parcels appear similar to habitats where Gila monsters are known to occur.

McCracken Mountains Parcels. Special status animal species known or likely to occur on or within five miles of the parcels include desert tortoise, chuckwalla, banded gila monster and California leaf-nosed bat. The McCracken Mountains Parcels occur within the McCracken Desert Tortoise Habitat ACEC, an area designated as BLM Category I desert tortoise habitat (Appendix F). Scats and shelters of desert tortoises have been observed at several locations on the parcels. Shelter sites are abundant throughout most of the parcels. Scat and suitable rocky habitat for the Chuckwalla, a BLM Sensitive Species, were observed throughout the parcels. California leaf-nosed bat is also a BLM Sensitive Species that is typically found roosting in inactive mine tunnels in Sonoran and Mohave desertscrub and foraging generally in xeroriparian habitats. Several inactive mines that occur near, but not on these parcels, may provide potential suitable habitat. Potentially suitable foraging habitat for this species occurs on the parcels.

3.3.1.5 Threatened and/or Endangered Species

The Gila River Parcel at Cochran is in Pinal County; and the Knisely Ranch Parcels, Sacramento Valley Parcel, McCracken Mountains Parcels and Tomlin Parcels are all located within Mohave County. The following, therefore, is a list of Federally Threatened, Endangered and Candidate species for Mohave and Pinal counties (Table 3-31).

For the proposed exchange, the BLM coordinated with the USFWS and the AGFD to determine which of the species in Table 3-31 have the potential to occur in the general region of the offered lands. The following five species (described in detail in section 3.2.1.5) were identified as having the potential to occur on or near the offered lands: bald eagle, American peregrine falcon, Southwestern willow flycatcher, spikedace and Cactus Ferruginous pygmy-owl. The following twenty-one species were identified as not having the potential to occur in or near the project area: Arizona cliffrose, Jone's cycladenia, Siler pincushion cactus, desert tortoise (Mohave population), Hualapai mexican vole, bonytail chub, humpback chub, razorback sucker, Virgin River chub, woundfin, California condor, Mexican spotted owl, Yuma clapper rail, Fickeisin pincushion cactus, paradox milk-vetch, Arizona hedgehog cactus, Nichol's turk's head cactus, lesser long-nosed bat, desert pupfish, Gila topminnow, loach minnow, and brown pelican. Habitats located on the Offered Lands are not typical of those known to be used by the species and/or the project area is outside of the species normal known range.

In the following sections, the potential for each of these plant and animal species to occur on the Offered Lands Parcels is analyzed below based on field survey and/or habitat evaluation and is summarized in Table 3-32.

3.3.1.5.1 Federally Threatened and Endangered Plants

No threatened and/or endangered plant species occur on or near any of the offered lands parcels.

3.3.1.5.2 Federally Threatened and Endangered Wildlife

Gila River Parcel at Cochran. The Gila River Parcel at Cochran provides potential foraging and/or breeding habitat for several threatened and endangered species. A peregrine falcon was observed during a field visit to the parcel, bald eagles have been observed along the Gila River in this area and one spikedace was recently captured in the Gila River near the Cochran railroad crossing (SWCA 1997l, 1998c)[38]. Riparian habitat appears suitable for southwestern willow flycatcher and cactus ferruginous pygmy-owl. Southwestern willow flycatchers were reported on the parcel in June 1996 during surveys conducted by biologists from BLM, USFWS and AGFD (SWCA 1997l).

[38] One spikedace was captured in 1983 in the Gila River near the Cochran railroad crossing, below the Gila's confluence with the San Pedro River and above Ashurst-Hayden Dam (pers. comm. Rob Clarkson, Fisheries Biologist, Bureau of Reclamation, 1997). Whether this individual was a vagrant washed out of Aravaipa Creek via the San Pedro River or its presence indicates the presence of a population in the Gila River is unknown. Furthermore, the only native fish to have been reported in Mineral Creek within the project area are longfin dace (*Agosia chrysogaster*) and roundtail chub (*Gila robusta*) in 1993 during sampling by AGFD. It is unlikely that spikedace occurs in Mineral Creek or the Gila River near the project area (SWCA 1998c).

Table 3-31. Federally Threatened, Endangered and Candidate Species for Mohave and Pinal Counties

County	Common Name	Scientific Name	Status
Mohave County	Arizona cliffrose	*Purshia subintegra*	Endangered
	Jone's cycladenia	*Cycladenia humilis var jonesii*	Threatened
	Siler pincushion cactus	*Pediocactus sileri*	Threatened
	Desert tortoise, Mohave population	*Gopherus agassizii*	Threatened
	Hualapai mexican vole	*Microtus mexicanus hualpaiensis*	Endangered
	Bonytail chub	*Gila elegans*	Endangered
	Humpback chub	*Gila cypha*	Endangered
	Razorback sucker	*Xyrauchen texanus*	Endangered
	Virgin river chub	*Gila seminuda*	Endangered
	Woundfin	*Plagopterus argentissimus*	Endangered
	American peregrine falcon	*Falco peregrinus anatum*	Endangered
	Bald eagle	*Haliaeetus leucocephalus*	Threatened
	California condor	*Gymnops californianus*	Endangered
	Mexican spotted owl	*Strix occidentalis lucida*	Threatened
	Southwestern willow flycatcher	*Empidonax traillii extimus*	Endangered
	Yuma clapper rail	*Rallus longirostris yumanensis*	Endangered
	Fickeisin pincushion cactus	*Pediocactus peeblesianus fickeiseniae*	Candidate
	Paradox milk-vetch	*Astragalus holmgreniorum*	Candidate
Pinal County	Arizona hedgehog cactus	*Echinocereus triglochidiatus arizonicus*	Endangered
	Nichol's turk's head cactus	*Echinocactus horizonthal onis var. Nicholii*	Endangered
	Lesser long-nosed bat	*Leptonycteris curasoae yerbabuenae*	Endangered
	Desert pupfish	*Cyprinodon macularius*	Endangered
	Gila topminnow	*Poeciliopsis occidentalis occidentalis*	Endangered
	Loach minnow	*Tiaroga cobitis*	Threatened
	Razorback sucker	*Xyrauchen texanus*	Endangered
	Spikedace	*Meda fulgida*	Threatened
	American peregrine falcon	*Falco peregrinus anatum*	Endangered
	Bald eagle	*Haliaeetus leucocephalus*	Threatened
	Cactus ferruginous pygmy-owl	*Glaucidium brasilianum cactorum*	Endangered
	Mexican spotted owl	*Strix occidentalis lucida*	Threatened
	Southwestern willow flycatcher	*Empidonax traillii extimus*	Endangered
	Yuma clapper rail	*Rallus longirostris yumanensis*	Endangered

Table 3-32. Federally Threatened and/or Endangered Species with the Potential to Occur on the Offered Lands (by Parcel and Parcel Group)

Occurrence codes are as follows: 1=species is unlikely to occur in the area (habitats are not typical of those known to be used or the area is well outside of the species normal range); 2=species may occur in project area but no individuals were recorded during species specific surveys; 3=species occur within five miles of project area (AGFD, 1997); 4=species has been recorded in the project area.

Species	Status*	Gila River at Cochran	Sacramento Valley	Tomlin	Knisely Ranch	McCracken Mountains
Spikedace *(Meda fulgida)*	T	~~3~~ 2	1	1	1	1
Bald eagle *(Haliaeetus leucocephalus)*	T	4	1	2	1	1
American peregrine falcon *(Falco peregrinus anatum)*	E	4	2	2	3	1
Southwestern willow flycatcher *(Empidonax traillii extimus)*	E	4	1	3	1	1
Cactus ferruginous pygmy-owl *(Glaucidium brasilianum cactorum)*	E	2	1	1	1	1

* Status Code: E = Endangered; T = Threatened

Sacramento Valley Parcel. No threatened and/or endangered species are known to occur on or near the Sacramento Valley Parcel.

Knisely Ranch Parcels. The eyrie of a peregrine falcon, a federally listed endangered species, was reported as occurring within 1.5 miles of the Knisely Ranch Parcels (AGFD 1997). The parcels themselves, do not provide suitable breeding cliff habitat for peregrine falcons, but birds occurring in the area likely forage over the parcels.

Tomlin Parcels. Southwestern willow flycatcher, a Federally listed endangered species, is known to occur within five miles of the Tomlin parcels. Dense vegetation along the Big Sandy River on Tomlin #4 may provide suitable habitat for this species.

McCracken Mountains Parcels. No threatened and/or endangered species are known to occur near the McCracken Mountains Parcels.

3.3.1.6 Critical Habitat

The offered lands do not lie within designated critical habitat of any listed or proposed threatened or endangered species. However, the Gila River Parcel at Cochran lies within the *proposed* critical habitat for the cactus ferruginous pygmy-owl. Critical Habitat was proposed for the cactus ferruginous pygmy-owl on December 30, 1998 (USFWS 1998). The proposal is to designate critical habitat for the cactus ferruginous pygmy-owl on approximately 730,565 acres of riverine riparian and upland Sonoran desertscrub habitats in Pima, Cochise, Pinal and Maricopa counties.

3.3.2 Physical Resources

3.3.2.1 Surface Water

Gila River Parcel at Cochran. The parcel contains one perennial stream, a 1.1 mile long stretch of the Gila River as shown in Figure 2-1. Surface flows in this segment of the Gila River are partially regulated by the San Carlos Reservoir, which is located approximately 63 miles upstream. USGS gauge 09474000, located 14 miles upstream from the parcel, has recorded an average annual discharge over 85 years of 542 cfs; however, this number is skewed upward by flood events and the actual flow is often considerably less. Based on the USGS 7.5' topographic map (North Butte Quadrangle), the width of the floodplain appears to vary from 500 to 2,000 feet, and the riparian habitat associated with this floodplain covers approximately 146 acres (46% of the parcel). The parcel contains no wetlands, springs, and water developments, but does contain ephemeral washes which drain into the Gila River.

Sacramento Valley Parcel. No perennial streams, wetlands, springs, riparian areas, and water developments occur in the parcel. The parcel does contain a number of epemeral washes (Figure 2-2).

Knisely Ranch Parcels. There are no perennial streams or wetlands in these parcels; all parcels contain ephemeral washes.

Knisely #1 contains Arizona (aka Isabel) Spring (Figure 2-5). Field visits to this spring by BLM and SWCA (August 17, 1993 and January 14, 1997, respectively) revealed a fenced source area, buried springbox with a pipeline leading to a 3,000-gallon, covered, circular, metal storage tank, and a circular trough. The tank was leaking and the trough was full of water.

Knisely #2 contains no springs, riparian areas, or water developments.

Knisely #3 contains one developed spring, Pine Spring. Field visits by the BLM and SWCA (July 14, 1993 and January 14, 1997, respectively) showed the development, in good condition, consisting of a fenced source area, pipeline, trough, and metal storage tank. A 12 $ft.^2$ area of riparian vegetation surrounds the spring.

Tomlin Parcels. Tomlin #4 contains one perennial stream and associated riparian area, a 0.5 mile long stretch of the Big Sandy River (Figure 2-3). The baseflow of this perennial stretch is generally less than 10 cfs. (S. Markman, BLM, pers comm, 1997). The parcel contains ephemeral washes and no water developments.

On the remaining Tomlin parcels, there are no perennial streams, wetlands, springs, riparian areas, or water developments. Small, ephemeral washes do occur.

McCracken Mountains Parcels. There are no perennial streams, wetlands, springs, and riparian areas in these parcels. Small, rocky, ephemeral drainages incise and separate more than a dozen distinct peaks, and sandy-bottomed washes dissect alluvial fans at the bases of the peaks (Figure 2-4). As shown in Table 3-33, three water sources exist on these parcels: an Arizona Game and Fish Department wildlife development -- McCracken Mountains Catchment No. 1 (AGFD No. 412), and two earthen stockponds -- McCracken Mountain Tank and Hill Tank.

3.3.2.2 Groundwater

Gila River Parcel at Cochran. A well occurs in section 7 of the North Butte Quadrangle (USGS 7.5 minute series). The well registration states the well was completed in 1956 to a depth of 59 feet; a field visit by the BLM on March 3, 1998 revealed a depth to water of 22.5 feet.

Sacramento Valley Parcel, Knisely Ranch Parcels, Tomlin Parcels, and McCracken Mountains Parcels. There is no published groundwater information on these parcels, and there are no registered wells on these parcels. As a result, groundwater quality and quantity are unknown.

Table 3-33. Surface Water Sources on the Offered Lands

Parcel	Surface Water Source	Location
Gila River Parcel at Cochran	Gila River (1.1 mile)	T4S, R12E, Secs. 6 and 7
Knisely #1	Arizona (aka Isabel) Spring	T25N, R18W, Sec. 20
Knisely #3	Pine Spring	T25W, R18W, Sec. 4
Tomlin #4	Big Sandy River (0.5 mile)	T15N, R13W, Sec. 35
McCracken Mountains	McCracken Mountains Catchment No. 1 (AGFD No. 412)	T14N, R15W, Sec. 15
	McCracken Mountain Tank	T14N, R15W, Sec. 15
	Hill Tank	T14N, R15W, Sec. 9

3.3.2.3 Surface Water Rights/Well Permits

The offered lands contain five surface water rights and one well permit, listed in Table 3-34.

According to ADWR's adjudication records, the Gila River parcel at Cochran is located within the Upper Gila River Watershed of the ongoing Gila River System and Source General Water Rights Stream Adjudication. The water sources located on the Knisely parcels lie within the mainstem of the Colorado River Watershed. The McCracken Mountains and Tomlin parcels are located in the Bill Williams River Watershed. The watersheds of the mainstem Colorado River and Bill Williams River are not part of any current state adjudication process.

3.3.3 Mineral Resources

3.3.3.1 Mineral Potential

The mineral potential of the offered parcels was assessed for 18 parcels totaling approximately 7,300 acres, including 6,938 acres of full estate lands and 360 acres of split-estate lands in Pinal and Mohave Counties (BLM 1998a). The majority of the offered land exhibited a low potential for the accumulation of salable, locatable or leasable mineral resources. However, several areas totaling approximately 1,126 acres have a moderate potential for locatable mineral resources. Most of the offered lands have a low potential for the accumulation of salable (common variety) mineral resources. Only two areas have a moderate potential for salable minerals that include decorative rock boulders on the Sacramento Valley Parcel and sand and gravel on the Gila River Parcel at Cochran.

3.3.4 Land Use

3.3.4.1 Gila River Parcel at Cochran

Location/Parcel Description. The 320-acre Gila River Parcel at Cochran is within the White Canyon Resource Conservation Area (RCA), which consists of approximately 262,800 acres. The parcel has a total perimeter of approximately 3.25 miles, of which approximately 3.0 miles (92%) is adjacent to BLM land. The remaining 0.25 miles (8%) abut private land (Figure 2-1). The parcel is topographically variable with elevations ranging from 1,941 ft in the northwest corner to 1,620 ft along the Gila River in the southwest corner of the parcel. Two fairly level terraces occur within the floodplain of the Gila River, a lower terrace

Table 3-34. Surface Water Rights and Well Permits on the Offered Lands

Registration Number	Holder Name	Source Name	Annual Volume (acre-ft)	Specified Use	Location			Offered Parcel
					T	R	S	
SURFACE WATER RIGHTS								
36-41741.2	Asarco, Inc.	Pine Spring	1.61	stock	25N	18W	4	Knisely Ranch
CWR 1682 (4A-1288.4)	Asarco, Inc.	Isabel (Arizona) Spring	18.10	stock	25N	18W	20	Knisely Ranch
36-28666	Santa Fe Pacific Railroad	Sand Wash	10.00	stock	14N	15W	9	McCracken Mountains
38-28676	Santa Fe Pacific Railroad	Hill Tank	10.00	stock	14N	15W	9	McCracken Mountains
36-27255	Banegas and Salazar	Big Sandy River	0.10	stock	15N	13W	35	Tomlin #4
WELL PERMITS								
55-635862	F.A. Lynch	Well	600 gpm*	domestic, stock	4S	12E	6	Gila River Parcel at Cochran

* Well capacity
Sources: Lin Fehlmann, BLM, pers. Comm 1997, ADWR 1997.

along the banks of the river and an upper terrace that is approximately 10-15 ft higher than water level. Several steep banked arroyos flow into the southeast corner and the west side is predominantly steep, rocky slopes. The parcel is underlain by Tertiary sedimentary rocks and younger surficial deposits (Reynolds 1988). Alluvium occurs on much of the parcel and consists of sandy/gravelly soils with particle sizes ranging from silt to large cobbles. The west side of the parcel is predominantly pediment from decomposing mountains and there are numerous sedimentary rock outcrops.

Ownership. The surface and mineral estate of this parcel is owned and administered by Asarco with the exception of 160 acres of mineral estate (SE1/2N1/2 of Section 6 and NE1/2S1/2 of Section 7), which is currently administered by BLM.

Special Management Areas. The parcel contains a segment of the Gila River Riparian Management Area (GRRMA) and is within the Middle Gila Cultural Resource Management Area (MGCRMA). Management goals for the GRRMA are to improve the condition of riparian vegetation and aquatic habitat for native fishes, enhance water quality, and limit salinity discharges. The MGCRMA is managed to conserve cultural resources and to protect the information potential and public use values of the area. The BLM has not formally evaluated the eligibility of this segment of the Gila River for wild and scenic river status.

Access. This parcel is directly accessible from the south via Cochran Road, a dirt road that runs between the Florence-Kelvin Highway and the Gila River. This improved road provides access to the east side of the parcel and the abandoned town of Cochran. An unimproved jeep trail originates at an unimproved dirt road which provides access to the west side of the parcel and leads to Martinez Canyon. The Gila River flows

from north to south through the parcel; therefore, one cannot easily access the west side of the parcel from the east side, and vice versa.

Recreation. As the parcel is privately owned, no public recreational uses are authorized. However, potential recreational uses include, but are not limited to, boating, hunting, fishing, camping, picnicking, photography, and bird and wildlife viewing.

Encumbrances. In addition to the Cochran grazing allotment that includes the Gila River Parcel at Cochran, Southern Pacific Co. maintains a segment of railway that follows the south bank of the Gila River through the Gila River Parcel at Cochran. No other easements, rights-of-way, residential leases, or other encumbrances are associated with this parcel.

Grazing. The Gila River Parcel at Cochran is within the Cochran grazing allotment and adjacent to the LEN grazing allotment. The Cochran allotment includes both private and BLM administered lands and is predominantly south of the Gila River (the private portion crosses the river). The stocking rate for the BLM portion is 168 Animal Unit Months (AUMs).[39] No fencing exists between the Gila River Parcel at Cochran and BLM administered parcel; therefore, cattle move freely across parcel lines. The LEN allotment includes both private and BLM administered lands and is entirely north of the Gila River. Public lands make up 69 percent of this allotment. The stocking rate for the BLM portion is 2,956 AUMs.

Visual Resources. No formal visual quality analysis was completed for this parcel; however, some natural resource elements of the parcel which define its visual quality include upland and riparian vegetation and the rugged terrain to the north, east, and west. Cultural resources, such as the historic Coke Ovens west of the parcel, are also visible from the parcel. The parcel is not visible from any major roads.

3.3.4.2 Sacramento Valley Parcel

Location/Parcel Description. The 112,153-acre Warm Springs Wilderness abuts this 120-acre parcel to the south and east. The perimeter of the Sacramento Valley Parcel is approximately 2.0 miles, of which approximately 0.5 miles (25%) are adjacent to the Wilderness. Also, 1.0 mile abuts public land (non-wilderness, 50%) and the remaining 0.5 miles (25%) abuts private land (Figure 2-2).

The parcel is located on the gently sloping east bajada of the Black Mountains and, therefore, has little topographical relief. Elevations vary little on the parcel, ranging from approximately 2,400 ft in the northwest corner to approximately 2,350 ft in the southeast corner. Geology of the parcel is characterized by mid Pleistocene to late Pliocene surficial deposits made up of volcanic cobbles (Reynolds 1988).

Ownership. The surface estate of the Sacramento Valley Parcel is owned by Asarco; however, the mineral estate is administered by the BLM.

Special Management Area. This parcel is within the Black Mountains Herd Management Area. The Black Mountains wild burro herd is the largest on public lands, containing an estimated 890 burros. No Wild and Scenic Rivers segments occur within or adjacent to the parcel. ~~The tortoise habitat on the parcel falls within a former proposed Area of Critical Environmental Concern (ACEC) which was dropped due to the adequate protections of desert tortoise afforded by wilderness designation.~~

Access. The parcel is directly accessible via an unimproved dirt road that originates at Oatman Road in Section 14, T19N, R19W, which forks in the northwest portion of the parcel. One branch crosses the central portion of the parcel and the other passes through the southwest corner.

Recreation. As a privately-owned parcel, no public recreational uses are authorized on this parcel. However, potential recreational uses include, but are not limited to, hunting, camping, picnicking, photography, and bird and wildlife watching.

[39] An AUM is the amount of forage needed to sustain one cow or its equivalent for one month.

Encumbrances. Aside from the Black Mountain grazing allotment that includes the Sacramento Valley Parcel, there are no other easements, rights-of-way, residential leases, or other encumbrances associated with this parcel.

Grazing. The Sacramento Valley Parcel is within the Black Mountain grazing allotment, an allotment with 58,844 acres of public land and a stocking rate of 1,247 AUMs. The Black Mountain allotment is closed to sheep and goats.

Visual Resources. This parcel lies within BLM's Visual Resource Management (VRM) Class 4 under the Kingman Resource Area RMP. Natural resource elements which define its visual quality include upland vegetation, the Sacramento Valley to the south and east, the Hualapai Mountains to the east, and basalt tablelands and spires to the west and north. The parcel is not viewable from any major roads.

3.3.4.3 Knisely Ranch Parcels

Location/Parcel Description. The three Knisely Ranch Parcels, totaling approximately 160 acres, are located in Mohave County, Arizona (Figure 2-5). The Mount Tipton Wilderness surrounds each of the Knisely Ranch Parcels.

The parcels are located on the west slope of the Cerbat Mountains. Terrain consists predominantly of moderately-steep northwest-facing slopes. Elevations at Knisely #1 range from 4,600 ft in the southeast corner to approximately 4,270 ft near the center of the west border. Elevations at Knisely #2 range from 4,320 ft in the southeast corner to approximately 4,090 ft at the northwest corner. Elevations at Knisely #3 range from 4,720 ft in the southeast corner to 4,360 ft near the center of the west border. Geology of the parcels is characterized by early Proterozoic granitoid bedrock with alluvium in present day drainages (Reynolds 1988).

Ownership. The surface and mineral estate of the Knisely Ranch Parcels is owned by Asarco with the exception of the mineral estate of a portion of Knisely #2 (NE1/2E1/2 of Section 17), which is administered by the BLM.

Special Management Area. The Knisely Ranch Parcels are inholdings within the 30,208-acre federally-designated Mount Tipton Wilderness. These parcels are also located within the Cerbat Herd Area with approximately 70 wild horses utilizing this area.

Access. The Mount Tipton Wilderness is closed to motorized or mechanized vehicular travel. A jeep trail beginning at the terminus of 3rd Street, a subdivision road in Dolan Springs, enters the Knisely #1 parcel; however, the last mile of the jeep trail is in wilderness and must be traveled by foot or horseback.. A "cherrystem" jeep trail terminating at Lower Indian Spring, which is accessed via an unimproved dirt road originating in Dolan Springs on 5th Street, crosses the Knisely #2 parcel. Vehicle travel on this cherrystem road is legally possible. Access to the Knisely #3 parcel is made via Dolan Springs subdivision roads to the mouth of Pine Canyon and the wilderness boundary, followed by a 1.5 mile hike or horseback ride up into Pine Canyon.

Recreation. As privately-owned land, no recreational uses are authorized on these parcels. However, potential recreational uses include, but are not limited to, hunting, camping, picnicking, photography, bird and wildlife viewing and dispersed recreation.

Encumbrances. Aside from the Mount Tipton grazing allotment that includes the Knisely Ranch Parcels, there are no other easements, rights-of-way, residential leases, or other encumbrances associated with this parcel.

Grazing. The Knisely Ranch Parcels are within the Mount Tipton grazing allotment, an allotment with 9,944 acres of public land and a stocking rate of 230 AUMs. A large water storage tank and trough are located on Knisely #1. A corral and associated structures were observed on Knisely #3.

Visual Resources. The Knisely parcels lie within BLM Visual Resource Management Class 1, as described in the Kingman Resource Area RMP. some natural resource elements of the parcels which define their visual quality include upland vegetation, the slopes, canyons, and rock formations of the Cerbat Mountains. The Detrital Valley and Black Mountains are visible from Knisely #1 and #3. Parcels #1 and #2 may be visible from Highway 93, but only at a very long distance.

3.3.4.4 Tomlin Parcels

Location/Parcel Description. The three Tomlin Parcels, totaling approximately 314 acres, are located in Mohave County, Arizona (Figures 2-3). The Tomlin Parcels have a total perimeter of approximately 3.22 miles, and all parcels are adjacent to BLM land. The remaining 5.75 miles (43%) abuts private and state lands.

The parcels are located on the southern foothills of Groom Peak in the southern portion of the Hualapai Mountains. Terrain at the parcels consists predominantly of moderately-steep to steep slopes with a range of aspects. Elevations range from approximately 4,700 ft along the southern border of Tomlin #3 to approximately 1,630 ft along the Big Sandy River in Tomlin #4. Geology of the parcels is characterized by early Proterozoic granitoid bedrock with alluvium in present day drainages (Reynolds 1988). Parcel #3 contains younger (early Tertiary to late Cretaceous), granitoid bedrock (Reynolds 1988).

Ownership. The surface and mineral estate of all the Tomlin Parcels is owned by Asarco.

Special Management Area. The Tomlin Parcels are all located within the boundaries of the Big Sandy Herd Management Area. The Wild and Free-Roaming Horse and Burro Act considers these species an integral part of the natural system and authorizes the BLM to manage its lands to protect them from unauthorized capture, branding, harassment, and death. For the Big Sandy Herd Management Area a population of 139 wild burros has been established as the level at which this species is in an ecological balance with its habitat.

Access. None of the Tomlin Parcels are directly accessible by vehicle. The parcels are southwest of U.S. Route 93 and northwest of Signal Road, an improved dirt road that proceeds southwest from U.S. Route 93. The parcels can be accessed by foot from the ends of unimproved dirt roads that proceed north from Signal Road.

Recreation. As the parcels are privately-owned, no public recreational uses are authorized. However, potential recreational uses include, but are not limited to, hunting, camping, picnicking, photography, and bird and wildlife watching.

Encumbrances. Aside from the Greenwood Peak Community grazing allotment that includes the Tomlin Parcels, there are no other easements, rights-of-way, residential leases, or other encumbrances associated with this parcel.

Grazing. The Tomlin Parcels are within the Greenwood Peak Community grazing allotment, an allotment with 36,180 acres of public land and a stocking rate of 2,080 AUMs.

Visual Resources. The Tomlin parcels lie within BLM Visual Resource Management Class 4, as described in the Kingman Resource Area RMP. Some natural resource elements of the parcels which define their visual quality include upland and riparian vegetation, the slopes, canyons, and rock formations of the Hualapai Mountains. None of the parcels are viewable from any major roads.

3.3.4.5 McCracken Mountains Parcels

Location/Parcel Description. The ten McCracken Mountains Parcels, totaling approximately 6,384 acres, are located in Mohave County, Arizona (Figure 2-4). The McCracken Mountains Parcels have a total perimeter of approximately 40 miles, of which approximately 39 miles (97.5%) is adjacent to BLM land. The remaining 1 mile (2.5%) abuts state land.

The parcels surround and include the north half of the McCracken Mountains. Elevations range from 2,480 to 3,926 ft. Terrain consists predominantly of moderately steep to steep slopes with a range of aspects. Geology of the parcels is characterized by a Precambrian granitoid fault block range, with a few small intrusions of mineralized rock (Reynolds 1988). Surficial deposits of alluvium and colluvium from the mountains surround the weathered peaks.

Ownership. The surface and mineral estate of all the McCracken Mountains Parcels is owned by Asarco. The land ownership pattern in this area is the "checkerboard" pattern characteristic of much of the American west. Privately held (originally railroad company) land alternates with public land sections, which is mostly Federal but occasionally includes State of Arizona land.

Special Management Area. The McCracken Mountains Parcels occur within the McCracken Desert Tortoise Habitat ACEC. This ACEC was designated for its category I habitat for desert tortoises, scenic values, and back country recreation values. Management strategies for the ACEC include, but are not limited to, acquisition of private and state lands and mineral rights, confining major rights-of-way to existing corridors, managing ungulate grazing to improve desert tortoise habitat, limiting off-highway vehicle use and other recreational uses, and prohibiting removal of native plants except for salvage operations. No other Special Management Areas or Wild and Scenic Rivers segments occur within or adjacent to the McCracken Mountains Parcels.

Access. An unimproved dirt road passes through the west half of Section 27 and the southwest quarter of Section 9. An unimproved dirt road connects that road to Section 15, crossing its southern border and ending at a wildlife guzzler in Section 14. A jeep trail passes through the west half of Section 11, beginning at Alamo Road in Section 35 (T15N, R15W) and ending near a small inactive mine on public land in Section 14. An unimproved dirt road terminates on Section 31, approaching from the east and ending a few hundred yards into the section. No other roads are present on the parcels. Tracks of off road vehicles were present in the wash on Section 3. The parcels can be accessed on foot, with considerable difficulty in some places, from Alamo Road to the northeast or an unnamed unimproved road to the southwest. Most of the land within the parcels is inaccessible by road or trail.

Recreation. As privately-owned land, no public recreational uses are authorized on these parcels. However, potential recreational uses include, but are not limited to, hunting, camping, picnicking, photography, and bird and wildlife viewing. Limited evidence of unauthorized recreational vehicular traffic is present in washes in lower elevation portions of the parcel.

Encumbrances. In addition to the Greenwood Peak Community grazing allotment, the El Paso pipeline Bagdad Lateral right-of-way passes through two of the northern sections of the McCracken Mountains Parcels. This utility corridor is two miles wide in the vicinity of the parcels. There are no other easements, rights-of-way, residential leases, or other encumbrances associated with these parcels.

Grazing. The McCracken Mountains Parcels are within the Chicken Springs grazing allotment, an allotment with 95,272 acres of public land and a stocking rate of 3,456 AUMs. Most of the parcels are difficult for cattle to access, with very steep terrain, little forage, and little water. Accessible terrain near water is severely overgrazed. Sheep and goats are prohibited from grazing on the McCracken ACEC parcels.

Visual Resources. The McCracken Mountain parcels lie within BLM Visual Resource Management Class 4, as described in the Kingman Resource Area RMP. Some natural resource elements of the parcel which define its visual quality include upland vegetation and the rugged terrain. The combination of Joshua trees, saguaros, and junipers is an uncommon combination that is visually interesting. Most of the parcels are visible from the Alamo Road.

3.3.5 Cultural Resources

3.3.5.1 Archaeological Resources

Gila River Parcel at Cochran. The Arizona State Museum (ASM) and BLM site files indicate that three archaeological surveys, all associated with the aborted Buttes Dam/Reservoir Project, have been conducted on or within about one mile of the Gila River Parcel at Cochran (Debowski et al. 1976, SWCA 1997m). Together, these surveys have resulted in coverage of the entire parcel, except an area measuring approximately 100 × 200 m. The site files contain records for eight sites within the boundaries of the parcel, and for approximately 50 other sites located within 1 mile of the parcel. ~~Debowski et al. (1976) discuss the significance for Arizona prehistory and history of the sites located within and near the Gila River Parcel at Cochran.~~ These sites represent a significant area of prehistoric Hohokam settlements, including villages that were abandoned by historic times. As such, they represent an important informational resource. In addition, a portion of the historic settlement of Cochran is located on the Gila River Parcel.

Sacramento Valley Parcel. No sites are recorded in the ASM and BLM site files for this parcel, and there is no record of any archaeological survey either on, or within one mile of the parcel (SWCA 1997m). The parcel was visited on May 13, 1997. The reconnaissance consisted of a meandering transect along the intermittent wash in the center of the parcel, and additional transects on the ridges on either side of the wash. No archaeological sites were identified and it is unlikely that any large archaeological sites exist in the parcel. The parcel may have been subject to past seasonal use for resource procurement.

Knisely Ranch Parcels. No sites are recorded in the ASM and BLM site files for this parcel, and there is no record of any archaeological survey either on, or within one mile of the parcel (SWCA 1997m). Knisely Ranch Parcel #1 consists of 40 acres surrounding Arizona Spring and was visited on January 14, 1997. Unfortunately, several inches of snow cover at the time of reconnaissance made ground surface visibility impossible. The area is predominantly pinyon woodland with a perennial spring located on the east side of the parcel. Although some portions of the parcel are relatively steep, a Class III survey of the area may reveal the remains of prehistoric use of the area. The presence of a permanent water source, combined with a pinyon woodland environment, would have been attractive to the prehistoric occupants of the area. The terraces located within the study area may have been used for temporary or longer-term occupations. A galvanized steel water tank fed by the spring is located in the parcel and may be 40 years old or more.

Knisely Ranch Parcel #2 consists of 80 acres between Lower and Upper Indian Springs and was also visited on January 14, 1997, and again on May 13, 1997. The presence of nearby springs and large quantities of pinyon pine woodland near the study area suggests that there is a likelihood for significant archaeological remains in the project area, particularly remains indicative of seasonal use.

Knisely Ranch Parcel #3 consists of 40 acres in Pine Canyon and was visited on January 14, 1997 and again on May 13, 1997. The presence of a spring within the project area and significant quantities of pinyon pine (pine nuts are a known food source of aboriginal peoples) and game animals in the project area suggests that there is a high likelihood for significant archaeological remains in the project area.

Tomlin Parcels. No sites are recorded in the ASM and BLM site files for these parcels and there is no record of any archaeological surveys either on, or within, one mile of these parcels (SWCA 1997m).

Evidence of at least three large roasting pits were located on Tomlin #4 during field reconnaissance The area also contains a heavy growth of cholla cactus, something that makes it distinct from surrounding benches and terraces. It is possible that the roasting pits represent Protohistoric or Historic Period cholla roasting activities; if so, they may be associated with Yavapai or Hualapai use of the area as they were known to have occupied camps along perennial reaches of the Big Sandy River.

McCracken Mountains Parcels. No sites are recorded in the ASM and site files for these parcels, and there is no record of any archaeological survey either on the parcel or within one mile of them (SWCA 1997m).

3.3.5.2 Places of Traditional Importance to Native Americans

Places of traditional importance on the offered lands in Mohave county may be identified through on going BLM consultations with the Hualapai and Mohave tribes. Places of traditional importance on the Gila River Parcel at Cochran may be identified through consultations with the tribes listed in Table 3-22.

3.3.6 Socioeconomic Resources

The offered lands consist of approximately 7,300 acres of privately owned land in Mohave and Pinal Counties.

- The 8,204 acres located in Mohave County include 160 acres in the Chloride Elementary School District, a parcel of 120 acres in the Mohave Valley Elementary School District, a cluster of parcels containing about 1,540 acres in the in the Owens Whitney Elementary School District, and another cluster of parcels containing 6,384 acres in the Yucca Elementary School District.

- The offered lands in Pinal County consist of a single parcel of about 320 acres in the Ray Unified School District.

Currently, selected lands have no inhabitants and are relatively isolated. Because the offered lands are so remote, the socioeconomic resources of selected lands are considered on a county-wide basis.

3.3.6.1 Population and Demographics

Mohave's population, currently at 127,700, has experienced a 36 percent increase since 1989. Pinal County, with a population of 14,150, grew 24 percent from 1989 to 1996. More information of Pinal County's population and demographics is presented in the section on selected lands (Sec. 3.2.6.1).

As seen in Table 3-35, populations in all three counties containing offered lands are expected to increase.

Table 3-35. Populations of Mohave and Pinal Counties

	Mohave County	Pinal County
Population as of July, 1996*	127,700	144,150
Population as of 1989**	93,497	116,379
Population as of 2000*	147,525	161,625

Source: *Arizona Department of Economic Security, **U.S. Bureau of the Census 1990

Minority Populations. Table 3-36 shows the percentage of racial or ethnic minorities from the total population over 16 years of age and available for the labor force.

Low Income Populations. Based on the average residential property values (ARPVs) per elementary school student, there are several areas of relatively low personal income in proximity to some of the offered lands in Mohave County and Pinal County. ARPVs for school districts containing offered lands are shown in Table 3-37.

Table 3-36. Percentage of Individuals Belonging to the Various Racial or Ethnic Groups and Available for the Work Force Within Mohave and Pinal Counties, 1993

Racial or Ethnic Group	Mohave County	Pinal County
White	91.6%	63%
Black	0.2%	2%
American Indian	2.2%	6%
Hispanic	5.3%	28%
Other Minorities	0.1%	less than 1%

Source: Arizona Department of Economic Security

Table 3-37. ARPVs for School Districts that Contain Offered Lands as a Measure of Household Income

County	School District	ARPV per elementary school student (1996)	District ARPV Compared to County Average	District ARPV Compared to State Average
Mohave	Yucca Elementary School District	$117,818	55% below	39% below
	Owens Whitney Elementary School District	$124,131	52% below	36% below
	Mohave Valley Elementary School District	$235,737	10% below	22% above
	Chloride Elementary School District	$250, 387	4% below	30% above
Pinal	Ray Unified District	$84, 919	18% below	56% below

Source: WEAC, 1997d
APRV= average residential property values

3.3.6.2 Local and Regional Economy

3.3.6.2.1 Employment

In 1996, Mohave County and Pinal County were similar in the size of their civilian labor force, although Mohave County had a slightly higher unemployment rate (Table 3-38).

Table 3-38. Average Employment Information for Mohave and Pinal Counties, 1996

Measure of Employment	Mohave County	Pinal County
Civilian Labor Force	63,000	56,630
Number of Individuals Employed	58,525	53,310
Unemployment Rate	7.1%	5.9%

Source: Arizona Department of Economic Security

3.3.6.2.2 Taxes

Mohave County. In the fiscal year ending June 30, 1996, Mohave County received $11,096,062 from the state government through revenue disbursements. That same year, Mohave County levied $24,135,761 in county property taxes. The various classes of taxable property and the assessed valuations of each class in Mohave County in 1996 are shown in Table 3-39.

Table 3-39. The Property Tax Base of Mohave County, Arizona, 1996

Class of Property	Net Assessed Valuation (Average of Primary and Secondary)	Percent of Total Net Assessed Valuation (Average of Primary and Secondary)
Owner-occupied Residential Property	$327,366,609.50	36.95%
Other Commercial, Industrial	$208,945,640.00	23.59%
Agricultural Property, Vacant Land	$195,527,163.50	22.07%
Public Utilities	$101,300,001.00	11.43%
Rented Residential Property	$45,596,277.00	5.15%
Railroads	$4,630,324.00	0.52%
Producing Mines or Timber	$2,467,325.00	0.28%
Historic and Environmental Technology Manufacturing	$63,462.00	0.01%
Improvements on Government Land	$0.00	0.00%
Total	**$885,896,802.00**	**100.00%**

Source: WEAC, 1997d, based on Arizona Department of Revenue

In addition, Mohave County received $1,540,880 in PILT in 1996, just $620 short of its total PILT limit of $1,541,500.

School districts get their revenues from the taxes levied on the property located within their jurisdictions and through the disbursement of state sales and other taxes, including mining severance taxes, according to a formula established by law and based in part on average daily student membership and local tax effort as well as certain student population characteristics. The tax base for school districts containing offered lands is shown in Table 3-40.

Pinal County. The tax base of Pinal County is discussed in Section 3.2.6 for the Ray Complex.

Table 3-40. Tax Base for School Districts Containing Offered Lands in Mohave County, 1995-1996

School District	Parcels in School District	Revenues from Property Taxes	Revenues from Distribution of State-levied Sales and Severance Taxes	Revenues from County Government	Revenues from Federal Government
Owens Whitney Elementary	Tomlin Parcels	61%	34%	5%	0%
Yucca Elementary	McCracken Mountain Parcels	94%	less than 1%	0%	6%
Chloride Elementary	Knisely Ranch Parcels	63%	30%	3%	4%
Mohave Union High	All of the above	77%	19%	1%	3%
Mohave Valley Elementary	Sacramento Valley Parcel	34%	53%	7%	6%
Colorado River Union High	Sacramento Valley Parcel	88%	9%	0%	3%

Source: WEAC, 1997d

CHAPTER 4

ENVIRONMENTAL CONSEQUENCES

This chapter presents the scientific and analytic basis for the comparisons summarized in Table 2-7, Comparative Summary of Environmental Consequences. It is organized by resource topic in the order in which they were presented in Table 1-6 and in Chapter 3. The consequences of the Proposed Action, Buckeye, Copper Butte, and No Action alternatives are provided for each resource as well as the consequences common to all alternatives. The following assumptions are common to all impact and effects analyses:

1. The foreseeable uses of the selected lands are expected to be similar under all alternatives;

2. Implementation of the foreseeable uses will require obtaining all applicable federal, state, and local permits and compliance with all applicable environmental laws and regulations;

3. Existing regulatory standards, descriptive or numeric, define the probable impacts that will result from implementation of the foreseeable uses;

4. Copper production rates are driven by market conditions and are independent of the Proposed Action, Buckeye, Copper Butte, and No Action alternatives;

5. In the absence of site-specific design criteria, land disturbance impacts are assumed to be as follows for the foreseeable use categories on the selected lands;

    - Production Operations and Support Areas (POS) —100 percent surface impacts on 3,615 acres
    - Transition Areas (TRANS) —25 percent surface impacts on 875 acres
    - Intermittent Use Areas (INTER) —5 percent surface impacts on 4,481 acres
    - Long-Range Prospect Areas (LRP) - surface impacts similar to TRANS and POS on 1,737 acres

6. Short-term impacts are expected to occur over a period of five years or less;

7. Long-term impacts are expected to occur over a period greater than five years; and

8. All impacts are direct impacts unless stated otherwise.

Assumptions specific to a given resource are provided in that section.

The following critical resource elements as set forth in Appendix 5 of the BLM NEPA Handbook (BLM Manual H-1790-1) have been analyzed and are not present or will not be affected by either the proposed exchange or foreseeable uses of the selected lands: prime and unique farmlands, and floodplains. Impacts from foreseeable uses to resources such as air quality, groundwater quality, and wetlands will be addressed through required state and federal permitting compliance measures, regardless of federal or private land ownership status.

4.1 BIOLOGICAL RESOURCES

4.1.1 Upland Plant Communities

4.1.1.1 Impacts Common to All Alternatives

Ray Complex. Foreseeable mining uses would eliminate approximately 230 acres of already disturbed upland plant communities in the Ray Complex area, which occur within the EXIST foreseeable use category. Because these disturbed areas only support sparse, weedy vegetation with several non-native species, the elimination of the vegetation is considered inconsequential. The majority (99%) of projected impacts to currently undisturbed areas would occur in the Sonoran Desertscrub vegetation community (impacts to Xeroriparian Mixed Scrub are included in impact calculations for Sonoran Desertscrub). Foreseeable mining uses would impact approximately 6,036 acres (60%) of the 10,000 acres of Sonoran Desertscrub on the selected lands (Figures 2-7, 2-8, 2-9 and 3-1). Potential impacts to Sonoran Desertscrub communities and corresponding surface disturbances are summarized in Table 4-1.

Table 4-1. Summary of Potential Impacts to Sonoran Desertscrub Vegetation on the Selected Lands

		Acres of Sonoran Desertscrub Potentially Impacted for Each Foreseeable Use Category				
Selected Lands	Existing Disturbance	INTER (<5% surface disturbance)*	POS (25%-100% surface disturbance)*	TRANS (5%-25% surface disturbance)*	LRP (5%-100% surface disturbance)*	TOTALS
Ray Complex	230	1,880	2,647	396	1,113	6,266
Copper Butte/Buckeye	-	2,157	345	308	363	3,173
Chilito/Hayden	38	-	424	-	255	829
Casa Grande	623	-	-	-	-	623
TOTALS	**891**	**4,037**	**3,416**	**704**	**1,731**	**10,891**

* Exact impact percentage is unmeasurable. It is assumed, therefore, that disturbance will occur at the highest percentage within each category.

Impacts to the 4,037 acres of Sonoran Desertscrub communities within the INTER use areas would include indirect impacts (e.g., dust and invasion of exotic species) and other disturbances from direct mining activities. Impacts to the 3,416 acres within the POS use areas would include direct impacts (e.g., vegetation and soil removal from mining activities) and impacts to the 704 acres within the TRANS use areas would include both direct and indirect impacts to vegetation from mining activities. Impacts to the 1,731 acres within the LRP use area would likely be similar to POS and/or TRANS impacts.

Copper Butte/Buckeye. Foreseeable mining uses is expected to impact approximately 3,173 acres (31%) of Sonoran Desertscrub communities in the Copper Butte/Buckeye area (Figure 3-2, Table 4-1).

Chilito/Hayden. Foreseeable mining uses is expected to impact approximately 791 (7%) acres of Sonoran Desertscrub communities in the Chilito/Hayden area (Figure 3-3, Table 4-1), of which approximately 38 acres is already disturbed. Because these disturbed areas only support sparse, weedy vegetation with several non-native species, the elimination of the vegetation is considered inconsequential.

Casa Grande. As mentioned in Chapter 3, approximately 623 acres (99 % of total acreage) of disturbed upland plant communities already exist on the Casa Grande selected parcels (CG-1, CG-2, CG-3). Disturbed upland habitat in TRANS use areas is expected to be impacted by mining-related activities, while those in INTER use areas are not expected to be impacted. Because these disturbed areas only support sparse, weedy vegetation with several non-native species, the elimination of the vegetation is considered inconsequential (Figure 3-4, Table 4-1).

4.1.1.2 Impacts Specific to Each Alternative

Proposed Action. Asarco would acquire approximately 10,891 acres of upland plant communities, approximately 891 acres (8.9%) of which is already disturbed. As discussed under Impacts Common to All Alternatives, foreseeable mining uses would impact approximately 10,000 acres of undisturbed Sonoran Desertscrub upland plant communities.

Approximately 7,148 acres of upland plant communities on the offered lands would come under federal ownership and management. Management of the parcels would be based upon criteria provided in the Phoenix or Kingman Resource Area RMPs.

Buckeye Alternative. Asarco would acquire approximately 9,200 acres of Sonoran Desertscrub communities, and approximately 891 acres of disturbed vegetation. As discussed under Impacts Common to All Alternatives, foreseeable mining uses would impact approximately 10,000 acres of Sonoran Desertscrub communities.

Approximately 6,508 acres of upland plant communities on the offered lands would come under Federal ownership and management (Section 9 of the McCracken Mountains Parcels would be eliminated).

Copper Butte Alternative. Asarco would acquire approximately 8,586 acres of upland plant communities, and approximately 891 acres of disturbed vegetation. As discussed under Impacts Common to All Alternatives, foreseeable mining uses would impact approximately 10,000 acres of Sonoran Desertscrub communities.

Approximately 5,450 acres of upland plant communities on the offered lands would come under Federal ownership and management (Sections 9, 3 and 19 of the McCracken Mountains Parcels would be excluded). However, because this alternative involves less offered lands, the acreage of upland plant communities coming into federal ownership would be decreased compared to the Proposed Action.

No Action Alternative. Under the No Action approximately 10,891 acres of upland plant communities would remain under BLM administration. Impacts associated with foreseeable mining uses to upland plant communities would be expected to be similar to those described under Impacts Common to All Alternatives but would occur under public land ownership and BLM management.

Without the land exchange, approximately 7,148 acres of upland plant communities on the offered lands would remain privately owned and subject to development. The vegetation communities present could be disturbed, but the extent of disturbance would be dependent on the type of development.

4.1.2 Riparian Plant Communities

4.1.2.1 Impacts Common to All Alternatives

Ray Complex. Foreseeable mining uses would eliminate approximately 4.9 acres of Sonoran Riparian Deciduous Forest vegetation ~~and disturb a 47-acre reservoir on Parcel RM-7 located within the INTER Use category~~ (Table 4-2). Impacts to xeroriparian mixed scrub are included in impact calculations for Sonoran Desertscrub presented in Table 4-1.

Table 4-2. Summary of Riparian Habitat Acreage Potentially Impacted by Foreseeable Uses

	Sonoran Riparian Deciduous Forest	~~Reservoir & Artificial Ponds[40]~~	Total
Chilito/Hayden	3.4	-	3.4
Copper Butte/Buckeye	~~8.8~~ <1	~~2.1~~	~~10.9~~ <1
Ray Complex	4.9	~~47~~	~~51.9~~ 4.9
Casa Grande	-	-	-
TOTALS	~~11.1~~ 9.3	~~49.1~~	~~66.2~~ 9.3

* Exact impact percentage is unmeasurable. It is assumed, therefore, that disturbance will occur at the highest percentage within each category.

Impacts within INTER use areas would include indirect impacts (e.g., dust) and other disturbances from direct mining activities. Impacts within the POS use areas would include direct impacts (e.g., vegetation removal from mining activities), and impacts within the LRP use area would likely be similar to POS and/or TRANS impacts.

Copper Butte/Buckeye. Impacts to riparian plant communities within the Copper Butte/Buckeye area are expected on ~~approximately 2.1 acres (4%) of artificial pond habitat on Parcels CB-1 and CB-2 and~~ approximately ~~8.8~~ <1 acres (~~42%~~) of the Sonoran Riparian Deciduous Forest vegetation due to foreseeable uses (Figure 3-2, Table 4-2). Figure 3-2 has been changed to remove the non-existent riparian vegetation along Walnut Creek on Parcel CB-1, which was originally calculated as six acres.

Chilito/Hayden. Impacts to riparian plant communities within the Chilito/Hayden area are expected on approximately 3.4 acres of the Sonoran Riparian Deciduous Forest vegetation due to foreseeable uses (Figure 3-3, Table 4-2).

Casa Grande. Xeroriparian Mixed Grass vegetation along the Santa Cruz River on Parcel CG-1 in the Casa Grande Area is not expected to be disturbed by foreseeable uses (Figure 3-4, Table 4-2).

4.1.2.2 Impacts Specific to Each Alternative

Proposed Action. Asarco would acquire approximately ~~90~~ 34 acres of riparian plant communities, including 17 acres of Xeroriparian Mixed Grass, and ~~22~~ 17 acres of Sonoran riparian deciduous forest, ~~and 51 acres of artificial ponds.~~

Approximately ~~152~~ 177 acres of riparian plant communities would come under federal ownership and management through acquisition of the offered lands. Management of the parcels would be based upon criteria provided in the Phoenix or Kingman Resource Area RMPs.

Buckeye Alternative. Asarco would acquire approximately ~~87~~ 34 acres of riparian plant communities on the selected lands. Should Asarco seek to conduct mining activities on the BLM portion of CB-1, the remaining acres of riparian habitat could be disturbed or eliminated depending on the outcome of NEPA analysis of BLM's 3809 process.

Approximately ~~152~~ 177 acres of riparian plant communities would come under federal ownership and management. Management of the parcels would be based upon criteria provided in the Phoenix or Kingman Resource Area RMPs.

[40] Artificial pond habitat was removed from this section and is discussed under Physical Resources, water, however is considered wildlife habitat and is included in Section 4.1.3.

Copper Butte Alternative. Asarco would acquire approximately ~~79~~ 34 acres of riparian plant communities on the selected lands. Again, should Asarco seek to conduct mining activities on the BLM portion of the Copper Butte parcels, additional acres of riparian habitat could be impacted.

Approximately ~~152~~ 177 acres of riparian plant communities would come under federal ownership and management. Management of the parcels would be based upon criteria provided in the Phoenix or Kingman Resource Area RMPs.

No Action Alternative. Under the No Action, approximately ~~90~~ 34 acres of riparian plant communities would remain under BLM administration. Impacts associated with foreseeable mining uses to riparian plant communities would be expected to be similar to those described under impacts common to all alternatives but would occur under public land ownership and BLM management.

Without the exchange, approximately ~~152~~ 177 acres of riparian plant communities on the offered lands would remain under private ownership and subject to development. In addition, BLM would forego an opportunity to acquire these resources.

4.1.3 Wildlife/Wildlife Habitats

4.1.3.1 Impacts Common to All Alternatives

Implementation of foreseeable mining uses would eliminate approximately 10,090 acres of available habitat (undisturbed upland and riparian plant communities combined, which includes artificial pond habitat) for game and nongame terrestrial wildlife species on the selected parcels.

Ray Complex. Impacts to wildlife in the Ray Complex were calculated based on impacts to upland and riparian habitats presented in Tables 4-1 and 4-2 for approximately 6,045 acres. It was assumed that ~~impacts to~~ plant communities within the POS Use category would experience direct impacts from mining activities (e.g., vegetation removal and habitat fragmentation), therefore impacting the wildlife that rely on these vegetation communities. No additional impacts resulting from lights and noise are expected as the Ray Mine already operates 24 hours a day. No impacts are anticipated to game and nongame fishes that occur in the reservoir behind Big Box Dam on Parcel RM-7. Impacts due to foreseeable uses to big game animals were calculated based on densities and are expected to impact between 26 to 42 big game animals on the selected lands (Table 4-3).

Table 4-3. Estimated Number of Big Game Animals Potentially Impacted by Foreseeable Uses

Species	POS (25%-100% surface disturbance)	TRANS (5%-25% surface disturbance)	INTER (<5% surface disturbance)	LRP (5%-100% surface disturbance)	Total
Mule deer	3-7	<1	5-7	2-4	11-19
White-tailed deer	5-7	<1	1-2	3-4	10-14
Javelina	1-3	<1	2-3	1-2	5-9
TOTAL	**9-17**	**3**	**9-12**	**6-10**	**26-42**
TOTAL %	**41%**	**6%**	**29%**	**24%**	**100%**

Table 4-3 shows an approximate range of big game species that are expected to occur on the selected lands and within a foreseeable use category, which will be subject to a certain percentage of surface disturbance (e.g., 9-12 animals occur on selected lands designated as INTER use, subject to less than five percent

surface disturbance). Specific surface disturbances within each foreseeable use category is presented in Tables 2-5 and 2-6.

Copper Butte/Buckeye. Impacts to wildlife in the Copper Butte/Buckeye area were calculated based on impacts to upland and riparian habitats on approximately 3,183 acres (Tables 4-1, 4-2). Specifically, ~~impacts to~~ wildlife utilizing the 345 acres of uplands located within the POS Use category would experience direct impacts from vegetation and soil removal, habitat fragmentation, and the addition of noise and lights.

The foreseeable uses are expected to impact potential bighorn sheep reintroduction in the Copper Butte/Buckeye area. Specifically, habitat suitable for bighorn sheep movements from the White Canyon area to the Gila River in the area of the Spine is expected to be impacted and access for bighorn sheep south of the spine may be reduced or lost. This would impact potential bighorn sheep access to approximately 2000 acres of excellent habitat, 5000 acres of good habitat, and 5000 acres of fair habitat. This equates to about 14% impact to the overall habitat in the evaluation area and about 33% of excellent habitat within the evaluation area. Foreseeable uses may also impact the ratings of habitat blocks resulting in a reduction in the habitat score and a lowering of the overall ranking of the area on the Statewide priority list (AGFD 1999a).

Chilito/Hayden. Impacts to wildlife in the Chilito/Hayden area were calculated based on impacts to upland and riparian habitats on approximately 794 acres (Tables 4-1, 4-2). Specifically, wildlife utilizing the 424 acres of uplands within the POS Use category would experience direct impacts from vegetation removal.

Casa Grande. Wildlife habitat on the Casa Grande selected lands area are already extensively disturbed and mostly located in INTER Use areas. Foreseeable mining uses, therefore, are not expected to significantly impact wildlife habitat.

4.1.3.2 Impacts Specific to Each Alternative

Proposed Action. Asarco would acquire approximately 10,976 acres of wildlife habitat, of which 891 acres is already disturbed. Under the Proposed Action, approximately 560 acres of potential bighorn sheep habitat rated as excellent (Parcel CB-1), and approximately 293 acres rated as good (Parcel CB-1[41]) would be transferred from federal ownership. The change in ownership may change (reduce) the rating of some of the evaluated bighorn habitat blocks and could lead to a reduced priority ranking for the area on the statewide list. The change in ownership may also reduce some of the habitat management options for the area including placement of supplemental waters or vegetation treatments.

Public acquisition of approximately 7,300 acres of offered lands would result in federal management of wildlife habitats for a variety of big-game species including desert bighorn sheep and mule deer. Habitat for birds (both migratory and resident), reptiles, and small mammals would come under Federal management.

Buckeye Alternative. Asarco would acquire approximately 10,176 acres of wildlife habitat, of which 891 acres is already disturbed. Under this alternative, approximately 293 acres rated as good (Parcel CB-1) would be transferred from federal ownership. The change in ownership may change (reduce) the rating of some of the evaluated bighorn habitat blocks and could lead to a reduced priority ranking for the area on the statewide list. The change in ownership may also reduce some of the habitat management options for the area including placement of supplemental waters or vegetation treatments.

Under this alternative, approximately 6,659 acres of wildlife habitat; including those for desert bighorn sheep, birds (both migratory and resident), reptiles, and small mammals would come under federal management through acquisition of the offered lands. However, because this alternative eliminates Section 9 of the McCracken Mountains Parcels (640 acres) from the exchange, the wildlife habitat located on this parcel would not come under Federal ownership and protection.

[41] In addition to Parcel CB-1, Parcels CB-4 and CB-5 also have good habitat, but are split-estate parcels where Asarco owns Parcel CB-4 and the State owns Parcel CB-5.

Copper Butte Alternative. Asarco would acquire approximately 9,161 acres of wildlife habitat, of which 891 acres is already disturbed. Under this alternative, Parcel CB-1, the only full estate parcel with potential bighorn sheep habitat, would not be transferred from federal ownership.

Under this alternative, approximately 5,601 acres of habitat; including those for desert bighorn sheep, birds (both migratory and resident), reptiles, and small mammals would come under federal management through acquisition of the offered lands. However, because this alternative eliminates Sections 9, 3 and 19 of the McCracken Mountains Parcels (1,698 acres) from the exchange, the wildlife habitat located on these parcels would not come under Federal ownership and protection.

No Action Alternative. Approximately 10,976 acres of wildlife habitat would remain under BLM administration. However, as it is likely that Asarco would seek to conduct mining activities on the selected lands, impacts associated with foreseeable mining uses to wildlife and their habitats would be expected to be similar to those described under impacts common to all alternatives.

Approximately 7,300 acres of wildlife resources on the offered lands would remain under the jurisdiction of the State and managed by AGFD, although wildlife habitat would continue to be privately owned. Should development of the offered parcels occur in the future, it is likely that wildlife habitats would be adversely affected, although it is not possible to estimate or predict the amount of habitat destruction which would occur if offered lands were developed.

4.1.4 State and BLM Special Status Species

4.1.4.1 State and BLM Special Status Plants

4.1.4.1.1 Impacts Common to all Alternatives

Ray Complex. Foreseeable mining uses in the Ray Complex is expected to potentially eliminate the San Carlos wild buckwheat population located on Parcel RM-8. Though Mexican scrub mallow and varied fishhook cactus are not known to occur on any parcels, it is possible that they do occur and thus may be impacted by the foreseeable uses.

Copper Butte/Buckeye. Foreseeable mining uses in the Copper Butte/Buckeye area is expected to potentially eliminate the Gila rock daisy population located on Parcels CB-1 and CB-4.

Chilito/Hayden. Foreseeable mining uses in the Chilito/Hayden area is expected to potentially eliminate the Pima Indian-mallow population located on Parcel CH-1.

Casa Grande. No special status plant species were observed or are expected to occur on any of the Casa Grande selected lands.

4.1.4.1.2 Impacts Specific to Each Alternative

Proposed Action. Under the Proposed Action, Asarco would acquire the San Carlos buckwheat, Gila rock daisy and Pima Indian-mallow populations and federal protections of these populations would be discontinued.

No special status plant species have been identified on the offered lands. The acuña cactus and Pima-Indian mallow are known to occur within five miles of the Gila River Parcel at Cochran, the striped horsebrush is known to occur at the north end of the Cerbat Mountains, within five miles of the Knisely Ranch Parcels, and the varied fishhook cactus occurs within five miles of the Tomlin Parcels. The potential habitats found on the offered lands, would come under federal ownership and management. Management of the parcels would be based upon criteria provided in the Phoenix or Kingman Resource Area RMPs.

Buckeye Alternative. Impacts to special status plant species would be expected to be similar to those described under the Proposed Action, except that 800 acres of Parcel CB-1 would be removed from the exchange. San Carlos wild buckwheat does occur on Parcel CB-1, and under this alternative this species would remain on federal lands. Should Asarco seek to conduct mining activities on the BLM portion of Parcel CB-1, there would be an opportunity to modify mining activities so as to reduce or minimize impacts to this species through the NEPA analysis of the 3809 process.

Impacts to offered lands are expected to be similar to those described under the Proposed Action except that because this alternative excludes Section 9 of the McCracken Mountains Parcels, the potential habitat for the striped horsebrush would remain in private ownership and would not be protected.

Copper Butte Alternative. Impacts would be similar to those described under the Proposed Action, except that Parcels CB-1, CB-2, CB-5 and a portion of Parcel CB-3 would be excluded from the exchange. Gila rock daisy occurs on Parcels CB-1 and CB-4, and under this alternative, this species would remain on federal lands. Should Asarco seek to conduct mining activities on the BLM portion of the Copper Butte parcels, there would be an opportunity to modify mining activities on this parcel to reduce or minimize impacts to this species through the NEPA analysis of the 3809 process.

Under this alternative impacts for the offered lands are expected to be similar to those described under the Buckeye Alternative except Sections 9, 3 and 19 of the McCracken Mountains Parcels would be excluded from the exchange.

No Action Alternative. Under the No Action, all special status plants located on the selected lands would remain under BLM administration. Impacts associated with foreseeable mining uses to special status plant species would be expected to be similar to those described under Impacts Common to All Alternatives but would occur under public land ownership and BLM management.

Without the exchange, special status plant habitat on the offered lands would remain under private ownership and management actions or other protections that federal land ownership might provide for these species would not occur. An opportunity to acquire the potential habitat would be foregone.

4.1.4.2 State and BLM Special Status Fish and Wildlife Species

4.1.4.2.1 Impacts Common to All Alternatives

Ray Complex. Foreseeable mining uses on the selected lands in the Ray Complex area may potentially impact the following BLM special status wildlife species: California leaf-nosed bat, Townsend's big-eared bat, desert tortoise, common black-hawk, chuckwalla, lowland leopard frog and longfin dace. These impacts are described below. No other special status wildlife species are expected to occur regularly on the selected lands.

- **Bats.** Four mine adits (one on Parcel RM-1, two on Parcel RM-10, and one on Parcel RM-18) provide habitat for at least two Townsend's big-eared bats and 11 California leaf-nosed bats. These adits are located in POS or LRP areas and would likely be eliminated by foreseeable uses. Mineral Creek and the adit along the western boundary of RM-8 are located in INTER areas. Foreseeable uses in this area are not likely to eliminate bat foraging and roosting habitats, however indirect impacts are expected from nearby mining activities.

- **Desert tortoise.** Approximately ~~3,276~~ 4,108 acres of Category II desert tortoise habitat would be impacted by foreseeable uses (Table 4-4). Approximately 1,250 acres of which, located within INTER use areas, would be indirectly impacted (e.g., dust); and approximately 586 acres, located within the POS use areas, would be directly impacted (e.g., vegetation and soil removal from mining activities). Approximately 169 acres, located within the TRANS use areas, would be both directly

Table 4-4. Estimated Acres of Desert Tortoise Habitat Potentially Impacted by Foreseeable Mining Uses within the Ray Complex, Copper Butte/Buckeye, and Chilito/Hayden areas

Desert Tortoise Category	EXIST (100% surface disturbance)	POS (25%-100% surface disturbance)	TRANS (5%-25% surface disturbance)	INTER (<5% surface disturbance)	LRP (5%-100% surface disturbance)	Total (acres)
Category II	24	586	169	1250	~~1247~~ 2079	~~3276~~ 4108
Category III	-	1400	421	2064	97	3982
TOTAL	**24**	**1986**	**590**	**3314**	**~~1344~~ 2176**	**~~7258~~ 8090**

and indirectly impacted from mining activities; and impacts to the remaining ~~1,247~~ 2,079 acres, located within the LRP use area, would likely be similar to those of POS and/or TRANS impacts (Figure 3-5). Approximately 24 acres of Category II desert tortoise habitat occurs in disturbed habitat in EXIST use areas. Approximately 3,982 acres of Category III desert tortoise habitat would be impacted by foreseeable uses. Approximately 2,064 acres, located within the INTER use areas, would be indirectly impacted (e.g., dust) and approximately 1,400 acres, located within the POS use areas, would be directly impacted (e.g., vegetation and soil removal from mining activities). Impacts to approximately 421 acres within the TRANS use areas would be both directly and indirectly impacted from mining activities, and impacts to approximately 97 acres within the LRP use area would likely be similar to POS and/or TRANS impacts.

- **Common black-hawk.** Foreseeable mining uses on Parcel RM-7 is designated as an INTER use area, which is not expected to impact potential common black-hawk habitat on this parcel.

- **Chuckwalla.** Approximately 1,150 acres of potential chuckwalla habitat would be impacted by foreseeable uses in the Ray Complex area.

- **Lowland leopard frog.** Foreseeable mining uses on the five acre RM-3 Parcel is designated as an LRP use area, which could potentially lead to the elimination of an artificial pond and eliminate the lowland leopard frog population occurring within the pond.

- **Longfin Dace.** Foreseeable mining uses on Parcel RM-7 is designated as an INTER use area, which is not expected to impact longfin dace occurring on this parcel.

Copper Butte/Buckeye. Implementation of foreseeable mining uses in the Copper Butte/Buckeye area may ~~are likely to~~ impact longfin dace in Walnut Creek ~~on Parcel CB-1 as well as~~ within the ACEC through indirect impacts to the watershed and may disturb Category II and III desert tortoise habitat.

Chilito/Hayden. No impacts to special status wildlife habitat are anticipated on any of the selected lands in the Chilito/Hayden area.

Casa Grande. Implementation of foreseeable mining uses are expected to eliminate approximately 40 acres of potential western burrowing owl habitat on Parcel CG-3 in the Casa Grande area. No impacts to potential western burrowing habitat are anticipated on Parcels CG-1 and CG-2.

4.1.4.2.2 Impacts Specific to Each Alternative

Proposed Action. Under the Proposed Action, Asarco would acquire habitat for seven special status species (California leaf-nosed bat, Townsend's big-eared bat, desert tortoise, common black hawk, Chuckwalla, lowland leopard frog and longfin dace) and federal protections for these species and their

habitats would be discontinued on the parcels acquired by Asarco. Direct impacts would be expected to be similar to those described under Impacts Common to All Alternatives. Under this alternative, Asarco would acquire approximately 6,860 acres of Category II and III desert tortoise habitat (Figure 3-5, Table 4-5).

Table 4-5. Net Gains and Losses of Desert Tortoise Habitat Under the Proposed Action, Buckeye and Copper Butte Alternatives

	Proposed Action			Buckeye Alternative			Copper Butte Alternative		
Desert Tortoise Category	Acres going private	Acres going public	Net gain/loss	Acres going private	Acres going public	Net gain/loss	Acres going private	Acres going public	Net gain/loss
I	0	6504	6504	0	5864	5864	0	4806	4806
II	~~3276~~ 3997	640	~~(2636)~~ (3157)	~~2476~~ 2997	640	~~(1836)~~ (2357)	~~2175~~ 2997	640	~~(1535)~~ (2357)
III	~~3982~~ 3063	0	~~(3982)~~ (3063)	~~3982~~ 3063	0	~~(3982)~~ (3063)	~~3280~~ 2048	0	~~(3280)~~ (2048)
TOTAL	~~7258~~ 6860	7144	~~(114)~~ 284	~~6458~~ 6060	6504	~~46~~ 444	~~5455~~ 5045	5446	~~(9)~~ 401

Acres in parenthesis are negative

Ten special status wildlife species; California leaf-nosed bat, Yuma myotis, cave myotis, Townsend's big-eared bat, desert tortoise, chuckwalla, western burrowing owl, lowland leopard frog, longfin dace, and Gila monster, are known to occur on the offered lands. Under the Proposed Action, habitat for these species, including 7,144 acres of Category I And II desert tortoise habitat, would come under federal ownership and be protected according to management criteria provided in the Phoenix or Kingman Resource Area RMPs, as appropriate.

Buckeye Alternative. Impacts would be expected to be similar to those described under the Proposed Action, however, portions of Parcel CB-1 would be excluded from the exchange. ~~This portion of Parcel CB-1 provides several acres of habitat for the longfin dace along Walnut Creek, which would remain under federal ownership~~ As mentioned in Section 3.2.1.2, no riparian habitat exists on Parcels CB-1 and only portions of Walnut Creek within the ACEC may potentially provide habitat for longfin dace, therefore, impacts to longfin dace and other aquatic/riparian species are expected to be similar under the Proposed Action. Compared to the Proposed Action, indirect impacts to the longfin dace in Walnut Creek from foreseeable uses could be minimized through an NEPA analysis in BLM's 3809 regulation. Approximately 800 acres of Category II desert tortoise habitat would remain in federal ownership under this alternative and Asarco would acquire approximately ~~6,504~~ 6,060 acres of Category II and III desert tortoise habitat (Figure 3-5, Table 4-5).

Of the ten special status species listed above, habitat for these species including 6,504 acres of Category I and II desert tortoise habitat would come into federal ownership and be protected according to management criteria provided in the Phoenix or Kingman Resource Area RMPs, as appropriate (Table 4-5). However, as Section 9 of the McCracken Mountains Parcels would be eliminated from the exchange, 640 acres of habitat for seven special status species (California leaf-nosed bat, desert tortoise and chuckwalla) would remain in private ownership and subject to development.

Copper Butte Alternative. Impacts would be expected to be similar to those described under the Proposed Action, except that parcels CB-1, CB-2, CB-5 and a portion of Parcel CB-3 would be excluded from the exchange. The California leaf-nosed bat, Yuma myotis, cave myotis, Townsend's big-eared bat, chuckwalla, ~~and longfin dace~~ are located on these parcels and under this alternative, habitat for these species would remain in federal ownership. Asarco would acquire approximately ~~6,458~~ 5,045 acres of Category II and III desert tortoise habitat (Figure 3-5, Table 4-5). Should Asarco seek to conduct mining activities on the BLM

portion of the Copper Butte parcels, BLM would have an opportunity to modify mining activities on this parcel to reduce or minimize impacts to these species.

Under this alternative impacts for the offered lands are expected to be similar to those described under the Buckeye alternative. However, as Sections 9, 3 and 19 of the McCracken Mountains Parcels would be eliminated from the exchange, approximately 1,698 acres of habitat for seven special status species (California leaf-nosed bat, desert tortoise, and chuckwalla) located on these parcels would remain in private ownership and subject to development. Under this alternative, approximately 5,446 acres of Category I and II desert tortoise habitat would come into public ownership.

No Action Alternative. Under the No Action, habitat for seven special status species would remain under BLM administration. Impacts are expected to be similar to those described under Impacts Common to All Alternatives and will occur on BLM managed lands.

Without the exchange, special status wildlife species and habitat on the offered lands would remain under private ownership and subject to development.

4.1.5 Federally Threatened and Endangered Species

4.1.5.1 Threatened and Endangered Plants

4.1.5.1.1 Impacts Common to All Alternatives

No federally listed plant species ~~are known to occur on~~ were detected during surveys of the selected lands, and therefore implementation of the exchange or implementation of the foreseeable mining uses are not expected to directly impact any Federally listed plant species.

No Federally listed plant species are known to occur on any of the offered lands. Public ownership of the offered lands would, however, provide Federal management and ESA protection for any listed plant species that may occur there as the ESA does not apply to Federally listed plant species on private lands.

4.1.5.2 Threatened and Endangered Fish and Wildlife

4.1.5.2.1 Impacts Common to All Alternatives

No Federally listed fish or wildlife species ~~are known to occur on any~~ were detected during surveys of the selected lands, and therefore implementation of the exchange or implementation of the foreseeable mining uses are not expected to directly impact any Federally listed fish or wildlife species on the selected lands. However, implementation of the foreseeable mining uses could directly and/or indirectly impact approximately five acres of potential southwestern willow flycatcher habitat along Mineral Creek (Parcel RM-2), approximately 6,646 acres of potential cactus ferruginous pygmy-owl habitat, and 57 mine adits providing potential habitat for the lesser long-nosed bat (if a range extension occurred).

4.1.5.2.2 Impacts Specific to Each Alternative

Proposed Action. Under the Proposed Action, Asarco would acquire approximately five acres of potential southwestern willow flycatcher habitat on RM-2, 6,646 acres of potential cactus ferruginous pygmy-owl habitat, and 57 adits providing potential habitat for the lesser long-nosed bat (if a range extension occurred). In addition, the Proposed Action is not anticipated to impact the bald eagle as the selected lands lack large riverine, lake or reservoir habitats, or impact peregrine falcons as the selected lands lack potentially suitable cliff sites compared to surrounding areas. The Proposed Action is not anticipated to impact the lesser long-nosed bat as none are present on the selected lands based on current surveys and the lands are outside the current range of this species.

Under the Proposed Action the offered lands, which provide occupied habitat for ~~four~~ one Federally Threatened and/or Endangered wildlife species (~~bald eagle, American peregrine falcon, spikedace and~~

southwestern willow flycatcher) would come under federal ownership. Management of the parcels would be based upon criteria provided in the Phoenix or Kingman Resource Area RMPs, as well as the ESA. BLM would also acquire proposed critical habitat for the cactus ferruginous pygmy-owl on the Gila River Parcel at Cochran, and potential habitat for the peregrine falcon, and bald eagle. The Gila River Parcel at Cochran also provides 1.1 miles of suitable riverine foraging habitat for bald eagle. In addition, the Proposed Action also includes acquisition of 120 acres, which is potential habitat for southwestern willow flycatcher and bald eagle on the Tomlin #4 Parcel in Mohave County.

Under the Proposed Action, the Gila River Parcel at Cochran would be managed by BLM as multiple use lands and mining would be withdrawn from the parcel. The 320-acre parcel would be open to recreational use and grazing subject to management conditions stipulated in the Phoenix RMP. Current proposals include fencing to control livestock and access to riparian areas on the Gila River.

Buckeye Alternative. Same as Proposed Action, except Asarco would acquire approximately five acres of potential southwestern willow flycatcher habitat, approximately 5,846 acres of potential cactus ferruginous pygmy-owl habitat, and 48-57 mine adits providing potential habitat for the lesser long-nosed bat (if a range extension occurred).

Copper Butte Alternative. Same as Proposed Action, except Asarco would acquire approximately five acres of potential southwestern willow flycatcher habitat, approximately 4,831 acres of potential cactus ferruginous pygmy-owl habitat, and 48-57 mine adits providing potential habitat for the lesser long-nosed bat (if a range extension occurred).

No Action Alternative. The offered lands would remain in private ownership, and an opportunity to acquire occupied habitat for ~~three~~ one T&E wildlife species and potential habitat for three other T&E wildlife species would be foregone.

4.1.6 Critical Habitat

None of the selected ~~or offered~~ lands occur within proposed or designated critical habitat for any Federally listed species, and therefore implementation of foreseeable mining uses would not be expected to impact any proposed or designated critical habitat. The proposed land exchange would result in BLM acquiring 320 acres of proposed critical habitat for the cactus ferruginous pygmy-owl located on the Gila River Parcel at Cochran in Pinal County. The Gila River Parcel at Cochran would be managed by BLM as multiple use lands and mining will be withdrawn from the parcel. The 320-acre parcel would be open to recreational use and grazing subject to management conditions stipulated in the Phoenix Resource Management Plan.

4.1.7 Biodiversity

4.1.7.1 Impacts Common to All Alternatives

The selected lands lie within the Sonoran Desertscrub biome (Brown 1994). This biotic community includes the western half of the state of Sonora, Mexico, as well as large areas in southeastern California, southwestern Arizona, and the Baja California peninsula and spans 12 degrees of latitude from 23 degrees to 35 degrees north (ibid.). Given the relatively small portion of the Sonoran Desertscrub Biotic community that the Selected Lands encompass, regional biodiversity would not be adversely affected. Further, portions of the selected lands are already disturbed or are in close proximity to existing mining activities, and therefore biodiversity on a micro scale is already compromised.

4.1.7.2 Impacts Specific to Each Alternative

Proposed Action. Change in land ownership status of the selected lands is not expected to impact biodiversity on a regional scale within the Casa Grande or Ray Complex areas. It is not anticipated that biodiversity would be adversely affected by any of the foreseeable uses of the selected lands.

With the land exchange, federal acquisition and management of the offered lands would result in no change in regional or local biodiversity. Consolidation of public lands through the exchange is expected to improve the BLM's ability to manage the federal lands in the region, which could result in maintaining the current biodiversity of the areas under the currently applicable RMPs as additional management protection of special status species is achieved through Federal Management.

Buckeye Alternative. Impacts to biodiversity under this alternative would be expected to be similar to those described under the Proposed Action, regardless of whether Asarco pursues mining activities on the BLM portion of Parcel CB-1. This is because the ability to control or manage mining activities on the approximately 800 acres of parcel CB-1 which would be subject to a future MPO would not be expected to substantially change impacts on biodiversity when compared to the Proposed Action.

For the offered lands, impacts to biodiversity would be expected to be similar to those described under the Proposed Action. The BLM not acquiring Section 9 of the McCracken Mountains Parcels is not expected to impact biodiversity.

Copper Butte Alternative. Impacts to biodiversity under this alternative would be expected to be similar to those described under the Proposed Action, regardless of whether Asarco pursues mining activities on the BLM portion of the Copper Butte parcels. This is because the ability to control or manage mining activities on the approximately 1,367 acres of the Copper Butte parcels which would be subject to a future MPO would not be expected to substantially change impacts on biodiversity when compared to the Proposed Action.

For the offered lands, impacts to biodiversity would be expected to be similar to those described under the Proposed Action. The BLM not acquiring Sections 9, 3 and 19 of the McCracken Mountains Parcels is not expected to impact biodiversity.

No Action Alternative. Impacts to biodiversity due to foreseeable mining uses on the selected lands would be expected to be similar to those described under impacts common to all alternatives. The offered lands would remain in private ownership, where future development, resulting in direct and indirect impacts to plants and wildlife, may occur, and thus resulting in potential impacts to biodiversity on a small (parcel by parcel) scale.

4.2 PHYSICAL RESOURCES

4.2.1 Surface Water

4.2.1.1 Impacts Common to All Alternatives

The foreseeable mining uses on the selected lands would result in impacts to surface water sources and features. However, it is not possible at this time to describe specific details concerning impacts that are likely to occur for two reasons:

1) Asarco has not developed detailed mining plans that describe the type, location, and size of mining facilities. Without such plans, site-specific and detailed analysis of impacts to surface water is not possible.

2) Specific designs and measures that may minimize impacts to surface water sources and features are not currently known. These designs and measures will likely be specified in any Clean Water Act (CWA) permits that Asarco would obtain prior to mining operations. Such permits are described in Table 4-6.

Table 4-6. Water-Related Environmental Permits Typically Required for Mining Operations in Arizona

Authorizing Agency	Law or Regulation	Type of Permit	Function
U.S. Environmental Protection Agency (EPA)	Clean Water Act Section 402	National Pollutant Discharge Elimination System (NPDES) - Permit	Regulates discharges to surface water from point sources.
		NPDES Storm Water Discharge Permit	Reduction of pollution to storm water through best management practices described in a Storm Water Pollution Prevention Plan (SWPPP).
Army Corps of Engineers (COE)	Clean Water Act Section 404	Section 404 Permit	Required for discharge of dredged or fill material into waters of the U.S. (including wetlands).
Arizona Department of Environmental Quality (ADEQ)	Clean Water Act Section 401	Section 401 State Water Quality Certification	Regulates discharge into waters of the state (including wetlands and many washes) to ensure compliance with state water quality standards.
Arizona Department of Environmental Quality (ADEQ)	Aquifer Protection Program	Aquifer Protection Permit (APP)	Protection of groundwater quality through process solution containment features and monitoring requirements.
Arizona Department of Water Resources (ADWR)	Arizona Revised Statutes Title 45, Article 10 (Wells)	Well Construction and Abandonment Permit	Requires wells to be drilled and/or abandoned by a licensed driller and meet minimum design and abandonment criteria.

In order to comply with the CWA, large mines typically use the following general measures to minimize impacts to surface water sources and features:

- Surface runoff originating up-gradient of mining facilities (e.g., leach sites, solution ponds, tailings, and waste rock dumps) is captured and diverted around these facilities. This prevents surface runoff from being contaminated by mining facilities. Drainage structures commonly are designed to handle runoff from the local 100-year, 24-hour storm.
- Leach facilities are designed to contain all solutions (i.e., zero discharge), including rainfall from at least the local 100-year, 24-hour storm.
- Drainage from mine pits, tailings, and waste rock is required to meet water quality standards for a number of parameters, including metals, total suspended solids, and pH.
- Sediment from roads and other disturbed areas is reduced through best management practices (BMPs) described in a storm water pollution prevention plan (SWPPP).
- Mitigation is required for waters of the U.S., including delineated wetlands, that are covered by mining activities.

The general measures listed above are most applicable to the selected parcels where mining activities are likely to result in extensive land disturbance (POS and TRANS), as described in Section 2.2.1. Impacts to surface water sources and features on the selected lands that may occur after compliance with all Clean Water Act permits (residual impacts) are described below:

- Water sources — such as springs and stockponds — could be disturbed or buried by mining activities. It is not possible to list the water sources that might be affected because the locations of leach sites, tailings, waste rock dumps, and other mining facilities are not known at this time.
- Waters of the U.S. — such as streams, ephemeral washes, and wetlands — could be buried or disturbed by mining activities. The COE delineates waters of the U.S. and requires mitigation for those waters that are lost. However, waters of the U.S. that are buried under mining operations remain buried, even when compensatory mitigation is implemented.

- Drainage patterns could be altered on the mining site. This surface disturbance may be temporary (during the life of the mine) or permanent.
- Runoff exceeding surface water quality standards could occur during intense storm events if the design capacity of drainage structures is exceeded. Under such conditions, runoff from disturbed areas (roads, tailings, waste rock) could contribute sediment to Mineral Creek, Walnut Creek, or the Gila River.

4.2.1.2 Impacts Specific to Each Alternative

The impacts listed below, summarized in Table 4-7, are in addition to those described in "Impacts Common to All Alternatives."

Table 4-7. Summary of Water Resources and Rights That Will Be Gained and Lost by BLM and Asarco under Each Alternative.

Alternative	Water sources and rights on the selected (federal) lands that will be lost by BLM and gained by Asarco	Water sources and rights on the offered (private) lands that will be gained by BLM and lost by Asarco
Proposed Action	▸ 13 springs and 4 associated surface water rights. ▸ 5 federal reserved water rights will be withdrawn. ▸ 3 stockponds with 3 associated surface water rights. ▸ 1 abandoned well	▸ 0.5 mile reach of Big Sandy River and associated riparian area and surface water right. ▸ 1.1 mile reach of Gila River and associated riparian area. ▸ 2 developed springs with 2 associated water rights. ▸ 2 stockponds with 2 associated water rights. ▸ 1 wildlife catchment. ▸ 1 well with associated permit.
Buckeye Alternative	▸ 12 springs and 4 associated surface water rights. ▸ 2 stockponds with 2 associated surface water rights.	Same as Proposed Action except one stockpond and two associated water rights located on Section 9 of the McCracken Mountains Parcels would not be acquired by BLM.
Copper Butte Alternative	▸ 12 springs and 4 associated surface water rights.	Same as Buckeye Alternative.
No Action	None.	None.

Proposed Action. On the selected lands, three stockponds and 13 springs will leave federal ownership and may be lost due to foreseeable mining activities.

On the offered lands, two springs, two stockponds, one wildlife catchment and segments of two rivers - the Big Sandy and the Gila River - would come under public ownership and management by the BLM.

Buckeye Alternative. Potential impacts to surface water resources of the selected lands would be similar to those described for the Proposed Action with one exception: approximately 800 acres of Parcel CB-1 would be excluded from the exchange and any potential impacts to surface water resources on this parcel from future mining activity would be evaluated by BLM under their 3809 regulations. One stockpond, Rincon Reservoir, would remain in federal ownership.

BLM would acquire the same water resources as the Proposed Action except Section 9 of the McCracken Mountains Parcels would be excluded from the exchange and one stockpond, Hill Tank, would not be acquired by BLM.

Copper Butte Alternative. Potential impacts to surface water resources of the selected lands would be similar to those described for the Proposed Action with the following exception: Parcels CB-1, CB-2, and portions of CB-3 would be excluded from the exchange and potential impacts to surface water resources on these parcels from future mining activity would be evaluated by the BLM under their 3809 regulations. Three stockponds, Rincon Reservoir, Dunn Tank No. 1, and Dunn Tank No. 2, and one abandoned well would remain in federal ownership.

Under this alternative, would acquire the same surface water sources would be the same as the Buckeye Alternative, however, Sections 9, 3 and 19 of the McCracken Mountains Parcels would be excluded from the exchange.

No Action Alternative. Impacts to surface waters on the selected lands resulting from foreseeable mining uses would be the same as those described under Impacts Common to All Alternatives, and these impacts would occur on BLM administered public lands. Without the proposed exchange, the quantity, quality and use of surface water resources on the offered lands would likely remain unchanged until development activities occur; at this time, little is known about the nature and date of future development.

4.2.2 Groundwater

4.2.2.1 Impacts Common to All Alternatives

The foreseeable mining uses on the selected lands will likely affect groundwater; however, it is not possible at this time to describe specific details concerning the impacts that are likely to occur because:

1) Asarco has not developed detailed mining plans that describe the type, location, and size of mining facilities. Without such plans, site-specific and detailed analysis of impacts to groundwater is not possible.
2) Specific designs and measures that will minimize impacts to groundwater are not currently known. They will be specified in a future Aquifer Protection Permit (APP) that Asarco must obtain prior to mining operations.

Most APPs for large mines in Arizona contain a number of general measures to minimize impacts to groundwater, including:

- Leach facilities are designed as closed-circuit systems that must meet ADEQ's Best Available Demonstrated Control Technology (BADCT) Criteria. Such a design is intended to prevent leachate solutions from reaching the environment; this protects groundwater and surface water.
- Surface runoff originating upgradient of mining facilities (e.g., leach sites, solution ponds, tailings, waste rock dumps) is captured and diverted around these facilities. This prevents the contamination of surface runoff by these facilities, which in turn prevents contaminated surface water from reaching groundwater.
- Waste rock and tailings that are likely to cause water quality to exceed certain standards are segregated from inert material and isolated from surface water and groundwater.
- Groundwater quality monitoring wells are located at optimal sites and depths down-gradient of mining facilities that have the potential to affect groundwater. Groundwater quality can be affected down-gradient of certain mining facilities (leach sites, tailings, waste rock dumps) so long as aquifer water quality standards (AWQS) are met at specific point of compliance (POC) wells. These POC wells are usually located a short distance down-gradient of mining facilities that have the potential of affecting groundwater.

Impacts to groundwater that may occur after the APP is obtained (residual impacts) may include:

- Groundwater quality can be affected down-gradient of certain mining facilities (leach sites, tailings, waste rock dumps) even though aquifer water quality standards (AWQS) are met at specific POC wells.

- Groundwater quantity may be depleted if mining operations require local groundwater withdrawals, and this may impact other local water users. There are no environmental permits specifically designed to prevent this, and most of the selected lands are outside of active management areas for groundwater. This means that Asarco could withdraw groundwater from the selected lands with few restrictions. It should be noted that wells must be registered with ADWR in order to legally withdraw groundwater.
- Groundwater levels adjacent to mine pits may decline, and ponding of water in pits is possible. This drawdown and ponding only occur if the mine pit intercepts groundwater.

4.2.2.2 Impacts Specific to Each Alternative

Proposed Action. Under the Proposed Action, Asarco would acquire one abandoned stock watering well on Parcel CB -3 and BLM would acquire one well on the Gila River Parcel at Cochran.

Buckeye Alternative. Potential impacts to groundwater resources on the selected lands would be similar to those described under the Proposed Action.

Copper Butte Alternative. Potential impacts to groundwater resources of the selected lands would be similar to those described under the Proposed Action.

No Action Alternative. Impacts from foreseeable uses on groundwater resources would be the same as those described under Impacts Common to All Alternatives. On the offered lands, groundwater resources would remain available for use by private land owners.

4.2.3 Surface Water Rights/Well Permits

Table 4-7 provides a comparative summary of the water sources and water rights/well permits that would be gained or lost by BLM and Asarco under each alternative.

4.2.3.1 Impacts Common to All Alternatives

Ray Complex, Chilito/Hayden, Copper Butte/Buckeye. Some water sources and wells on the selected lands in these areas may become unusable under conditions resulting from foreseeable mining uses of the selected lands. Nine BLM surface water rights occur within POS or TRANS Use areas. Three BLM surface water rights located in INTER and LRP Use areas would most likely continue to be utilized for their designated uses. Surface water rights associated with these sources would likely be withdrawn (if the source was buried), amended, or undergo a "sever and transfer process" to reflect a new type and/or place of use.

Casa Grande. There will be no impact to surface water rights because these parcels only involve a transfer of mineral estate with no change or effect on surface ownership.

4.2.3.2 Impacts Specific to Each Alternative

Proposed Action. Only those surface water rights held by BLM on the selected lands would be conveyed to Asarco under the Proposed Action; private surface water rights will not be affected. Of the twelve surface water rights held by BLM on the selected lands, five are for BLM's federal reserved right (for Public Water Reserve No. 107). These rights are not transferrable and would be withdrawn by BLM from ADWR's records. In total, therefore, seven surface water rights claims would transfer to Asarco, including three associated with stockponds in the Copper Butte/Buckeye area and four associated with springs on Parcel RM-18. BLM holds no well permits on the selected lands, so none would be assigned out of federal ownership.

Five surface water rights and one well permit on the offered lands would transfer to BLM (Table 3-33).

Buckeye Alternative. Under this alternative, one BLM water right associated with Parcel CB-1 for Rincon Reservoir would remain in federal ownership.

Under this alternative, BLM would acquire all surface water rights listed in Table 3-33, with the exception of those on Section 9 of the McCracken Mountains Parcels. Specifically, water rights associated with Sand Wash and Hill Tank would not be acquired by BLM as these Sections would remain under private ownership and subject to development.

Copper Butte Alternative. Under this alternative, BLM water rights associated with Parcels CB-1, CB-2, and CB-3 (for Rincon Reservoir, Dunn Tank No. 1, and Dunn Tank No. 2, respectively) would remain in federal ownership.

Under this alternative, acquisition of water rights and well permits would be the same as the Buckeye Alternative, however BLM would not acquire Sections 9, 3 and 19 of the McCracken Mountains Parcels.

No Action Alternative. Without the land exchange, no water rights in the project area would transfer ownership. However, with implementation of foreseeable mining uses, impacts to water sources and associated water rights would be expected to be similar to those described under Impacts Common to All Alternatives.

Under the No Action, five surface water rights and one well permit would remain in private ownership.

4.2.4 Air Quality

4.2.4.1. Impacts Common to All Alternatives

Ray Complex. Foreseeable mining uses of selected lands include creation of new leach and development rock stockpiles to support continued mining on Asarco's private lands. Should these new facilities result in increases in emissions for any regulated air pollutant beyond the state's existing significant levels, Asarco must apply to ADEQ for a major modification to its Title V permit and conduct a visibility analysis of potential impacts to Class I airsheds. All of the Ray Complex selected lands are within a non-attainment area for PM_{10}, which means that no increase in PM_{10} emissions would be allowed under current regulations. In addition, new sources must demonstrate compliance with the "lowest achievable emission rate" (LAER) for sources of PM_{10} (Figure 3-11). Asarco must also certify that all of its existing major sources are in compliance with all conditions and requirements of the Clean Air Act (CAA).

Copper Butte/Buckeye. Foreseeable mining uses at Copper Butte include construction of an open-pit and waste rock deposition areas, which Asarco would need a Title V permit from ADEQ to implement these uses. Furthermore, foreseeable mining uses at Copper Butte include processing ore at the Ray Mine utilizing existing crushing, screening and conveying equipment which is covered by both the air operating permit and the Title V application. Copper Butte ore is expected to replace current silicate ore production at the Ray Mine. Should these new facilities result in increases in emissions for any regulated air pollutant beyond the state's existing significance levels, Asarco would need a modification to its Title V permit and based on the potential for perceptible visibility impacts within a Class I area (Superstition Wilderness), a Class I visibility analysis and monitoring strategy may be required in the future.

Chilito/Hayden. Foreseeable mining uses of Parcel CH-5 include expansion of existing tailings deposition areas which would be regulated under existing air quality permits issued by ADEQ. Any increase in emissions beyond significance levels would require a modification to the appropriate permit. Foreseeable mining uses of Parcels CH-1, CH-2, CH-3 and CH-4 include expansion of existing haul routes, administrative facilities, and future development of copper/silica flux, a refuse dump and limestone quarry, which would require that Pinal County Air Quality Control Division (PCAQCD) issue an air quality permit.

All of the Chilito/Hayden selected land parcels are within a non-attainment area for both PM_{10} and SO_2. Therefore, no increase in either of these pollutants would be allowed under current regulations. In addition, new sources must demonstrate compliance with the LAER for sources of PM_{10} and SO_2. Asarco must also certify that all of its existing major sources are in compliance with all conditions and requirements of the CAA.

Casa Grande. No mining activity is planned for the Casa Grande area selected land parcels. The north half of selected land Parcel CG-3 would potentially be disturbed by mineral exploration in the form of drilling. Fugitive dust from the site would continue to be controlled in accordance with PCAQCD regulations. Fugitive dust generation and the release of sulfuric acid mist and volatile organic compounds from process and storage tanks should be minor over the short term and nonexistent over the long term (United States Bureau of Mines 1994).

4.2.4.2 Impacts Specific to Each Alternative

Proposed Action. The land exchange *per se* would not generate any criteria air pollutants or affect Class I airsheds within 100 km of the selected lands. According to the Conformity Rule (November 15, 1993, 40 CFR 51.850-860), land exchanges are exempt from conformity, therefore the Proposed Action is expected to conform with all applicable SIP requirements for the Hayden area. However, the proposed foreseeable uses of the selected lands include mining construction and operational activities that would generate emissions subject to Clean Air Act requirements and therefore, conformity would apply.

Under the Proposed Action, BLM would acquire all the offered lands, and no impacts to air quality would be expected due to the change in land ownership.

Buckeye Alternative. Under this alternative, impacts to air quality on the selected and would be expected to be similar to those described under the Proposed Action.

Impacts to air quality on the offered lands would be expected to be similar to the Proposed Action. However, Section 9 of the McCracken Mountains Parcels would remain in private ownership and subject to development.

Copper Butte Alternative. Under this alternative, impacts to air quality on the selected would be expected to be similar to those described under the Proposed Action.

Impacts to air quality on the offered lands would be identical to the Proposed Action. However, Sections 9, 3 and 19 of the McCracken Mountains Parcels would remain in private ownership and subject to development.

No Action Alternative Under the No Action alternative, the selected lands would remain under BLM administration.

Under the No Action, the offered lands would remain under private ownership and subject to development. Should the offered lands eventually be developed, localized, short-term air quality impacts may result from construction, but any long-term impacts would be subject to existing regulatory mechanisms.

4.2.5 Soils

4.2.5.1 Impacts Common to All Alternatives

Potential impacts to soils due to implementation of the foreseeable mining uses include the physical loss of soil materials and decreases in soil productivity. Physical losses would occur as a result of accelerated erosion and removal by excavation, construction uses, or burial. Soil productivity would be affected by removal, compaction and fertility losses. Specific surface disturbances within each foreseeable use category is shown in Tables 2-5 and 2-6.

Ray Complex. Implementation of foreseeable mining uses in the Ray Complex area would result in the loss of approximately 6,325 acres (57%) of soils. Specifically, 272 acres within EXIST areas, 2,789 acres within POS areas would undergo 25%-100% surface disturbance, 409 acres within TRANS areas would undergo 5%-25% surface disturbance, 1,836 acres within INTER areas would undergo less than 5% surface disturbance and 1,018 acres within LRP areas would undergo surface disturbance similar to POS and TRANS.

Copper Butte/Buckeye. Implementation of foreseeable mining uses in the Copper Butte/Buckeye area would result in the loss of approximately 3,182 acres (29%) of soils. Specifically, 345 acres within POS areas, 306 acres within TRANS areas, 2,168 acres within INTER areas and 363 acres within LRP areas.

Chilito/Hayden. Implementation of foreseeable mining uses in the Chilito/Hayden area would result in the loss of approximately 832 acres (8%) of soils. Specifically, 480 acres within POS areas and 352 acres within LRP areas.

Casa Grande. Implementation of foreseeable mining uses in the Casa Grande area would result in the loss of approximately 637 acres of soils. Specifically, 160 acres located in TRANS areas and approximately 477 acres located in INTER areas.

4.2.5.2 Impacts Specific to Each Alternative

Proposed Action. Under the Proposed Action, Asarco would acquire approximately 10,976 acres of public lands and implement foreseeable mining uses on those lands.

In acquiring the offered lands, all soils would become publicly owned and managed per the Phoenix and Kingman Resource Area RMPs.

Buckeye Alternative. Under this alternative, Asarco would acquire approximately 10,176 acres of public lands and implement foreseeable mining uses on those lands.

BLM would acquire all soils on the offered lands would become publicly owned as discussed under the Proposed Action. However, Section 9 of the McCracken Mountains Parcels would not be acquired by BLM, which would remain under private ownership and subject to development.

Copper Butte Alternative. Under this alternative, Asarco would acquire approximately 9,161 acres of public lands and implement foreseeable mining uses on those lands.

BLM would acquire all soils on the offered lands would become publicly owned as discussed under the Proposed Action. However, Sections 9, 3 and 19 of the McCracken Mountains Parcels would not be acquired by BLM, which would remain under private ownership and subject to development.

No Action Alternative. Under the No Action, impacts to soils would be expected to be similar to those described under Impacts Common to All Alternatives. In addition, BLM would not acquire soils located on approximately 7,300 acres of the offered lands would remain in private ownership and subject to potential future development.

4.3 MINERAL RESOURCES

4.3.1 Mineral Potential

4.3.1.1 Impacts Common to All Alternatives

Much of the mineral potential of the selected lands in the Ray Complex area would be expected to be mined in the long-term under any alternative.

4.3.1.2 Impacts Specific to Each Alternative

Proposed Action. No additional impacts expected.

In acquiring the offered lands, any leasable, saleable or locatable mineral resources on these lands would become publicly owned and managed under the Phoenix or Kingman Resource Area RMPs.

Buckeye Alternative. No additional impacts expected.

Copper Butte Alternative. No additional impacts expected.

No Action Alternative. Under the No Action, foreseeable mining uses would be expected to occur on the selected lands, and thus potential impacts to mineral resources would be expected to be similar to those described under Impacts Common to All Alternatives. Under this alternative, the mineral resources of the offered lands, including any locatable, salable, or leasable minerals, would remain privately owned and managed by Asarco.

4.3.2 Mineral Rights

4.3.2.1 Impacts Common to All Alternatives

Ray Complex. There would be no impacts of the foreseeable mining uses on existing active mineral rights on the selected lands in the Ray Complex.

Copper Butte/Buckeye. There would be no impacts of the foreseeable mining uses on existing active mineral rights on the selected lands in the Ray Complex (Figure 3-12).

Chilito/Hayden. Foreseeable mining uses would not be expected to have impacts on the existing mineral rights held by Asarco on the selected lands in the Chilito/Hayden area. However, four active mineral claims held by third parties would have to be acquired by Asarco or relinquished by the third party holder in order for mining to occur in the Chilito/Hayden area.

Casa Grande Area. Foreseeable mining uses would not be expected to have impacts on any existing active mineral claims held by SCJV on the selected lands.

4.3.2.2 Impacts Specific to Each Alternative

Proposed Action. Under the Proposed Action, the land exchange would not impact active mineral rights on the selected lands.

With the exchange, the U.S. Government would acquire all mineral rights associated with offered lands. The Knisely Ranch Parcels would not be subject to the General Mining Law of 1872 because of the mineral withdrawal stipulations once Mt. Tipton was designated by the Arizona Desert Wilderness Act of 1990. All other parcels would open for mineral entry 90 days from title closure except for: the Tomlin Parcel #4 and Gila River at Cochran Parcel. BLM would file petitions to withdraw these two from mineral entry.

Buckeye Alternative. Under this alternative, potential impacts to mineral rights would be expected to be similar to those identified in the Proposed Action. However, the title to the mineral rights associated with the remaining 800 acres of Parcel CB-1 would remain with Asarco and occur on BLM surface estate lands.

Impacts to mineral rights on the offered lands would be expected to be similar to those under the Proposed Action; however, Section 9 of the McCracken Mountains Parcels would remain under private ownership and subject to development.

Copper Butte Alternative. Under this alternative, potential impacts to mineral rights on the selected lands would be expected to be similar to those identified in the Proposed Action. However, the title to the mineral rights associated with Parcels CB-1, CB-2 and portions of CB-3 would remain with Asarco and occur on BLM surface estate lands.

Impacts to mineral rights on the offered lands would be identical to those described under the Proposed Action; however, Sections 9, 3 and 19 of the McCracken Mountains Parcels would remain under private ownership and subject to development.

No Action Alternative. Existing active mineral rights on the selected lands would continue to be held by Asarco or by third parties. Under current mining laws, Asarco could utilize existing claims to pursue the foreseeable mining uses on all of the selected lands except Parcel CH-5 and portions of the Chilito/Hayden parcels. All of Parcel CH-5 and portions of Parcel CH-2 could not be mined because Asarco currently does not have any mining claims in these areas. If the No Action Alternative was selected, all selected lands currently segregated under the Memorandum of Agreement (SWCA 1997a) would be de-segregated.

4.4 LAND USE

4.4.1 Land Ownership

4.4.1.1 Impacts Common to All Alternatives

Implementation of the foreseeable mining uses in the Casa Grande, Ray Complex, Copper Butte/Buckeye and Chilito/Hayden areas could occur under public or private ownership.

4.4.1.2 Impacts Specific to Each Alternative

Proposed Action. Under the Proposed Action, there would be a two percent increase in privately-held lands in Pinal County and a 0.3 percent increase in Gila County. There would be a 0.1 percent decrease in publicly-held lands in Pinal County and Gila County. The exchange would consolidate Asarco's land holdings and would reduce the number of small isolated tracts currently being managed by the BLM's Tucson Field Office (Table 4-8).

Table 4-8. Comparison of Surface Estate Land Ownership Within the Management Study Area Between the Existing Condition and Land Ownership Changes Resulting from the Proposed Action

	Existing Land Ownership		Proposed Action Alternative	
Land Ownership	**Approximate acreage**	**Percent of study area**	**Approximate acreage**	**Percent of study area**
BLM-administered	77339	48%	69143	43%
Asarco private	31225	19%	39421	24%
State of Arizona	35247	22%	35247	22%
Non-Asarco private	6017	4%	6017	4%
USDA Forest Service	11392	7%	11392	7%
TOTAL	**161220**	**100**	**161220**	**100**

Ray Complex, Copper Butte/Buckeye, Chilito/Hayden. In these areas, Asarco would acquire approximately 8,196 acres of full-estate lands and 2,143 acres of split-estate lands. Three percent of the management study area would be transferred from public administration by BLM to Asarco private ownership. More specifically, the percent of BLM administered surface estate land would change from 48 to 43 percent, and the percent Asarco private land would change from 19 to 24 percent (Table 4-8).

Casa Grande. In the Casa Grande area, the land exchange would result in transfer of 637 acres of mineral estate from BLM to SCJV, a two percent increase in privately-held lands. The land exchange would not result in any transfer of surface estate lands in the Casa Grande area. It would eliminate three of the five parcels BLM manages the mineral estate on in the Casa Grande area.

Under the Proposed Action, the Tucson and Kingman BLM Field Offices would gain approximately 7,300 acres of land (Table 4-9). Specifically, the Tucson Field Office would gain 320 acres located within the Gila River Riparian Management Area (GRRMA) and Middle Gila Cultural Resource Management Area (MGCRMA), and the Kingman Field Office would gain 120 acres adjacent to the Warm Springs Wilderness and Black Mountain Herd Management Area, 160 acres within the Mount Tipton Wilderness, 314 acres within the Big Sandy Herd Management Area and 6,384 acres within the McCracken Desert Tortoise Habitat Area of Critical Environmental Concern (ACEC). Acquiring these inholdings is a high priority for the respective BLM Field Offices as it alleviates potential or current conflicts between competing land uses, such as potential residential developments or incompatible land uses within designated wilderness.

Table 4-9. Total Acres Each BLM Field Office Would Acquire under Each Alternative

	Tucson Field Office	Kingman Field Office	Total (acres):
Proposed Action	320	6980	7300
Buckeye Alternative	320	6339	6659
Copper Butte Alternative	320	5281	5601
No Action	none	none	none

Buckeye Alternative. Under this alternative, impacts to land ownership would be expected to be similar to those described under the Proposed Action, except 800 acres of Parcel CB-1 would remain under BLM ownership.

Under this alternative, the Tucson Field Office would acquire 320 acres within the GRRMA and MGCRMA, and the Kingman Field Office would acquire all lands as in the Proposed Action with the exception of Section 9 (640 acres) of the McCracken Mountains Parcels.

Copper Butte Alternative. Under this alternative, impacts to land ownership would be expected to be similar to those described under the Proposed Action; however, Parcels CB-1, CB-2, CB-5 and portions of CB-3 would remain under BLM administration.

In exchange, the BLM would acquire most of the offered lands, with the exception of Sections 9, 3 and 19 of the McCracken Mountains Parcels. By implementing this alternative, BLM would not acquire 1,698 acres within the McCracken Desert Tortoise Habitat ACEC.

No Action Alternative. Under the No Action Alternative, the selected lands would remain public lands, there would be no change in land ownership patterns within the BLM Tucson Field Office.

Under the No Action, there would be no increase in public land consolidation within the Gila River Riparian Management Area (GRRMA) and Middle Gila Cultural Resource Management Area (MGCRMA), the Warm Springs Wilderness within the Black Mountains Herd Management Area, the Mount Tipton Wilderness, the Big Sandy Herd Management Area, and the McCracken Desert Tortoise Habitat ACEC.

4.4.2 Management of Public Lands

4.4.2.1 Impacts Common to All Alternatives

Foreseeable uses of the selected lands would likely be implemented under current mining laws, as per the requirements of 43 CFR § 3809 and 3715, or through a land exchange. Therefore, mining activities will likely occur on the selected lands under any alternative, thus impacting future public land management.

4.4.2.2 Impacts Specific to Each Alternative

Proposed Action. BLM's responsibilities relative to mineral management would be substantially reduced under the Proposed Action. With Asarco's private ownership of the selected lands, BLM would not be responsible for overseeing mining on the selected lands. Specifically, BLM would not be responsible for approving nor administering MPOs or Notices, and would be relieved from possible future patent application administration responsibilities for mining claims on the selected lands. However, this does not relieve Asarco of regulatory oversight by other agencies.

Ray Complex. BLM's management responsibilities in maintaining public access to adjacent public lands would not change under the Proposed Action, however, some public access roads would be closed and these are discussed in more detail in Section 4.4.3. Management responsibilities for rights-of-way and grazing would decrease since title to ROWs would be transferred to Asarco and grazing would be decreased by 83 percent in the Sleeping Beauty Mountain allotment, by 24 percent in the Rafter Six allotment, and by nine percent in the Troy allotment.

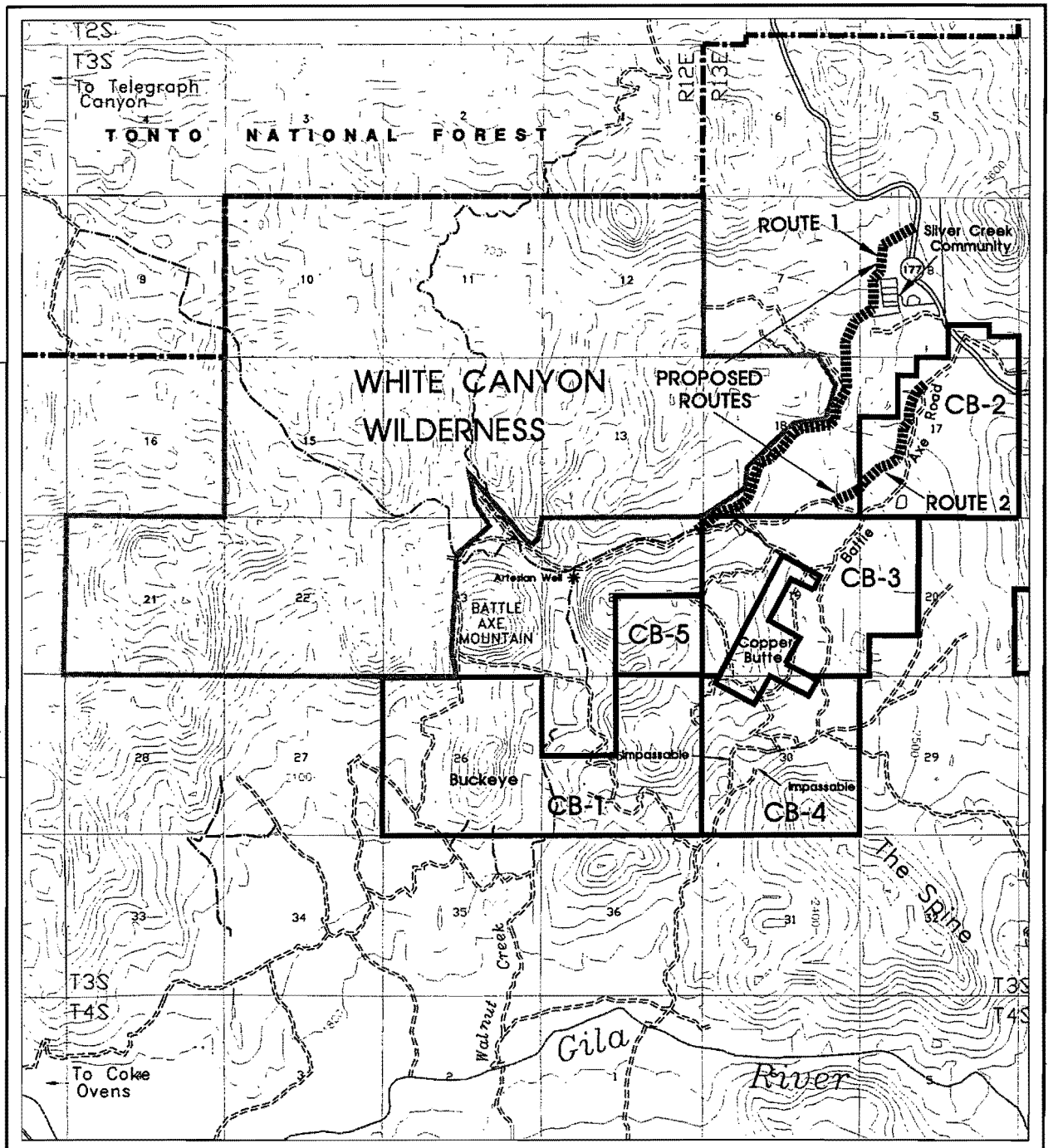
In the Ray Complex area, the land exchange would result in benefits to BLM through land consolidation and reduced mineral management responsibilities. Although the maximum BLM parcel size would be reduced by the land exchange, in general, BLM lands would be consolidated into fewer and larger parcels. Land consolidation will be particularly beneficial in the Ray Complex area, where there are numerous small BLM parcels within or immediately adjacent to Asarco private land.

Copper Butte/Buckeye. BLM's management responsibilities regarding access to the White Canyon Wilderness and trail management would change. Under the Proposed Action, Asarco would use Battle Axe Road for hauling to Copper Butte. A new route would be built, either: 1) along the boundary of the White Canyon Wilderness (Route #1 on Figure 4-1); or 2) would parallel the existing Battle Axe Road (Route #2, Figure 4-1). BLM's management responsibilities related to Route #1 would increase because of the proximity to the Wilderness and private communities in the area. Management responsibilities in regards to Route #2 (BLM's preferred route), would increase as well due to the close proximity to Battle Axe Road, specifically safety. Both Asarco and BLM are currently discussing safety concerns for this route due to its close proximity to a future haul road. Both routes are discussed in more detail in Section 4.4.3. BLM's management responsibilities regarding trail management would increase in this area once detailed planning of each trail is defined. In the mean time, BLM's current management responsibilities for trails includes, but not limited to, planning for trail detours around mining activities in the Copper Butte/Buckeye area, maintaining access through the area, and designating entry/exit areas for trail segments.

Management responsibilities for rights-of-way and grazing would decrease since ROWs would be transferred to Asarco and grazing would be decreased in the Battle Axe and LEN allotments by 11 percent. Also, the exchange of the Copper Butte/Buckeye parcels would result in benefits to the BLM through land consolidation and reduced mineral management responsibilities; however, because of mining claims, the exchange of Parcel CB-3 will not occur along clear section lines (Figure 3-12).

Chilito/Hayden. BLM's management responsibilities for ROWs and grazing in this area would decrease since these ROWs would transfer into Asarco ownership and grazing responsibilities would decrease in the Smith Wash and Hidalgo allotments by 10 percent. Also, the exchange of Parcels CH-4 and CH-5 would result in benefits to the BLM through land consolidation; however, because of mining claims, the exchange of Parcels CH-1, CH-2 and CH-3 will not occur along clear section lines (Figure 3-13).

Casa Grande. In the Casa Grande area, BLM's mineral estate administration responsibilities would be reduced by 50 percent, through the transfer of 637 acres of BLM-administered mineral estate, out of the total of 1,280 acres, to SCJV. The BLM has no existing mineral management authority under the 43 CFR § 3809 regulations, however, one of BLM's objectives, stated in the Phoenix RMP, is to alleviate the significant management problems associated with scattered land ownership patterns and to consolidate surface and subsurface ownership through the acquisition by exchange of nonfederal mineral estate underlying federal surface holdings (BLM 1988).



KEY

- SELECTED PARCELS
- STREAMS
- WILDERNESS BOUNDARY

ACCESS ROUTES

- IMPROVED
- UNIMPROVED
- TRAIL
- APPROXIMATE ROUTES

CONTOUR INTERVAL 100 FEET

Scale
0 1/2 1
MILE

RAY LAND EXCHANGE/PLAN AMENDMENT EIS
Pinal County, Arizona T.3S. R.12E., T.3S. R.13E., T.4S. R.13E.

ALTERNATIVE ACCESS ROUTES TO WHITE CANYON WILDERNESS

FIGURE 4-1

Proj. #: 86-94929 | File: G:\ACAD\94929\DRAWINGS | Drawing: ACCESS.DVG | Drwn by: KAD/JLJ/ABL | Chk'd by: NS | Date: 2-14-96 | Rev. 4-26-99

Under the Proposed Action, BLM would acquire approximately 7,300 acres in or adjacent to the Mount Tipton Wilderness, Warm Springs Wilderness and various other special management areas. Acquisition of private inholdings within these special management areas would achieve BLM land tenure adjustment objectives by acquiring key inholdings. Acquisition of the Knisely parcel group into public ownership would eliminate the possibility of future access needs to, and possible development of, those properties by private landowners, which would protect natural conditions in the Mount Tipton Wilderness. The acquisition of the Sacramento Valley Parcel into public ownership would also protect natural conditions to a small extent along the interface with Warm Springs Wilderness by eliminating the possibility of development near the wilderness boundary.

Buckeye Alternative. The management of public lands would be similar to that described under the Proposed Action, however, a portion of Parcel CB-1 (800 acres) would be eliminated from the exchange and remain under management of the Tucson BLM Field Office. Should Asarco desire to conduct mining operations on the BLM portion of Parcel CB-1 they could do so through BLM's 3809 regulation, and thus BLM's mining management responsibilities would increase substantially compared to the Proposed Action. BLM's management responsibilities for grazing within the LEN Allotment would not change since no acres within this allotment would be exchanged.

The offered lands acquired by the BLM would be similar to the Proposed Action, except that BLM would not acquire Section 9 of the McCracken Mountains Parcels.

Copper Butte Alternative. The management of public lands would be similar to those described under the Proposed Action, however, Parcels CB-1, CB-2, and portions of Parcel CB-3 would remain under management of the BLM Tucson Field Office. Should Asarco implement mining operations on these parcels under the 3809 regulation, BLM's mining management responsibilities would increase substantially compared to the Proposed Action.

The offered lands acquired by the BLM would be similar to the Proposed Action except the BLM would not acquire Sections 9, 3 and 19 of the McCracken Mountains Parcels.

No Action Alternative . Asarco would likely pursue implementation of the foreseeable mining uses through existing regulatory mechanisms. Under this scenario, BLM management responsibilities would include, but would not be limited to, processing and analyzing environmental impacts of potentially multiple MPOs and Notices in association with multiple NEPA documents; administration and management of regulatory compliance aspects of mine operations on BLM lands; extensive, long-term coordination with Asarco and numerous state and federal agencies regarding regulatory compliance; and oversight of post-closure surface reclamation. These responsibilities would require long-term and significant commitments of BLM's personnel and administrative resources.

Without a land exchange, Asarco would not have direct control over BLM lands and would have the additional coordination requirements with BLM beyond those already required by state and other federal agencies. If Asarco elects to patent their existing claims to the selected lands, BLM would be responsible for processing the patent applications and its management responsibilities would end when the lands were patented.

Asarco would retain the offered lands and the ability of the BLM to effectively manage public lands within five special management areas would continue to be impacted by the existence of private inholdings. The potential disposition of the Knisely Parcel group, if not transferred into public ownership, may be sold by Asarco for development purposes. If this were to occur, there is a strong likelihood that future private landowner(s) would look to BLM for access to those lands, which could involve activities contrary to BLM's objective of protecting natural conditions within the wilderness. Possible activities could include road construction and use of motor vehicles. In addition, private landowners may choose to develop their properties in some manner, which would impact the natural appearance of the landscape as viewed from adjacent wilderness lands. Likewise, the potential disposition of the Sacramento Valley Parcel, if not acquired by BLM, is it's sale for development purposes. Development of these lands adjacent to the Warm Springs Wilderness. would likely impact the natural appearance of the landscape as viewed from adjacent wilderness lands.

4.4.3 Access and Recreation

4.4.3.1 Impacts Common to All Alternatives

Ray Complex. Implementation of foreseeable mining use on Parcel RM-18 would impact public access to this parcel and to adjacent public lands. Access to Kane Springs Canyon would likely be closed and not available for recreational use. Implementation of foreseeable mining uses would not impact public access to Parcels RM-1 through RM-17 or adjacent public lands because currently there is no direct public access to these parcels (Figure 3-14).

Copper Butte/Buckeye. Implementation of foreseeable mining uses on Parcels CB-1, CB-2, and CB-3 may further limit public access to these public lands, again depending on the configuration of mining operations. Currently, Battle Axe Road crosses lands controlled by Asarco, and Asarco would likely terminate public access through this area. Asarco has proposed to construct a new access route, which would ensure continued public access to the White Canyon Wilderness, artesian well, and Coke Ovens. Two alternative routes to the White Canyon Wilderness are being considered in this EIS and are discussed in more detail below.

The first route, labeled Route #1 on Figure 4-1, would require Asarco to construct a 2.5-mile road on BLM and State land from Highway 177 through the west edge of Parcel CB-1. Approximately 1.3 miles would be located in Walnut Canyon wash along the eastern boundary of the White Canyon Wilderness. If this route is selected, Asarco would obtain the applicable state and federal permits and issue them to the BLM. This road would provide BLM administrative and public access for recreational purposes and would connect to existing roads across Section 24, T3S, R12E (State land), and along the wilderness boundary in Section 18, T3S, R13E. BLM would reserve a right-of-way and an easement through the southeast corner of Section 7, T3S, R13E (State land); and a new four-wheel-drive road would be built to connect the existing road in Section 26 to the existing road in Section 27, T3S, R12E. The new access road would be constructed on the west side of the Silver Creek community, adjacent to State Highway 177. The new road could potentially affect the community through the influx of public land users and create additional impacts to the White Canyon Wilderness.

The second route (BLM's preferred route), labeled Route #2 on Figure 4-1, would require Asarco to construct an approximate two-mile parallel road to the existing Battle Axe Road. This road would start near the existing entrance to Battle Axe Road off of Highway 177 and would connect to existing roads in Section 24 and lead to the Wilderness boundary. The new road could potentially create safety concerns due to the proximity to Battle Axe Road, which will be used by Asarco for hauling, however, this can be avoided by providing a large buffer zone or berm between roads. Details concerning safety will be finalized by BLM once a route is selected.

Chilito/Hayden. Implementation of foreseeable mining use of Parcels CH-1, CH-2, and CH-3 (the Chilito Long-Range Prospect), may further limit public access to these public lands, depending on the configuration of mining operations, which would be dependent on the outcome of existing regulatory mechanisms. Implementation of foreseeable mining uses would not impact public access to Parcel CH-4 or CH-5 or access to adjacent public lands because there is currently no direct public access to these parcels.

Casa Grande. Implementation of foreseeable mining uses on Parcels CG-1, CG-2, and CG-3 is not expected to result in additional impacts to recreation and access to these parcels under any of the alternatives under consideration since the surface estate is already controlled by SCJV, a private party (Figure 3-4).

4.4.3.2 Impacts Specific to Each Alternative

Proposed Action. Under the Proposed Action, the selected lands would become Asarco private lands and access and recreation may no longer be available on Parcels CB-1, CB-2, CB-3, CB-4, and CB-5. This is expected with the development and use of the Copper Butte pit, and use of Battle Axe Road would be expected to be restricted once mine development occurs. Asarco would construct one of the two alternative

routes and issue BLM a right-of-way on its private lands in order to maintain public access to the Wilderness. Potential impacts to access and recreation for Chilito/Hayden, Ray Complex, and Casa Grande areas are expected to be similar to those described under Impacts Common to All Alternatives.

Under the Proposed Action, BLM would secure public access to/through the offered lands. Specifically, public access to Warm Springs Wilderness and Mount Tipton Wilderness, public access throughout the McCracken Mountains, public access to the southern portion of the Hualapai Mountains, and public access to the Gila River and White Canyon Resource Conservation Area.

Buckeye Alternative. Under this alternative, impacts to access and recreation would be similar to those described under the Proposed Action, however, approximately 800 acres of Parcel CB-1 would be removed from the land exchange. Under this alternative, should Asarco wish to conduct mining operations on Parcel CB-1, they would have to do so under BLM's 3809 regulations. Through this process, the BLM would have the opportunity to review the entire layout of mining operations proposed on BLM lands, and make necessary and appropriate changes to reduce potential impacts to recreation and access. Asarco would also construct one of the two alternative access routes and issue BLM a right-of-way on its private lands in order to maintain public access to the Wilderness.

Implementing this alternative would result in acquiring and securing public access to/through the offered lands, including wilderness areas. However, BLM would not acquire Section 9 of the McCracken Mountains Parcels, which would remain in private ownership and subject to development.

Copper Butte Alternative. Under this alternative, Parcels CB-1, CB-2, and portions of CB-3 would remain under BLM administration and access and recreation would remain as it is today. However, should Asarco seek to conduct mining activities on these parcels BLM's 3809 regulation, impacts to access and recreation would likely be similar to those discussed under Impacts Common to All Alternatives. The use of Battle Axe Road would remain as it is today, however, if mining operations are implemented at Copper Butte, Asarco would likely apply for the right-of-way for use of Battle Axe Road for hauling. BLM would likely require mitigation to allow for continued public access to the White Canyon Wilderness, therefore the proposed routes shown in Figure 4-1 would likely be considered.

Implementing this alternative would result in acquiring and securing public access to/through the offered lands, including wilderness areas. However, BLM would not acquire Sections 9, 3 and 19 of the McCracken Mountains Parcels, which would remain in private ownership and subject to development.

No Action Alternative. Under No Action, the selected lands would remain under BLM administration and access and recreation would remain the same as it is today. However, if Asarco seeks to conduct mining activities on the selected lands, impacts to access and recreation would be expected to be similar to those described under Impacts Common to All Alternatives. BLM would have an opportunity to review and make necessary and appropriate changes through the NEPA process as the selected lands would remain under BLM administration.

Without the exchange, access through all of the offered lands would remain officially restricted to persons authorized by Asarco and would be subject to closure. Closure of access through the offered lands may impact existing recreational uses within adjacent wilderness and other special management areas.

4.4.4 Rights-of-Way

4.4.4.1 Impacts Common to All Alternatives

Ray Complex. Foreseeable mining uses would potentially affect rights-of-way that occur in POS, TRANS, and LRP areas. Impacts to rights-of-way would include the possible relocation of rights-of-way on BLM administered lands further extending the potential area of surface disturbance. However, site specific NEPA documentation would be completed at the time it becomes necessary to relocate any rights-of-way. Table 4-10 summarizes the distribution of rights-of-way within each foreseeable mining use category.

Table 4-10. Distribution of Rights-of-Way Within Foreseeable Use Categories

Selected Land Parcel	Type of Right-of-Way (ROW #)	Holder	Foreseeable Use Categories
CH-1, CH-2, CH-3	Aerial Communication Line; (AZA 24678)	US West Communications, Inc.	LRP
CH-4	Tramroad, (AZA 1000)	ASARCO, Inc.	LRP
CB-2	Highways; (AZAR 04524, AZAR 04525)	Arizona Highway Department	INTER, TRANS
CB-2	Natural Gas Pipeline; (AZAR 02148)	Southwest Gas Corporation	INTER, TRANS
CB-2	Electric Power Transmission Line; (AZA 8778)	Arizona Public Service Company	INTER, TRANS
CB-2	Communication Line; (AZA 6541)	US West Communications Inc.	INTER, TRANS
CB-2, CB-3	County Road; (AZA 21389)	Pinal County Board of Supervisors	POS, INTER, TRANS
CB-2	12 KV Electric Transmission Line; (AZAR 033336)	Arizona Public Service Company	INTER, TRANS
CB-2	Electric Power Transmission Line; (AZPHX 086749)	Salt River Project Public Lands Division	INTER, TRANS
RM-17	Electric Power Transmission Line; (AZA 2146)	Salt River Project Public Lands Division	POS
RM-17	Highway; (AZAR 024241)	Arizona Highway Department	POS

Source: SWCA 1997k

The rights-of-way crossing Parcel RM-17 in the Ray Mine area are in POS areas (Figure 3-17). These rights-of-way would potentially be impacted by foreseeable mining uses. Should Asarco choose to expand mining operations west of State Highway 177, planning efforts would have to include negotiation with the holders of the rights-of-way that cross this parcel. Depending on the configuration of the mining operation, the transmission line right-of-way (AZA 2146) and State Highway 177 right-of-way (AZAR 024241) would potentially have to be rerouted around planned facilities when they are constructed. Any future relocation of Highway 177 to accommodate continued mine development would likely be done under a cooperative agreement between Asarco and the Arizona Department of Transportation.

Copper Butte/Buckeye. The rights-of-way crossing the Copper Butte/Buckeye area selected lands are in POS, TRANS, and INTER areas. Rights-of-way in POS and TRANS areas would potentially be impacted by foreseeable mining uses. Should Asarco choose to develop copper or silica flux deposits in the Copper Butte Parcels (CB-2 and CB-3), planning efforts would have to include negotiation with holders of rights-of-way that cross these parcels (Figure 3-18). Depending on the configuration of the mining operation, the rights-of-way would potentially have to be relocated.

Chilito/Hayden. The rights-of-way crossing the Chilito/Hayden area selected lands are in LRP and INTER areas and would potentially be impacted by foreseeable mining uses (Table 4-10). Asarco would potentially use its tramroad right-of-way (AZA 1000) to support copper milling/smelting operations in Parcel CH-4 (Figure 3-19). Should Asarco choose to develop copper or silica flux deposits on the Chilito Parcels (CH-1, CH-2 and CH-3), planning efforts would have to include negotiation with US West Communications, Inc. regarding communications line right-of-way AZA 24678. Depending on the configuration of the mining operation, the communication line would potentially have to be relocated.

Casa Grande. No rights-of-way cross any of the selected lands in the Casa Grande area, and therefore no impacts to rights-of-way are expected under any of the alternatives.

4.4.4.2 Impacts Specific to Each Alternative

Proposed Action. As proposed in the ATI, Asarco would reroute Pinal County's right-of-way AZA21389 (Battle Axe Road), located within POS areas, onto adjacent BLM administered lands. Pinal County would be required to amend their road right-of-way to reflect the new location (Figure 3-17). As all existing easements would be transferred intact, no additional impacts to rights-of-way other than those described under Impacts Common to All Alternatives would be expected. Asarco would, however, no longer need its easement for the right-of-way (AZA 1000) crossing Parcel CH-4, as Asarco would own this parcel.

Under the Proposed Action, no impacts to existing rights-of-way on the offered lands are expected. BLM would be acquiring title to these lands subject to existing rights-of-way. Any changes in these rights-of-way would have to be negotiated.

Buckeye Alternative. Potential impacts to rights-of-way would be expected to be similar to those described under the Proposed Action, as there are no rights-of way that cross Parcel CB-1 (Figure 3-17).

Under this alternative, no impacts to existing rights-of-way on the offered lands are expected since BLM would be acquiring title to these lands. Rights-of-way remaining on private lands would remain as they are today and any changes in rights-of-way would have to be negotiated with the right-of-way holder. The BLM not acquiring Section 9 of the McCracken Mountains Parcels would not be expected to alter this conclusion.

Copper Butte Alternative. Under this alternative, rights-of-way crossing Parcels CB-1, CB-2, and the northern portion of Parcel CB-3 would remain on BLM administered lands (Figure 3-17). Specifically, right-of-way AZA 21389 (Battle Axe Road) would remain on BLM administered lands and would continue to be administered by its holder. Impacts to all other rights-of-way are expected to be similar to the Proposed Action.

Under this alternative, no impacts to existing rights-of-way on the offered lands are expected since BLM would be acquiring title to these lands. Rights-of-way remaining on private lands would remain as they are today and any changes in rights-of-way would have to be negotiated with the right-of-way holder. The BLM not acquiring Sections 9, 3 and 19 of the McCracken Mountains Parcels would not be expected to alter this conclusion.

No Action Alternative. Impacts of the foreseeable mining uses under the No Action alternative would be similar to those described under Impacts Common to All Alternatives. Without the land exchange, all existing rights-of-way on selected lands within the Ray Complex would remain valid and subject to the current terms and conditions.

Under the No Action alternative, all existing rights-of-way located on the offered lands would remain under Asarco ownership and all existing terms and conditions of the existing agreements would remain valid.

4.4.5 Grazing

4.4.5.1 Impacts Common to All Alternatives

Mining activities by Asarco could occur under all the alternatives, and therefore the foreseeable mining uses could impact approximately 4,814 acres in seven grazing allotments, reducing the stocking capacity of these allotments by a combined total of 379 AUMs[42]. The surface estate of Parcels CB-4, CB-5, RM-11, RM-14

[42] The number of acres and AUMs potentially impacted is computed by multiplying the percent of disturbance of the foreseeable use category by the acreage.

and RM-15 are not owned by the BLM and therefore, existing stocking capacity of these parcels are not included in the analysis of impacts to grazing rights (D. Tersey, BLM Range Specialist, pers. comm).

Ray Complex. Implementation of the foreseeable uses in the Ray Complex area would potentially impact a total of 3,283 acres of BLM administered grazing land within the Sleeping Beauty Mountain, Troy and Rafter Six allotments, with a potential loss of 225 AUMs (Table 4-11).

Table 4-11. Approximate Acreage of Grazable Selected Lands Within Each Foreseeable Use Category

Grazing Allotment	Surface Ownership (Parcel)	POS (25-100% surface disturbance)	TRANS (5-25% surface disturbance)	INTER (<5% surface disturbance)	LRP (5-100% surface disturbance)	Total Acres	Total AUMs
LEN	BLM (CB-1)	0	0	22	363	385	44
Battle Axe	BLM (CB-1 to CB-3)	279	57	56	0	392	44
Hidalgo	BLM (CH-1 to CH-3)	0	0	0	274	274	21
Smith Wash	BLM (CH-5)	480	0	0	0	480	45
Sleeping Beauty Mountain	BLM (RM-1 to RM-6, RM-12,RM-13)[43]	351	7	16	0	374	41
Rafter Six	BLM (RM-10, RM-16, RM-17, RM-18)[44]	1856	63	53	734	2706	143
Troy	BLM (RM-18)	187	7	9	0	203	41
	TOTAL	**3153**	**134**	**156**	**1371**	**4814**	**379**

Source: SWCA 1997j

Copper Butte/Buckeye. Implementation of the foreseeable mining uses in the Copper Butte/Buckeye area would potentially impact a total of 777 acres of BLM administered grazing land within the Battle Axe and LEN grazing allotments, with a potential loss of 88 AUMs (Table 4-11).

Chilito/Hayden. Implementation of the foreseeable mining uses in the Chilito/Hayden area would potentially impact a total of 754 acres of BLM administered grazing land within the Hidalgo and Smith Wash allotments, with a potential loss of 66 AUMs (Table 4-11, Figure 3-21).

Casa Grande. No grazing occurs on any of the selected lands in the Casa Grande area, and therefore, no impacts to grazing are expected from implementation of any of the alternatives.

[43] Does not include 8 acres of selected lands classified as existing use.

[44] Does not include 21 acres of selected lands classified as existing use.

4.4.5.2 Impacts Specific to Each Alternative

Proposed Action. Under this alternative, the selected lands would become Asarco private lands and BLM would relinquish management of and grazing income from approximately 8,196 acres and 918 AUMs acres within the LEN, Smith Wash, Battle Axe, Sleeping Beauty Mountain, Hidalgo, Rafter Six and Troy grazing allotments combined. At the current federal grazing fee rate (FY98 = $1.35/AUM), BLM grazing receipts would decrease by $1,239.30 per year (Table 4-12).

Table 4-12. Summary of Impacts to BLM Grazing Allotments and Grazing Income as a Result of the Proposed Action.

Allotment	BLM acres in allotment lost through exchange	Corresponding AUM	Annual BLM grazing income lost through exchange ($1.35/AUM)
LEN	800	93	$125.55
Smith Wash	480	45	$60.75
Battle Axe	1627	170	$229.50
Sleeping Beauty Mountain	742	100	$135.00
Hidalgo	274	21	$28.35
Rafter Six	3902	404	$545.40
Troy	400	81	$109.35
TOTAL	**8196**	**918**	**$1,239.30**

Whereas the exchange results in reduced BLM administrative responsibilities for these seven allotments and subsequent reduced income from grazing, it is the foreseeable mining uses that result in actual impacts to stocking rates within the affected allotments. Surface disturbance in POS and TRANS areas would likely preclude grazing in these areas. Specific reductions in stocking rates from foreseeable mining uses that would affect the seven allotment operators are summarized in Tables 4-12 and 4-13.

Under the Proposed Action, BLM would acquire all of the offered lands, and grazing would continue within the Black Mountain, Mount Tipton, Chicken Springs, Cochran, and Greenwood Peak Community allotments. Specifically, there would be an increase to the BLM of 288 AUMs within the Chicken Springs allotment, 15 AUMs within the Mount Tipton allotment, 113 AUMs within the Greenwood Peak Community allotment, 24 AUMs within the Cochran allotment, and 3 AUMs within the Black Mountain allotment. At the current federal grazing fee rate (FY98 = $1.35/AUM), BLM grazing receipts would increase by $587.25 per year. It is possible the BLM may seek to adjust stocking levels based on resource conditions provided on the offered lands.

Buckeye Alternative. Under this alternative, impacts to the LEN and Battle Axe allotment would differ from the Proposed Action due to the elimination of approximately 800 acres of Parcel CB-1, which would remain under BLM administration. This alternative would exchange approximately 7,396 acres and 825 AUMs within the Battle Axe, Sleeping Beauty Mountain, Hidalgo, Rafter Six and Troy Allotments. At the current federal grazing fee rate (FY98 = $1.35/AUM), BLM grazing receipts would decrease by $1,113.75 per year. One range improvement for Rincon Reservoir would remain in federal ownership.

Offered lands grazing income and responsibilities would be acquired by the BLM, except for those within the Chicken Springs allotment for Section 9 of the McCracken Mountains Parcels. At the current federal grazing fee rate (FY98 = $1.35/AUM), BLM grazing receipts would increase by $326.34 per year.

Table 4-13. Summary of Impacts to Stocking Rates in Seven Allotments from Foreseeable Uses of the Selected Lands

Allotment	Current number of AUMs for BLM-administered land in allotment	Subsequent reduction in AUMs for selected lands	Percent overall reduction in existing BLM allotment stocking rate (AUMs)
LEN	2956	44	1%
Smith Wash	552	45	8%
Battle Axe	2256	44	2%
Sleeping Beauty Mountain	120	41	34%
Hidalgo	979	21	2%
Rafter Six	1664	143	9%
Troy	883	41	5%
TOTAL	**9410**	**379**	**4%**

Source: SWCA 1997j

Copper Butte Alternative. Under this alternative, impacts to the Battle Axe and LEN allotment would differ from the Proposed Action due to the elimination of approximately 1,975 acres of Parcels CB-1, CB-2 and portions of Parcel CB-3, which would remain under BLM administration. This alternative would exchange approximately 6,221 acres and 698 AUMs within the Battle Axe, Sleeping Beauty Mountain, Hidalgo, Rafter Six and Troy Allotments. At the current federal grazing fee rate (FY98 = $1.35/AUM), BLM grazing receipts would decrease by $834.30 per year. Range improvements for Rincon Reservoir, Earthen Stock Tanks #1 and #2 and England Well would remain in federal ownership.

Offered lands grazing income and responsibilities would be acquired by the BLM, except for those within the Chicken Springs allotment for Sections 9, 3 and 19 of the McCracken Mountains Parcels. At the current federal grazing fee rate (FY98 = $1.35/AUM), BLM grazing receipts would increase by $274.53 per year.

No Action Alternative. Impacts of foreseeable uses on the LEN, Battle Axe, Sleeping Beauty Mountain, Hidalgo, Smith Wash, Troy and Rafter Six Allotments would be expected to be similar to those described under Impacts Common to All Alternatives.

Under the No Action, grazing on the offered lands would be expected to continue as it does currently within the Black Mountain, Cochran, Crowder-Weisser, Mount Tipton, Chicken Springs and Greenwood Peak Community allotments.

4.4.6 Visual Quality

4.4.6.1 Impacts Common to All Alternatives

Ray Complex. The Ray Complex area has been extensively modified by mining activity in and adjacent to the Ray Mine. The foreseeable mining uses of the selected lands associated with this area would add to the existing modifications, which would result in additional impact to visual quality in these areas.

Copper Butte/Buckeye. Foreseeable mining uses within the Copper Butte/Buckeye selected lands area would result in changes to visual quality within the study area, including the White Canyon Wilderness. Figure 4-2 shows the approximately 8,048 acres (35%) within the study area from which the proposed Copper Butte Pit would be visible. Mining activity at the proposed Copper Butte Pit and Buckeye Long-Range Prospect would be visible from surrounding lands in those areas shown in grey. Moreover, approximately 42 percent of mining activities within the Copper Butte/Buckeye area would be visible from within the Wilderness. Although within the White Canyon Wilderness, the steep topography and cliffs often shield visitors from being able to see mining activity on adjacent lands, particularly when the primary trail is located in the canyon bottom. However, new mining disturbances will likely decrease visual quality in the area, and would be visible from the higher portions of the White Canyon Wilderness.

Chilito/Hayden. Like the Ray Complex area, the Chilito/Hayden area has been extensively modified by human activity including mining activity and undeveloped roads. The foreseeable mining uses of the selected lands associated with each of these areas would add to the existing modifications, which would result in additional impact to visual quality in these areas.

Casa Grande. The Casa Grande area has been extensively modified by human activity including past agricultural use, near-by mining activity, and undeveloped roads. The foreseeable mining uses of the selected lands associated with this area would add to the existing modifications, which would result in additional impact to visual quality in these areas.

4.4.6.2 Impacts Specific to Each Alternative

Proposed Action. The land exchange/plan amendment itself would have no direct impact on visual quality of the selected lands, however the visual impacts would occur on private lands rather than public lands. Impacts to visual quality would be expected to be similar to those described under Impacts Common to All Alternatives.

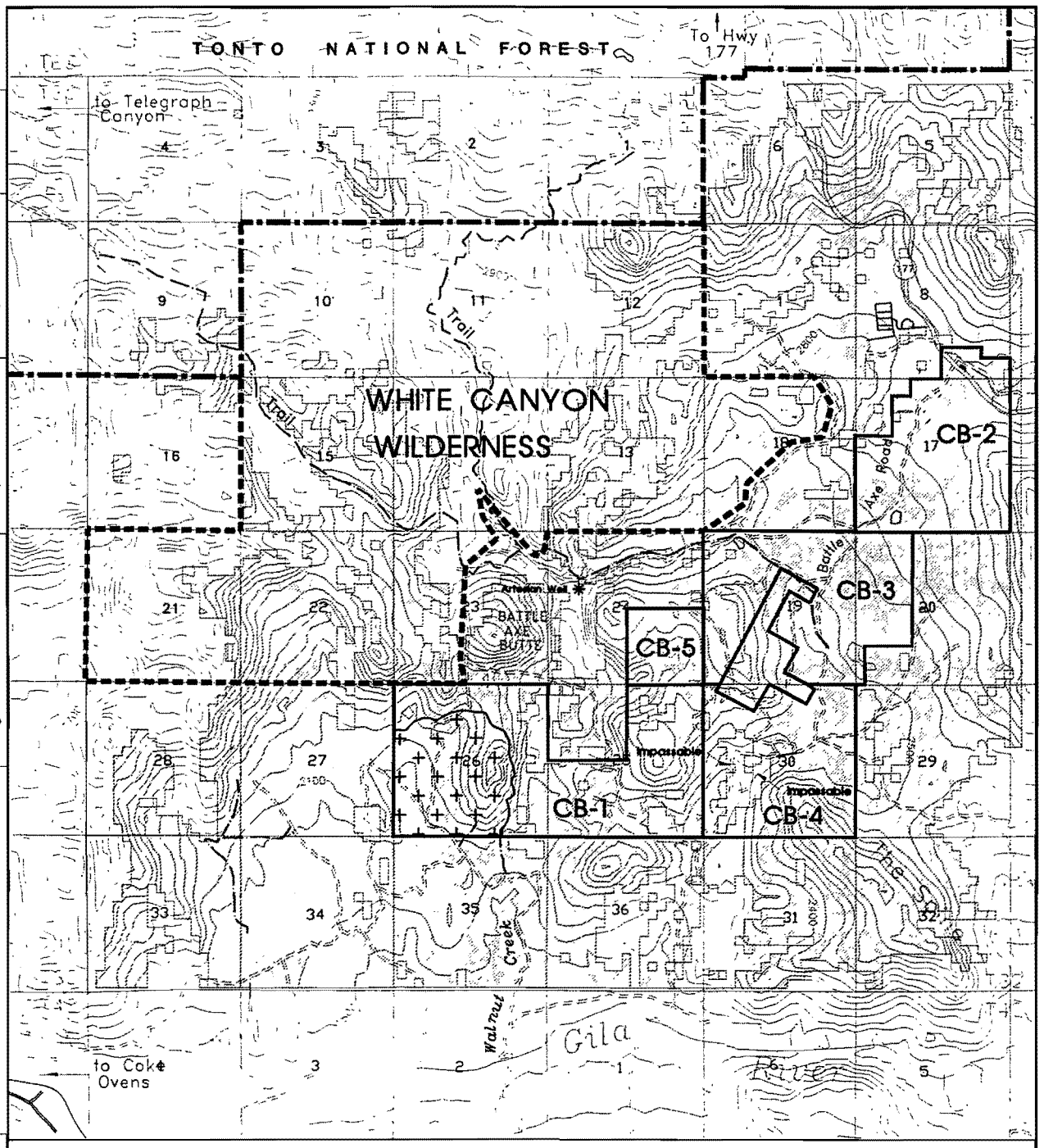
With the exchange, the visual resources of the offered lands would be managed consistent with visual resource management objectives of adjacent public lands. Federal acquisition of the inholdings would preclude private development of them, thus preserving viewsheds of the offered lands from the surrounding and adjacent special management areas, including federally designated wilderness.

Buckeye Alternative. Under this alternative, impacts to visual quality would be expected to be similar to those described under the Proposed Action, with the exception of 800 acres of Parcel CB-1 which would remain under BLM administration. However, mining on this parcel could occur through BLM's section 3809 regulations and thus, visual impacts that could be mitigated through re-design of the mine plan, and potentially adverse visual impacts to/from the White Canyon Wilderness and ACEC could be reduced.

Casa Grande. The Casa Grande area has been extensively modified by human activity including past Under this alternative, BLM would acquire all of the offered lands with the exception of Section 9 of the McCracken Mountains Parcels, which would remain in private ownership and subject to development.

Copper Butte Alternative. Under this alternative, impacts to visual quality would be expected to be similar to those described under the Proposed Action; however, Parcels CB-1, CB-2 and portions of CB-3 would remain under BLM administration. However, mining on these parcels could occur through BLM's 3809 regulations and thus, visual impacts could be mitigated through re-design of the mine plan, and potentially adverse visual impacts to/from the White Canyon Wilderness and ACEC could be reduced.

Under this alternative, BLM would acquire all of the offered lands with the exception of Sections 9, 3 and 19 of the McCracken Mountains Parcels, which would remain in private ownership and subject to development.


TONTO NATIONAL FOREST
To Hwy 177
to Telegraph Canyon
WHITE CANYON WILDERNESS
Trail
Trail
Axe Road
Battle Axe Road
CB-2
CB-3
CB-5
CB-1
CB-4
Impassable
Impassable
BATTLE AXE BUTTE
Walnut Creek
Gila
to Coke Ovens
KEY
ACCESS ROUTES
IMPROVED
UNIMPROVED
TRAIL
NATIONAL FOREST BOUNDARY
WILDERNESS BOUNDARY
SELECTED PARCELS
LOCATIONS WHERE EITHER THE BUCKEYE OR COPPER BUTTE LONG RANGE PROSPECT CAN BE SEEN
FORESEEABLE MINING USE
LONG RANGE PROSPECT
CONTOUR INTERVAL 100 FEET
Scale
0 1/2 1
MILE
RAY LAND EXCHANGE/PLAN AMENDMENT EIS
Pinal County, Arizona
COMBINED RESULTS OF PROPOSED COPPER BUTTE PIT AND BUCKEYE LONG RANGE PROSPECT SEEN-UNSEEN ANALYSIS
FIGURE 4-2

No Action Alternative. Impacts to visual quality of the selected lands from foreseeable mining uses under this alternative would be expected to be similar to those described under Impacts Common to All Alternatives, although they would occur on public lands. However, through the 3809 process, visual impacts could be somewhat mitigated through re-design of the mine plan, and potentially adverse visual impacts to/from the White Canyon Wilderness and ACEC could be reduced.

Under the No Action, the offered lands would not be acquired, thus an opportunity to acquire these parcels and preclude future private development of them would be lost.

4.4.7 Wilderness/Special Management Areas

4.4.7.1 Impacts Common to All Alternatives

Ray Complex. Implementation of foreseeable mining uses on the selected lands in the Ray Complex are not expected to substantially impact the White Canyon Wilderness because users of the White Canyon Wilderness today are already subject to noise and visual impacts from continued operation of the Ray Mine.

Copper Butte/Buckeye. Implementation of foreseeable mining uses on the selected lands in the Copper Butte/Buckeye area could potentially impact the Wilderness and its visitors because the uses will be adjacent to the White Canyon Wilderness and Area of Critical Environmental Concern (ACEC) boundary. Specifically, factors that could potentially affect the Wilderness/visitor experience due to the proposed Copper Butte/Buckeye projects include potentially adverse impacts to air quality, visual quality and noise, which would likely further impact the naturalness and solitude wilderness values for users of the White Canyon Wilderness. However, these additional impacts (as well as current impacts) can be reduced by users frequenting the lower elevation portions of the Wilderness, as they do now. Special features within White Canyon Wilderness are not expected to be adversely affected by foreseeable mining uses.

As mentioned in Section 4.4.3, this EIS is analyzing two alternative access routes to the Wilderness since Battle Axe Road will be eventually closed to the public. Potential impacts to the Wilderness are described for each route:

- **Route #1.** If this route is chosen, this 2.5-mile route would deliver mainline recreation traffic (traffic that would have used Battle Axe Road) along the eastern boundary of the Wilderness as well as to the Silver Creek community on the western boundary (Figure 4-1). Access along the Wilderness boundary currently exists for approximately 1.5 miles, this route would add another 1.25 miles along the boundary. Potential impacts to air quality, noise, and visual quality within the Wilderness should not substantially increase since a portion of the Wilderness boundary is already used for travel.

- **Route #2 (BLM's preferred route).** If this route is chosen, this route would parallel the existing Battle Axe Road and continue to the Wilderness (Figure 4-1). It is expected that approximately the same number of people who use the existing Battle Axe Road would utilize this route, therefore, impacts to air quality, noise, and visual quality within the Wilderness is expected to be similar to those stated above, even though, the new route would avoid the1.25 miles of wilderness boundary that Route #1 uses.

4.4.7.2 Impacts Specific to Each Alternative

Proposed Action. The land exchange would create private lands adjacent to the White Canyon Wilderness and ACEC, whereby private activities could occur up to the boundaries.

With the exchange, the BLM would acquire key inholdings within and adjacent to the Mount Tipton Wilderness and Warm Springs Wilderness, respectively, as well as lands in three special management areas within the Gila River Riparian Management Area, Middle Gila Cultural Resource Management Area and the McCracken ACEC. Management of these areas would be implemented according to the objectives in the Phoenix and Kingman Resource Area RMPs.

Buckeye Alternative. Under this alternative, impacts to the White Canyon Wilderness would be expected to be similar to those described under the Proposed Action, except that 800 acres of Parcel CB-1 would remain in public ownership. Should Asarco seek to conduct mining activities on this parcel, the BLM would have mining oversight as stated in BLM's 3809 regulations. Through this process, the BLM would have the opportunity to minimize and mitigate potentially adverse impacts to the White Canyon Wilderness and ACEC from proposed mining activities on Parcel CB-1.

With this alternative, the BLM would acquire key inholdings within and adjacent to the Mount Tipton Wilderness and Warm Springs Wilderness, respectively, as well as lands in three special management areas with the exception of Section of the McCracken Mountains Parcels within the McCracken ACEC. Management of these areas would be implemented per the objectives in the Phoenix and Kingman Resource Area RMPs.

Copper Butte Alternative. Under this alternative, Parcels CB-1, CB-2, and portions of CB-3 would remain under BLM administration. Implementation of foreseeable mining uses on these parcels would occur under BLM's 3809 regulations, and would be expected to be similar to impacts described under the Proposed Action.

With the exchange, the BLM would acquire key inholdings within and adjacent to the Mount Tipton Wilderness and Warm Springs Wilderness, respectively, as well as lands in three special management areas with the exception of Sections 9, 3 and 19 of the McCracken Mountains Parcels within the McCracken ACEC. Management of these areas would be implemented per the objectives in the Phoenix and Kingman Resource Area RMPs.

No Action Alternative. Impacts resulting from the foreseeable mining uses would likely be similar to those described under Impacts Common to All Alternatives.

Under the No Action, the BLM would lose an opportunity to acquire private inholdings within a variety of special management areas around the State of Arizona. The offered lands would remain under private ownership and subject to development, causing additional management problems for the BLM to adjacent Wilderness areas.

4.5 CULTURAL RESOURCES

4.5.1 Archaeological Resources

4.5.1.1 Impacts Common to All Alternatives

Many of the archaeological sites on the selected lands would be directly and indirectly affected by foreseeable mining uses. Many sites would probably experience direct impacts (up to 100% surface disturbance), resulting in destruction or severe disturbance.

In accordance with Section 106 of the National Historic Preservation Act (NHPA), adverse impact to sites determined eligible for the NRHP under criterion (d) (informational potential), would be mitigated through implementation of a research design and treatment plan, prepared by the BLM in consultation with the SHPO and Native American tribes. Data recovery, based on site-specific plans, would be the primary means of treatment. Techniques could include detailed mapping, artifact collections, excavation, documentary research, or oral history interviews. Data recovery would culminate in analyses, report preparation, and the curation of collection and records in accordance with federal standards. No further work would be done at sites determined as not eligible for the NRHP.

Ray Complex. Implementation of foreseeable uses in this area could affect ~~44~~ 43 archaeological sites. Impacts to sites that are eligible for the NRHP would be mitigated through the implementation of a treatment plan.

Copper Butte/Buckeye. Implementation of foreseeable uses in this area could affect ~~36~~ 35 archaeological sites. Impacts to sites that are eligible for the NRHP would be mitigated through the implementation of a treatment plan.

As discussed in Section 4.4.3, two public access routes are being considered in this EIS to ensure public access to the White Canyon Wilderness. Under any alternative, one of the two proposed public access routes would be constructed and therefore, archaeological surveys were conducted for each route. A total of four archaeological sites were found along these routes and are summarized below:

- **Route #1:** One archaeological site was found along this route and is considered potentially eligible for the NRHP.
- **Route #2 (BLM's preferred route):** three archaeological sites were found along this route; two are considered eligible for NHRP and one is considered potentially eligible under NRHP.

Chilito/Hayden. No sites were found on any of the selected lands in this area, therefore no impacts to cultural resources are expected due to foreseeable uses.

Casa Grande. No sites were found on any of the selected lands in this area, therefore no impacts to cultural resources are expected due to foreseeable uses.

4.5.1.2 Impacts Specific to Each Alternative

Proposed Action. In addition to the impacts common to all alternatives, ~~80~~ 56 archaeological sites would be transferred out of federal ownership and would no longer be afforded protection under the provisions of the Archaeological Resources Protection Act (ARPA). The 22 sites on State and private lands are not afforded protection under ARPA regardless of the federal mineral estate. In accordance with Section 106 of the NHPA, the loss of the sites determined as eligible for the NRHP would be mitigated through the implementation of a treatment plan prepared in consultation with the SHPO and Native American tribes. The BLM would implement a plan covering the 37 eligible sites located on federal land and on private land with federal mineral estate. In accordance with state antiquities laws and in the event of a land sale, the Arizona State Land Department (ASLD) would implement and administer a treatment plan to mitigate the loss of five sites on state surface, federal mineral estate parcels in the Ray Complex. The BLM would share its research design and coordinate as appropriate with the ASLD. The ASLD has already completed data recovery at eight sites in the Copper Butte/Buckeye area.

All archaeological sites on the offered lands would be acquired by the BLM and would be afforded protection under ARPA, NHPA, and other applicable federal laws and policies.

Buckeye Alternative. Impacts to archaeological resources on the selected lands are expected to be similar to those described under the Proposed Action, with the exception of the 800 acres of Parcel CB-1 that would remain under BLM administration. A total of 52 archaeological sites would be transferred out of federal ownership under this alternative. No archaeological treatment would be required for the four sites on Parcel CB-1. However, should Asarco seek to conduct mining activities under the BLM's 3809 regulations, the BLM would be required to conduct Section 106 compliance in order to identify and consider impacts to archaeological sites.

All archaeological sites on the offered lands that would be acquired by the BLM under this alternative would be afforded protection under ARPA, NHPA, and other applicable federal laws and policies.

Copper Butte Alternative. Impacts to archaeological resources on the selected lands are expected to be similar to those described under the Buckeye Alternative, except by excluding Parcels CB-1, CB-2, and portions of CB-3, these parcels containing 16 archaeological sites, would remain under BLM administration. A total of 40 archaeological sites would be transferred out of federal ownership under this alternative.

All archaeological sites on the offered lands that would be acquired by the BLM under this alternative would be afforded protection under ARPA, NHPA, and other applicable federal laws and policies.

No Action Alternative. Potential impacts to archaeological sites would be expected to be similar to those described under Impacts Common to All Alternatives.

For the offered lands, all archaeological resources would remain in private ownership and subject to applicable state and federal laws. An opportunity to acquire them would be lost, as would the opportunity to afford them protection under ARPA and NHPA.

4.5.2 Places of Traditional Importance to Native Americans

4.5.2.1 Impacts Common to All Alternatives

Implementation of the foreseeable mining uses requires compliance with Section 106 of the NHPA. Part of the 106 process is the identification of places of traditional importance to Native Americans. A literature review was completed and sent to tribes ~~is currently underway and~~. Tribes are currently being consulted to help identify potential places of traditional importance. The BLM is also consulting with Native American tribes to evaluate impacts and appropriate treatment for any places of traditional importance identified through ethnohistoric studies or other means of consultation. To date, however, none have been brought to BLM's attention. ~~Further information on this subject will be available in the Final EIS.~~

4.6 SOCIOECONOMIC RESOURCES

4.6.1 Population and Demographics

4.6.1.1 Impacts Common to All Alternatives

Population, demographics and minority and low income populations on or near the selected or offered lands would not be expected to be affected by any of the alternatives.

4.6.2 Local and Regional Economy

4.6.2.1 Employment

Impacts Common to All Alternatives

Ray Complex, Copper Butte/Buckeye. Implementation of foreseeable mining uses at Copper Butte/Buckeye would allow Asarco to directly retain 48 employees during the period of the mine's nine years of production. Asarco's minority employees would not be disproportionately affected under any alternative.

Chilito/Hayden. Implementation of foreseeable mining uses at Chilito/Hayden would include mine development and associated support facilities at some point in the future, but no conceptual mine planning has begun. Therefore, no estimate can be made on direct or indirect changes to employment in the Chilito-Hayden area as a result of foreseeable mining uses.

Casa Grande. The foreseeable mining uses of the selected lands were formerly for a pilot research program[45]. If the program becomes permanent, the SCJV expects to employ a total of 100 persons at its Casa Grande site when the property is at full production and continuing for 20 years. Under all of the alternatives, employment of minorities at the SCJV would not be disproportionately affected.

[45] The Santa Cruz research project was haulted in 1998 due to lack of funding. The Santa Cruz Joint Venture, however, continues towards a viable opperation.

4.6.2.2 Income

Impacts Common to All Alternatives

Ray Complex, Copper Butte/Buckeye. Total direct wages and salaries paid to retained employees during full scale production would average $1,882,000 each year (in 1996 dollars). In addition to the gain in personal income, there would also be a gain in business income. It is expected that local business firms operating in Pinal County will receive an additional $5.3 million (in 1996 dollars) in sales each year as an indirect result of the Copper Butte Mine's direct payments of personal, business, and government income in the county.

Direct economic losses to Pinal County from displaced recreation activities on selected lands and immediate adjacent areas are estimated at $77,000 (in 1996 dollars) per year in business income, $22,000 (in 1996 dollars) per year in personal income, and $7,000 (in 1996 dollars) per year in state and local government revenues. Additionally, displaced ranching activities due to Asarco's foreseeable uses of selected lands is expected to create a loss for Pinal County of $11,000 (in 1996 dollars) in business income, $4,000 (in 1996 dollars) in personal income, and $1,300 (in 1996 dollars) in state and local government revenues (including PILTs). Total direct economic losses to Pinal County from displacement of ranching and recreation activities on selected lands is estimated at $122,000 (in 1996 dollars) per year. After mining activities cease, it is expected that ranching and recreational activities would resume. (Ranching revenues are discussed in more detail in Sections 4.4.5).

Chilito/Hayden. Foreseeable mining uses at Chilito/Hayden would include mine development and associated support facilities, but no conceptual mine planning has begun. Therefore, no estimate can be made on direct or indirect changes to personal income or business income in the Chilito/Hayden area as a result of future operations.

Casa Grande. Total wages and salaries paid to the employees of SCJV during full scale production are expected to average $3,877,000 each year (in 1996 dollars). Given the foreseeable mining uses of selected lands in this area, there would also be a gain in business income. It is expected that the SCJV will incur costs for products and services. It is estimated that during each year of full production, $11,638,000 (in 1996 dollars) will go to suppliers located in Pinal County.

4.6.2.3 Taxes

Impacts Common to All Alternatives

Ray Complex, Copper Butte/Buckeye. Despite the alternative chosen, Asarco would pay taxes on its foreseeable uses. It is expected that Asarco would pay an average of $1,080,600 (in 1996 dollars) each year in state and local taxes for the operation of Copper Butte Mine[46]. This payment would *not be in addition to* the taxes Asarco already pays for the Ray Mine activities. Tax payments on the Copper Butte expansion would replace the decreasing taxes on the Ray Mine's decreasing activities, keeping tax payments at a even level. A breakdown of taxes Asarco would pay for the operation of Copper Butte Mine is shown in Table 4-14.

Chilito/Hayden. Selected lands in this area could potentially be used for mine development and associated support facilities at some point in the future, but no conceptual mine planning has begun. Therefore, no estimate can be made on taxes that Asarco would have to pay for operations. Taxes that can be estimated are for the land exchange only.

[46] This estimate is based on the expected rate of production at the proposed Copper Butte Mine, an average copper price during the period of full production equal to that realized by Asarco on its other production in 1996, and existing Arizona tax rates.

Table 4-14. Direct Benefits to be Provided by the Copper Butte Mine Expansion to State and Local Governments (in 1996 dollars and 1996 tax rates)

Type of Payment	Annual Average for Nine Years of Production
Severance Tax	$304,700
Corporate Income Tax*	$0
Sales Taxes on Purchases	$245,500
State Payroll Taxes	$10,100
State Land Royalties	$0
Miscellaneous Taxes and Fees	$46,900
Property Taxes	$473,400
Total	**$1,080,600**

*The lack of any average annual corporate income tax assumes that the Ray Complex operations will be no more profitable during the life of the Copper Butte mining operation than the existing Arizona operations of Asarco were in 1996. It also assumes that state corporate income tax rates and definitions of taxable income will remain as they were in 1996.
Source: WEAC, 1997b, based on data from the Arizona Department of Revenue, the Arizona Tax Research Foundation, Asarco, and other Arizona Copper Producers.

Casa Grande. If the pilot research program is made permanent, SCJV would pay taxes on its foreseeable uses despite the alternative chosen. The SCJV would pay an average of $1,342,000 (in 1996 dollars) each year in state and local taxes above what it would pay without the operation[47]. A breakdown of taxes paid by SCJV for its foreseeable uses is shown in Table 4-15.

Impacts Specific to Each Alternative

Proposed Action

Ray Complex, Copper Butte/Buckeye. The Proposed Action would have two affects on the tax base in the Ray Complex and Copper Butte/Buckeye Areas:

1) In addition to its current property taxes, Asarco would pay an average of $473,400 (in 1996 dollars) per year in property taxes for the selected parcels in the Ray Complex and Copper Butte/Buckeye areas[48]. In total, Asarco would pay $1,080,600 in taxes (property taxes plus taxes on foreseeable uses described above). State and local governments gaining revenues directly from the Copper Butte Mine expansion are shown in Table 4-16.

2) Under the Proposed Action, the PILT paid by the Federal Government to Pinal County would be reduced by $11,020 (in 1996 dollars) per year on selected lands in the Ray Mine, Copper Butte/Buckeye area.

[47] This estimate is based on the expected rate of production at Casa Grande, an average copper price during the period of full production equal to that realized by Asarco on its other production in 1996, and existing Arizona tax rate.

[48] Specifically, Asarco would pay a county property tax of $174,400, a school property tax of $234,300, a community college property tax of $61,100 and other property taxes of $3,600 (in 1996 dollars) per year.

Table 4-15. Direct Contributions to be Made by the SCJV to State and Local Governments (in 1996 dollars and 1996 tax rates)

Type of Payment	Annual Average for Nine Years of Operation
Severance Tax	$723,600
Corporate Income Tax[49]	$0
Sales Taxes on Purchases	$84,700
State Payroll Taxes	$32,800
State Land Royalties	$0
Miscellaneous Taxes and Fees	$118,200
Property Taxes	$382,700
Total	**$1,342,000**

Source: WEAC, 1997a, based on data from the Arizona Department of Revenue, the Arizona Tax Research Foundation, Asarco, and other Arizona Copper Producers.

Table 4-16. Predicted Annual Revenues Gained As A Result of the Copper Butte Mine Expansion

Government Unit	Annual Average for Nine Years of Operation
State of Arizona	$152,500
Pinal County	$190,100
Other County Governments	$108,400
Central Arizona College District	$61,100
Ray Unified School District	$185,400
Other Pinal County School Districts	$58,900
Other Arizona School Districts	$247,400
Town of Kearny	$100
Other Pinal County Municipalities	$1,600
Other Arizona Municipalities	$71,500
Special Districts in Pinal County	$3,600
Total	**$1,080,600**

Source: WEAC 1997b, based on data from the Arizona Department of Revenue, the Arizona Tax Research Foundation, Asarco, and other Arizona Copper Producers.

[49] see footnote 2

Chilito/Hayden. The Proposed Action would have two affects on the tax base in the Chilito/Hayden area: 1) Asarco would pay $10,500 (in 1996 dollars) per year in property taxes for the selected parcels in the Chilito/Hayden area; and 2) PILT paid by the Federal Government to Pinal County would be reduced by less than $969 (in 1996 dollars) per year on selected lands in the Chilito/Hayden area.

Casa Grande. Because SCJV already owns the surface estates of selected lands, no further impacts are expected from those described under the Impacts Common to All Alternatives.

Offered Lands. The economic changes resulting directly from the change in ownership status of the offered lands would include the following: 1) an increase in the annual PILT (in 1996 dollars) made by the Federal Government to Mohave County[50] ($620 in 1996 dollars) and Pinal County ($371) governments; and 2) an annual decrease in property tax revenue (in 1996 dollars) in Mohave County ($15,700) and Pinal County[51].

It is not likely that local governments in Mohave or Pinal counties would reduce their revenues as a result of the expected decrease in the property tax base. Rather, it is possible that these counties would shift the tax burden to all classes of ~~private~~ property owners in the jurisdictions affected. The anticipated total increase in taxes for each class of taxable property is estimated at $15,700.

If a shift in the tax were to occur, it would likely be the greatest (in dollar terms) in the Mohave Union High School District, where nearly $5,200 (in 1996 dollars) of annual revenues would have to be shifted to other district taxpayers. In percentage terms, the possible tax shift would be the greatest in the Yucca Elementary School District, where almost $2,100 (in 1996 dollars) per year (about 1.6 percent of locally generated revenues) would have to be shifted to other taxpayers. The difference in income will need to be made up by residents within the Yucca Elementary School District. Table 4-17 shows the loss of assessed property value in the school districts containing offered lands.

Buckeye Alternative. Under this alternative, impacts to taxes would be similar to the Proposed Action except the Federal Government would continue to pay $928 (in 1996 dollars) per year in PILT on the 800 acres of Parcel CB-1.

Impacts to the tax base of local and county governments of the offered lands would be similar to those under the Proposed Action except Asarco would continue to pay property taxes for Section 9 of the McCracken Mountains Parcels.

Copper Butte Alternative. Under this alternative, impacts to taxes would be similar to the Proposed Action except the Federal Government would continue to pay $2,105 (in 1996 dollars) per year in PILT on Parcels CB-1, CB-2 and portions of CB-3 (approximately 1,815 acres).

Under this alternative, impacts to the tax base of local and county governments would be similar to those under the Proposed Action except Asarco would continue to pay property taxes for Sections 9, 3 and 19 of the McCracken Mountains Parcels. Since retained offered lands would remain in private ownership, the Federal Government would not have to pay PILT for those lands.

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[50] Based on the additional number of acres that the BLM would acquire in Mohave County, the total PILT would equal $9,516 (in 1996 dollars). However, Mohave County's has a PILT ceiling of $1,541,500 per year (in 1996 dollars). Because Mohave County already receives $1,540,880 per year (in 1996 dollars), the maximum amount it can receive from this exchange is limited to $620 per year (in 1996 dollars).

[51] Property taxes that Asarco would pay to Pinal County for selected lands it acquires under the proposed action would offset losses in property taxes from the trade of offered lands from Asarco to the Federal Government (WEAC 1997b). Property taxes paid in 1998 by Asarco for parcels in Mohave County totaled approximately $2,200.00.

Table 4-17. Net Impacts on the Property Tax Base by the Proposed Action

Property Tax Jurisdiction	Direct Decrease in Property Tax Base	Percent of Primary Valuation
Mohave County	$184,900	0.021%
Mohave Union High School District	$177,200	0.067%
Colorado River Union High School	$7,700	0.003%
Chloride Elementary School	$9,200	0.035%
Mohave Valley Elementary School District	$7,700	0.009%
Owens Whitney Elementary	$14,800	0.185%
Yucca Elementary School	$153,200	1.326%

Note: Assessed valuations calculated as 16% of appraised values of lands offered for exchange, not necessarily as historically assessed by taxing authorities. The percent change indicates the amount that other property taxes would have to be increased to compensate for the future loss of property tax base.
Source: WEAC, 1997d

No Action Alternative. The tax base of selected lands would be the same as those described under Impacts Common to All Alternatives.

All of the offered lands would be retained by the BLM. Therefore, there would be no changes in the tax base of local and county governments.

4.6.3 Environmental Justice

4.6.3.1 Selected Lands

Based on the findings of this EIS, there would be no disproportionate adverse human health or environmental effects on minority and low-income populations on or near selected ~~or offered~~ lands under any of the alternatives. Specifically, no adverse or disproportionate impacts would occur to the minority or low-income residents of the Silver Creek community (see Figure 4-1).

The waterline located within the Silver Creek community will not be affected as proposed access Route #1 is not the BLM's preferred access route to the White Canyon Wilderness (Figure 4-1). This route would require extensive mitigation by Asarco to address the residents' concern of access and impact to the waterline in the Community. See Response to Letter # 35 and #44 in Chapter 7.

Mining vehicles are not expected to create a safety hazard to the community as BLM's preferred access Route #2 would continue to provide access to the White Canyon Wilderness and a new haul road would be constructed south of the current Battle Axe Road, which is 0.25-0.50 miles from the community (Figure 4-1).

While operation of the mine could be expected to be 24 hours a day, each shift (3) is required to run water trucks to hold down dust levels. Additionally, dust levels will be monitored and contained based on weather conditions (e.g., blowing dust according to Mine Safety and Health Administration (MSHA) or State Mining Inspector and ADEQ). Moreover, less than 8% of the Silver Creek residents will experience significant visual impact from mining activities at Copper Butte. One resident out of the twenty-six will experience more visual impact than other residents.

4.6.3.2 Offered Lands

Based on the findings of this EIS, there would be no disproportionate adverse human health or environmental effects on minority and low-income populations on or near the offered lands under any of the alternatives.

4.7 CUMULATIVE IMPACTS

A cumulative impact, as defined by the Council on Environmental Quality (40 CFR §1508.7), is "the impact on the environment which results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time". These reasonably foreseeable future actions refer to projections or estimates of what is likely to take place when a given Proposed Action is implemented. They are not part of the Proposed Action, but are projections being made so that future impacts, cumulative and otherwise, can be estimated as required by NEPA. Cumulative impacts are interdisciplinary, multi-jurisdictional, and usually do not conform to political boundaries. This analysis considers CEQ guidance (ibid.) and the BLM's *Guidelines for Assessing and Documenting Cumulative Impacts* (BLM 1994c).

4.7.1 Issues and Approach

4.7.1.1 Issues and Approaches

While there are cumulative impacts to all affected resources, CEQ guidelines limit cumulative effects analysis to "important issues of national, regional, or local significance" (CEQ 1997). Therefore, not all issues identified for direct and indirect impact assessment are analyzed for cumulative effects. In this case, the Proposed Action is the Ray Land Exchange/Plan Amendment, and the other past, present, and future actions are the mining projects, land exchanges, and planning documents listed in Table 4-18. As a result, Section 4.7 will *not* address cumulative impacts to all resources for all alternatives; only resources and alternatives with significant issues will be discussed. The determination of issues that have been considered for cumulative impact analysis is based upon the scoping issues raised and the experience and expertise of the Interdisciplinary (ID) Team. After considering the nature of direct and indirect effects, the resource and/or components of the environment identified by the ID Team for cumulative impact assessment include:

- Biological Resources
- Physical Resources (water, air, soils)
- Land Use (ownership, management, grazing)
- Cultural Resources
- Socioeconomics

The scoping issues for each of these resources have been identified in Chapter 1, and these same issues, but on a broader geographic scale, are analyzed and evaluated under cumulative impacts.

In addition to these scoping issues, there are two broad categories of actions contained within this EIS which also must be analyzed cumulatively: those dealing with land tenure (which includes planning decisions regarding land tenure adjustments and other planning issues as well as the exchange of lands); and those dealing with foreseeable uses of both the offered and selected lands. A complete listing of projects considered in cumulative effects can be found in Table 4-18.

Table 4-18 Summary of Projects* Considered for Cumulative Effects Analysis

Land Exchanges (major federal)	**Planning Documents (BLM)**
Cerbat Land Exchange	Arizona Wilderness Inholding Acquisition Project
Cyprus State-Wide Land Exchange	Phoenix Resource Management Plan (RMP)
Hualapai Mountains Land Exchange	Kingman Resource Area RMP
Morenci Land Exchange	Ray Land Exchange/Plan Amendment
Ray Land Exchange	Safford District RMP
Safford Land Exchange	White Canyon Plan Amendment
Saguaro National Park Exchange	
Silver Bell-Cienega Land Exchange	
Tusayan Exchange	**Future Planning Projects (White Canyon RCA, BLM Tucson Field Office)**
Mining Projects (50-mile radius)	Empire-Cienaga EIS/Plan Amendment
BHP Pinto Valley Operations	White Canyon RCA Coordinated Management Plan/ White Canyon Wilderness Plan
Carlota Copper Project	Winkelman Community Expansion
Cyprus Miami Mine Expansion	
Mineral Creek Consent Decree/Expansion	
Superior Underground Mine	

*A description of each project can be found in Appendix G of the DEIS.

4.7.2 Selected Lands: Identification and Analysis of Cumulative Impacts

To identify and analyze cumulative impacts, the projects identified above and the combination of impacts considered in this EIS are examined in local and regional contexts. Local contexts include impact analysis in regards to land tenure (e.g., current and future planning projects for the Tucson BLM Field Office), and regional contexts include impact analysis in regards to foreseeable uses (e.g., mining operations within a 50-mile radius).

Cumulative impacts analysis for the selected lands regarding land tenure decisions involve the following factors: 1) The Ray Plan Amendment constitutes the major planning or land tenure adjustment that may occur. Future planning projects listed in Table 4-19 include those which implement the Phoenix RMP and plan amendments (coordinated planning) or are in response to proposed land uses (community expansion, trails); and 2) The land exchange process serves as a method for federal land management agencies to acquire high value resource lands and to dispose of lands more suitable for development, typically adjacent to communities or for support of the mining industry.

Cumulative impacts analysis for the selected lands regarding foreseeable uses assumes the following: 1) Mine expansion in central and southern Arizona is expected to continue but is subject to market demands as well as environmental permitting; and 2) Cumulative impacts analysis relative to geographic context vary for each resource. For example, cumulative impacts to biological, land use and cultural resources includes a 50-mile radius, while physical resources addresses the Middle Gila River Watershed, and socioeconomic resources includes Pinal and Gila Counties.

Table 4-19. Potential Net Change in Public Lands Tenure as a Result of Land Exchanges Currently under Consideration by the USFS and BLM in Arizona

Exchange	Acreage of Selected Lands (Federal Lands proposed to be transferred to Private Ownership)	Acreage of Offered Lands (Private Lands proposed to be transferred to Public Ownership)	Net Change (Acres) Increase (Decrease) in the quantity of federal lands in Arizona
Cerbat	5144	5661	517
Cyprus	9657	incomplete	-
Hualapai Mountains	~~70000~~ 60,050	~~70000~~ 70,238	~~0~~ 10,182
Morenci	3758	1040	(2718)
Ray Land Exchange	10976	7304	(3672)
Safford	17000	3697	(13303)
Saguaro	4322	632	(3611)
Silverbell-Cienega	4774	549	(4225)
Tusayan	672	2184	1512
TOTAL:	~~116529~~ 107,485	~~91468~~ 91,706	~~(29286)~~ (15,779)

Acres in parenthesis are negative

4.7.2.1 Biological Resources

Land Tenure Adjustments. As a result of past land disposals and acquisitions, there has been a cumulative loss for some biological resources on public and state lands. Based on the number of acres exchanged or purchased, it is assumed that a cumulative loss of biological resources would include losses of upland and riparian vegetation and wildlife habitat, although no specific study has been conducted. However, through the land exchange process, federal agencies are acquiring higher valued biological resource lands elsewhere in Arizona such as wilderness, ACECs, riparian and upland habitats as well as special status habitats (e.g., lands adjacent to and within the Empire-Cienega RCA, Dos Cabezas Mountains Wilderness, and Gila Box RNCA).

Foreseeable Uses. Of the five copper mine projects considered under foreseeable uses, it is likely that all five will eventually directly impact biological resources, particularly the Sonoran Desert vegetation communities within the 50 mile region. While this represents a very small percentage of the total vegetation community, it still results in localized impacts when vegetation is cleared for mining purposes.

Cumulatively, mining projects within Arizona have impacted wildlife movement patterns, specifically, physical access to land as well as to water resources. Routes traveled by wildlife are fragmented by open-pit mines requiring wildlife to divert around these mines, and result in prevention of access to water resources. In addition to mining projects, human activities could impact wildlife movements, specifically with the construction of physical barriers such as fences, roads and other developments. Specific studies related to whether these activities contribute to wildlife fragmentation of individual wildlife species is unknown. For threatened and endangered species, no T &E species occur or are affected by the Proposed Action, therefore there is no contribution to cumulative impacts on T & E species.

4.7.2.2 Physical Resources

Land Tenure Adjustments. Disposal of federal lands through exchange or sale and state lands through sale are not likely to contribute to cumulative impacts on soils, water or air since the resulting land uses are subject to specific project environmental permitting. The proposed exchange, along with past exchanges in the Middle Gila River area is resulting in a loss of federal water sources and water rights in the Middle Gila River Watershed.

Foreseeable Uses. Cumulative impacts to physical resources (air, groundwater, surface water, soils) will result from implementation of these five mining projects, specifically for the Middle Gila River Watershed. Impacts to air and water are subject to permitting processes which copper mining companies must comply with for new and ongoing mining operations. The absence of detailed mine plans and environmental permits prevent a specific list of cumulative impacts to water resources; however, possible general cumulative impacts in the Middle Gila River watershed include changes in drainage patterns, erosion of the land surface, additional degradation of the middle Gila River, reduction in groundwater supply, and loss of water rights by the BLM. It is likely, however, that air quality in the region will deteriorate somewhat as a result of these proposed mine expansions, and that additional groundwater and surface water impacts, although localized, will occur. Soils will be disturbed locally as a result of mining operations, but impacts to soils as a result of these projects will not result in a regional impact. Impacts to soils will be reduced through reclamation during and post-mining.

In 1993, Mineral Creek was sampled by USFWS to assess habitat quality and ascertain fish populations and diversity because the Gila River was thought to be polluted by discharges from the Ray Mine located adjacent to the creek (USFWS, 1997[52]). The area studied included the middle Gila River watershed from Coolidge Dam downstream to Ashurst-Hayden Dam. Potential sources of pollution along this section of the river include mining, municipal discharges and agricultural runoff. Numerous mining operations are scattered throughout the middle Gila River and include Cyprus Copper Company Mine (formerly Inspiration Consolidated Copper Company Mine) at Dripping Springs Wash, which is the first major mine below Coolidge Dam. A second large mining operation, the Ray Mine, is located on Mineral Creek. Also, two large copper smelters are situated downriver from Winkelman. Toxic substances have been introduced from the mines into the river by direct discharge into the tributaries and by runoff of mining wastes and by leaching of pregnant leach solution (PLS) ponds. The purpose of this study was to revisit the area, collect sediment and fish samples for analyses, isolate the source of contaminants, and detect potential aquatic ecosystem impacts. Despite continuing high concentrations of copper, zinc, and lead in sediment and some fish samples, the overall ecology of Mineral Creek improved from 1993 to 1995 (ibid). Cleanup efforts by the mine improved ecological conditions of Mineral Creek, and by 1995, four species of fish were present in the area that was nearly devoid of fish only two years earlier (ibid).

4.7.2.3 Land Tenure and Land Use

Land Tenure Adjustments, especially exchanges. In addition to land tenure decisions noted in Table 4-20, the Arizona State Land Department (ASLD) is currently considering the sale of a number of state land parcels applied for by Asarco. Other sales may also be considered within the foreseeable future. This analysis focuses on land exchanges, however, since these encompass the major changes in land tenure. The General Accounting Office (GAO) reports that of the roughly 72,688,000 acres of land in Arizona, approximately 29,867,616 (41 percent) are managed by one of three land management agencies: BLM, National Park Service (NPS) and the United States Forest Service (USFS) (GAO 1995). Over a 30 year period, the acreage of federal land managed in Arizona increased by 2,941,365 acres (6 percent) with the majority of land increase by the BLM. Table 4-19 summarizes the major BLM land exchanges currently pending in Arizona and Table 4-20 shows the break down of these exchanges by county.

[52] 1997 USFWS (Region 2). Environmental Contaminants in Sediment and Fish in Mineral Creek and the Middle Gila River, Arizona. Phoenix. July. 16 pp.+ tables.

Table 4-20. Approximate Net Change in Federal Acres Within Each County

	ARIZONA COUNTY								
Project	**Cochise**	**Gila**	**Graham**	**Greenlee**	**Maricopa**	**Mohave**	**Pima**	**Pinal**	**Yavapai**
Cerbat	-	-	-	-	-	517	-	-	-
Hualapai	-	-	-	-	-	10182	-	-	-
Morenci	680	-	100	(3578)	-	-	240	-	-
Ray	-	(352)	-	-	-	8554	-	(10304)	-
Safford	1108	-	(15674)	-	-	-	880	-	323
Saguaro	-	-	-	-	(4322)	-	711	-	-
Silver Bell-Cienega	-	-	-	-	-	-	(3361)	(864)	-
TOTALS (acres):	**1788**	**(352)**	**(15574)**	**(3578)**	**(4322)**	**~~9071~~19253**	**(1530)**	**(11168)**	**323**

Acres in parenthesis are negative

As shown in Table 4-18, Graham, Greenlee and Pinal Counties are expected to lose close to 30,000 acres of public lands due to the proposed Morenci, Safford and Ray Land Exchanges. Counties like Mohave, Cochise, Pima and Yavapai will gain public lands because these counties contain high-value resource lands identified for acquisition by federal agencies for the public benefit.

Foreseeable Uses Recreation: Cumulatively, impacts to recreation are assessed on a project by project basis, whether the action is a land exchange or an MPO and are not expected to be any greater than simply the sum of all of these projects combined.

Portions of two proposed trails for the Arizona and Great Western Trail occur within 50 miles of the selected lands, specifically within the White Canyon RCA. The BLM Tucson Field Office will plan these trail segments to avoid long-term impacts to the trails from foreseeable mining uses on the proposed exchange parcels. Specific planning documents for these trail segments include the Empire-Cienega Resource Management Plan Amendment EIS and the White Canyon Management Plan (Appendix G). The alternative access routes being proposed for Battle Axe Road would continue public accesses, and would provide for viable alternatives for the Great Western Trail. Foreseeable mining uses on the proposed exchange parcels will still allow for viable alternatives for routing the Arizona Trail through the area. Therefore, no cumulative impacts on these trails are anticipated. Please see Chapter 7, general response no.3, Arizona Trail.

Foreseeable Uses Mining: Within a 50 mile radius of Kearny, there are four copper mines currently considering expansion (Cyprus-Miami, San Manuel, BHP Pinto Valley, and Ray). A fifth copper mine (Carlota near the existing Cyprus Miami mine) is currently in the permitting process. Collectively, these represent major expansions of existing copper mines. The foreseeable uses for all of these mines are similar--that is, to mine and process copper ore. Cumulatively, with the exception of Carlota as a new mine, these projects represent an increase in the temporal duration of these existing copper mines for one or two decades.

From a land use perspective, the four proposed mine projects represent an expansion of mining activities as a land use in southern Arizona, and a conversion of lands from native (and non-native vegetation) to open pit mining. These mines are typically in undeveloped areas which have been subject to past mining activities, and therefore these lands, in general, are not pristine. Typically, these lands have been used for grazing and mining. Therefore the additional land use allocated to copper mining in Southern Arizona, while

representing an expansion, it is not considered to be a regional impact due to the fact that copper mining already is a major component of land use in Southern Arizona (Table 4-19).

4.7.2.4 Cultural Resources

Land Tenure/Land Use. The Tucson BLM Field Office will likely initiate planning for other wilderness areas including Coyotes, Needles Eye, Empire-Cienega, and possibly Baboquivari, in addition to the White Canyon Management Plan and Empire-Cienega Plan Amendment, which all involve cultural resource issues.

Foreseeable Uses. Many of the projects (exchanges and mining expansion) considered under cumulative impacts have a substantial number of archaeological sites associated with them. Under Section 106 of the National Historic Preservation Act, archaeological sites must be considered in project planning and treatment plans must be developed and implemented. As a result of these and other federal regulations governing cultural resources, there will be a substantial amount of cultural resource work being conducted on several hundred archaeological sites. Numerically this represents a substantial treatment program for archaeological sites but will not result in the loss of representative site types or cultures represented in the archaeological record. In addition, these mitigation programs will result in an increase in local and regional scientific information.

Traditional Cultural Properties (TCPs) are being identified through consultation with potentially affected tribes. The number of potentially eligible TCP's is not yet known, but for each eligible site, mitigation plans will be developed and implemented. Cumulatively, while such information may remain somewhat protected, knowledge of such places will expand for the region.

Under the Mineral Creek Project, the Proposed Action would impact two archaeological sites potentially eligible for listing on the National Register of Historic Places. Mitigation for these two sites, through testing and data recovery, is currently taking place. Consultations with Tribes are also being conducted for the identification of TCPs within the project area.

4.7.2.5 Socioeconomics

Land Tenure/Land Use. As a result of land exchanges, there is a net benefit to the county tax base from increases in private lands. As shown in Table 4-20, many counties have a net loss of federal acres, which indicates and increase in private lands and county tax bases. For this exchange, there would be a net benefit to the Pinal and Gila County tax base because of the increased acreage of private lands near the Ray Mine from which private property taxes are generated.

Foreseeable Uses. These five mining projects provide for the continuation of the economy of a number of communities in southern and central Arizona, including Kearny, Winkelman, Globe-Miami, and San Manuel (Table 4-20). These projects collectively represent an important component of the economies of these communities and counties. A lack of mine expansion would have detrimental economic impacts through reducing employment, changing tax structure and indirect expenditures in these communities, surrounding counties and the economy of Southern and Central Arizona as a whole.

4.7.3 Offered Lands: Identification and Analysis of Cumulative Impacts

The offered lands lie in a variety of BLM management designations, including wilderness and ACEC, as well as within the boundaries of approved BLM RMPs. Each of these designations has a planning component, and these plans are in various stages of preparation and completion. No potential cumulative effects have been identified related to land tenure and planning.

The foreseeable uses of the offered lands, especially for the Mohave County exchanges, are for development. That is, if the exchanges are not completed, the parcels would be marketed and developed. If however, the exchanges are completed, the opportunity for development will be precluded through federal acquisition of these parcels.

4.7.3.1 Biological Resources

Land Tenure Adjustment. Most of the offered lands in the Ray Land Exchange, as well as in the other exchanges, contain important biological resources and habitat which would be acquired and protected under federal acquisition. If all exchanges were completed, many thousands of acres of wildlife habitat, including some containing occupied habitat for federally listed, T&E species, would be acquired by the federal government, thus providing greater protection than if left in private ownership and subject to potential development. In addition to federal protection, consolidation of public lands facilitates management of wildlife and wildlife habitat and provides additional opportunities for wildlife habitat management across the landscape. For special status species, specifically desert tortoise, the BLM has published the Desert Tortoise Habitat Management on the Public Lands: A Rangewide Plan (Appendix F) to manage habitat to ensure that viable desert tortoise populations exist on public lands, to be accomplished through cooperative resource management aimed at protecting the species.

Foreseeable Uses. Cumulatively, development of offered lands, specifically in Mohave County could result in major impacts to special status and T & E species. It is likely that the Category I and II desert tortoise habitat classifications would become Category III habitat as urbanization would eventually engulf and surround remaining tortoise habitat on the public lands. The tortoise would persist for many years, but recruitment of young tortoises would be reduced due to increased predation from domestic and feral pets (Appendix F).

4.7.3.2 Physical Resources

Land Tenure Adjustment. Like biological resources, physical resources on offered lands would come under federal ownership and would be managed per the RMPs or activity plans. The offered lands in the Ray Land Exchange contain important water sources including portions of two perennial streams. Cumulatively, this exchange (combined with the Cerbat and Hualapai Mountain Exchanges) increases the number of water sources and water rights BLM will acquire in the unadjudicated watersheds of the Bill Williams River and mainstream of the Colorado River.

Foreseeable Uses. Cumulatively, development of the offered lands, if exchanges are not completed, could result in the following impacts: 1) Increases in surface runoff and potential offsite sediment transport in areas of residential development; 2) decreases in the amount of groundwater in areas of residential development (e.g., depth to groundwater would increase if wells are drilled for domestic uses); and 3) the beneficial uses of the water rights may change as these parcels are developed for residential use.

4.7.3.3 Land Use

Land Tenure Adjustment. The offered lands for the Ray Land Exchange primarily lie in Mohave County as do those for the Hualapai Exchange. While the Hualapai Exchange is very close in acres to be exchanged (meaning little gain or loss of federal lands in the County), the Ray Land Exchange has approximately 9,000 acres of private offered lands within Mohave County proposed to become federal lands. The impacts of this exchange, both in terms of land ownership and taxes, has been considered within this EIS. Of the other exchanges, each has some lands in scattered parcels throughout Arizona. Table 4-19 under Land Tenure - Exchange - Selected Lands, depicts the changes to individual counties from all of the BLM exchanges currently pending.

Foreseeable Uses. Many of the offered parcels are currently surrounded by federal lands and have similar land uses (e.g. grazing). For exchanges completed, changes in land would not be expected to differ substantially than what is currently going on adjacent to them. However, this is probably not true for the future. In the Ray Land Exchange, recreational development would be expected on some of the parcels, and in the Hualapai Exchange, ranchettes and home sites would be expected on the checker boarded sections which are private, while the adjacent sections which are BLM administered, would be subject to indirect impacts from development.

Land Management. Acquiring the offered lands in this exchange and the Hualapai Exchange would permit approximately 150,000 acres of checker boarded land in Mohave County to become blocked. The exchanges would result in contiguous blocks of BLM land under federal management and contiguous blocks of private land for development. This would result in more efficient management for BLM to meet its objectives and for the County in providing services to these residents.

Completing the Ray Land and other exchanges would greatly facilitate wilderness and ACEC management, as these inholdings present conflicts to wilderness and ACEC managers in terms of competing land uses.

Recreation. If completed, exchanges involving key inholdings within and adjacent to wilderness areas would provide for better recreational opportunities and improved wilderness management through removing conflicts. Recreational activities would be more efficiently planned and managed through blocking federal lands.

4.7.3.4 Cultural Resources

Land Tenure Adjustment. The offered lands in this exchange as well as in the other exchanges provide a variety of cultural resources which would come under federal ownership and protection if exchanges are completed.

Foreseeable Uses. Cumulatively, development of the offered lands would probably result in negative impacts to cultural resources. Even though on adjacent federal lands, the cultural properties would continue to be managed in accordance with federal laws and BLM policies, nearby development would likely lead to increased illegal artifact removal, vandalism or pothunting, which would damage artifacts and features.

4.7.3.5 Socioeconomics

Land Tenure Adjustment. Acquisition of the offered lands in this exchange and the others should not result in a substantial socioeconomic impact. On a local scale, the change in land ownership from private to federal may have negative impacts on local property taxes. These impacts have been considered in each individual exchange. For Mohave County, where this impact has been raised as an issue, the Hualapai Exchange, being essentially balanced in terms of the quantities of offered and selected lands, provides an opportunity for vast, contiguous development of private lands, thus enhancing the values and tax benefits of these selected lands.

Foreseeable Uses. Cumulatively, under the No Action Alternative, there would be little change in federal PILT payments as well as annual property taxes paid to the county for private lands.

4.8 IRRETRIEVABLE AND IRREVERSIBLE COMMITMENTS OF RESOURCES

This discussion identifies irretrievable or irreversible commitments of resources that would occur if the proposed Ray Land Exchange/Plan Amendment were implemented. An irretrievable commitment of a resource is one in which the resource or its use is lost for a period of time; e.g., timber production in a proposed road right-of-way within a National Forest. An irreversible commitment of a resource is one that cannot be reversed; e.g., the extinction of a species. In some instances, irretrievable actions could be reversed if the land use changes after the completion of the project, however, this does not apply to federal reserved water rights.

Because an exchange involves the permanent transfer of ownership of land, and all the rights, privileges, and obligations thereof, the proposed Ray Land Exchange/Plan Amendment itself is an irretrievable commitment of public resources associated with the selected lands. In disposing of the selected lands through the proposed Ray Land Exchange/Plan Amendment, the BLM would permanently relinquish all regulatory, management, and administrative responsibility for the selected lands and their associated biological, physical, mineral, land use, cultural, and socioeconomic resources, and hazardous materials, as

described in Chapter 3 of this document. By implementing the exchange, the BLM would irretrievably commit these resources into private ownership and management.

4.8.1 The Relationship Between Short-term Uses and Long-term Productivity

In a strict sense, a land exchange does not involve any "short-term uses" of resources; public lands would be permanently and irretrievably placed into private ownership. As such, neither the proposed Ray Land Exchange/Plan Amendment itself nor the Buckeye and Copper Butte alternatives, would affect the long-term productivity of the selected lands. However, foreseeable uses of the selected lands, which involve long-term surface disturbing activities typically associated with surface mine operation, are likely to permanently impact the long-term productivity of some resources on the selected lands. The relationship between foreseeable uses of the selected and offered lands on the long-term productivity of those lands is discussed in further detail below.

Selected Lands. The long-term productivity of upland and xeroriparian vegetation, wildlife habitats; surface waters; low-potential mineral resources; and cultural resources within areas designated for Production Operations and Support Uses and Transitional Uses would be permanently lost by surface disturbance or burial under stockpiles. These impacts would subsequently have long-term but limited adverse impacts on the productivity of wildlife and grazing capacity, and on long-term recreational opportunities and access within those portions of the selected lands. Mitigation for impacts to cultural resources is required as part of the exchange. The productivity of the Ray Mine would be increased by the exchange through consolidating Asarco's land ownership for more efficient operations management. This would result in beneficial long-term impacts on the socioeconomic stability of the local and regional communities of Kearny and Winkelman and on the nation's metal production.

Offered Lands. The offered lands are located in three counties throughout Arizona. One parcel, located in Pinal County, contains a segment of the Gila River Riparian Management Area (GRRMA) and is within the Middle Gila Cultural Resource Management Area (MGCRMA), one parcel abuts the Warm Springs Wilderness in Mohave County, one parcel group lies within the Mount Tipton Wilderness in Mohave County, one parcel group lies adjacent to the Big Sandy River, located within the Big Sandy Herd Management Area and finally, one parcel group occurs within the McCracken Desert Tortoise Habitat Area of Critical Environmental Concern (ACEC). BLM's multiple resource management is based upon "the principles of multiple use and sustained yield; this is a combination of uses that takes into account the long-term needs of future generations for renewable and non-renewable natural resources" (BLM Mission Statement), such as recreation, range, timber, minerals, watershed, fish and wildlife, wilderness, and natural, scenic, and cultural values. Therefore, BLM acquisition and management of the offered lands, as proposed under either the Proposed Action, Buckeye or Copper Butte alternatives, is expected to ensure the long-term productivity of the lands through intensive multiple resources management.

4.8.2 Unavoidable Adverse Impacts

Unavoidable adverse impacts are impacts that remain following the implementation of mitigation measures, or impacts for which there are no applicable mitigation measures. For this document, unavoidable impacts discussed herein are those resulting from the Proposed Action, Buckeye or the Copper Butte Alternatives, which proposes a land exchange, and not foreseeable uses, which can occur regardless of the exchange. Compliance with applicable environmental regulations required to implement the foreseeable uses (see Chapter 2) would avoid, minimize or compensate for potential environmental consequences of the foreseeable uses.

Unavoidable impacts for the land exchange involve the reduction of grazing AUMs within certain allotments; however, this is offset by increasing grazing AUMs on offered lands for other allotments. For water resources, five BLM federal reserved water rights will be irretrievably lost and, overall, there will be a net loss of water rights held by the BLM. In addition, the physical cultural resource sites on the selected lands are lost; however, this is offset through intensive data collection and analysis of curation of objects for future study and interpretation.

4.9 ENVIRONMENTAL CONSEQUENCES OR FACTORS NOT CONSIDERED MAJOR ISSUES

Floodplains. Under Executive Order 11988 for floodplain management, the selected lands were identified using the FIRM flood insurance rate maps for Pinal and Gila Counties. It was determined that approximately 180 acres of selected lands occur within the 100-year floodplain. These acres include portions of Parcels CG-1, CB-1, CB-3, RM-2 and RM-7 where the majority of these lands are inundated by shallow flooding with depth ranging between 1-3 feet. Parcel CG-1 experiences areas where base flood elevations and flood hazard factors have not been determined.

Hazardous Materials. A Level I Environmental Site Assessment will be conducted prior to the ROD for the offered and selected lands following the American Society of Testing Materials (ASTM) Practice E 1527. The Level I assessment will evaluate the potential for hazardous substance contamination and petroleum products. The assessment will consist of: aerial inspection, ground reconnaissance, review of historical records, review of BLM databases related to past land uses, and interviews will knowledgeable individuals.

None of the parcels are known to be located on or near a "Superfund" site under CERCLA. However, if such contaminants were located, the BLM and Asarco have agreed in the ATI to enter into a binding agreement pursuant to 43 CFR 2201.7-2 which would commit to the removal or other remedial actions, if any were needed for such substances.

Wild and Scenic Rivers. No designated or potentially eligible segments of the National Wild and Scenic River System are present on the selected or offered lands.

4.10 MITIGATION

This section summarizes the proposed mitigation measures for direct and indirect impacts resulting from the action alternatives considered in this document (Table 4-21).

Table 4-21. Proposed Mitigation[53] Measures for Impacts of Action Alternatives

Resource	Issue/Impact	Proposed Action (Agency Preferred Alternative)	Buckeye Alternative	Copper Butte Alternative
Biological Resources				
Wildlife/Special Status Species/T&E Species	*If transplant is approved*, potential impacts to bighorn sheep habitat/Picketpost reintroduction area	Coordination between BLM, AGFD and Asarco to pursue joint funding/cost share opportunities for habitat improvements.	Same as Proposed Action	Same as Proposed Action
	Loss of 6,646 acres of potential Cactus Ferruginous Pygmy-owl Habitat	No mitigation proposed; consultation with USFWS	Same as Proposed Action	Same as Proposed Action
	Loss of five acres of potential southwestern willow flycatcher habitat	No mitigation proposed; consultation with USFWS	Same as Proposed Action	Same as Proposed Action
	Loss of bat roosts providing potential habitat for Lesser Long-nosed bat	Mine adits/caves fenced; consultation with USFWS	Same as Proposed Action	Same as Proposed Action
Land Use Resources				
Access	Loss of access to the White Canyon Wilderness, Artesian well, Coke Ovens and Gila River	Asarco to construct Proposed Route #2 (preferred route) adjacent to existing Battle Axe Road to White Canyon Wilderness from Highway 177, Section 26 access to be constructed.	Same as Proposed Action	Same as Proposed Action
Arizona Trail	*If trail is designated:* Loss of access through Copper Butte/Buckeye area to White Canyon Wilderness	See General Response no.3, Arizona Trail and Figure 7-1	Same as Proposed Action	Same as Proposed Action
Grazing	Loss of grazing improvements	Compensation for seven improvements added to land appraisals	Same as Proposed Action	Same as Proposed Action
Cultural Resources				
Archaeological Resources	Loss of archaeological sites	Mitigation for sites would be conducted through a data recovery program for sites determined eligible for the National Register	Same as Proposed Action	Same as Proposed Action
Places of Traditional Importance to Native Americans	*If any are identified*: Loss of places of traditional importance to Native Americans	On-going coordination between BLM, Tribes and Asarco	Same as Proposed Action	Same as Proposed Action

[53] Mitigation includes a) avoiding the impact altogether by not taking a certain action or parts of an action, b) minimizing impacts by limiting the degree or magnitude of the action and its implementation, c) re-certifying the impact by repairing, rehabilitating, or restoring the affected environment, d) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action, e) compensating for the impact by replacing or providing substitute resources or environments. Since the offered lands compensate for impacts to selected land values and resources, this table only lists mitigation that would apply in addition to compensation.

CHAPTER 5

CONSULTATION AND COORDINATION

5.1 INTRODUCTION

During the preparation of the DEIS for the proposed Ray Land Exchange/Plan Amendment, the BLM consulted with and received input from various federal, state, and local agencies, elected representatives, non-governmental organizations, tribal governments and private individuals. This chapter summarizes the BLM's efforts to notify and involve potentially interested or affected parties of the proposed exchange and discusses environmental justice. Please see Chapter 7 for consultation and coordination since publication of DEIS.

5.2 PUBLIC PARTICIPATION AND SCOPING

A Public Participation Plan (PPP) for the Ray Land Exchange/Plan Amendment was developed, implemented and modified beginning in 1995 and amended as necessary. The objective of the PPP was to ensure notification of potentially interested parties of the proposed exchange/plan amendment, invite them to participate in the analysis process, and develop a list of scoping issues to be addressed in the EIS. The primary public scoping elements of the PPP are described below.

5.2.1 Publication of Notices

Notice of Intent. The BLM submitted two Notices of Intent (NOI), to prepare an EIS, which were published in the *Federal Register* on December 19, 1994 and June 20, 1997. The NOIs identified the proposed action, lead federal agency, project proponent, third party EIS contractor, announced the dates and locations of public scoping meetings, and the BLM person to contact for more information.

Notice of Exchange Proposal (NOEP). A Notice of Exchange Proposal (NOEP) was published in the *Federal Register* on June 20, 1997, and in local newspapers in Gila, La Paz, Pinal and Mohave Counties. The NOEP announced the proposal for exchange of approximately 10,977 acres of selected lands for approximately 8,994 acres of offered lands[54], provided legal descriptions for the selected and offered lands, and announced that the selected lands identified in the exchange have been segregated from appropriation for a period of five years under FLPMA. An NOEP was not published in late 1994 since another land package was not available at that time.

5.2.2 News Release and Informational Mailing to Potentially Interested and/or Affected Parties

A mailing list of interested parties identified throughout the environmental review process was compiled from BLM files, county land ownership records, Asarco, attendance at public meetings and other sources. This has been updated regularly to include groups and individuals requesting information on the proposed land exchange. The mailing list includes private individuals, special interest groups, agencies, elected officials, and tribal governments. The list will be used to generate mailing labels and has fields that allow sorting for special uses (e.g., special mailing to agencies).

[54] The total offered lands package published in the *Federal Register* was prior to appraisals. Since the appraisals, the offered lands package has decreased to 7,300 acres for parcels within Pinal and Mohave Counties.

Approximately four weeks prior to scheduled public meetings, mailings were sent out consisting of a Fact Sheet, map of the selected and offered lands locations, and schedule. An additional mailing has been sent to notify all interested parties regarding the Plan Amendment Criteria for the project (January 1998). Upon completion of the DEIS, mailings will be sent to notify all persons, groups, and agencies on the mailing list of the DEIS availability and of the schedule and locations of public meetings for the DEIS (Spring 1998). The public will be notified of these meetings in the same manner used for the scoping meetings. Appropriate mass media will be used to supplement mailings where necessary.

5.2.3 Coordination with State and Federal Agencies

Letters requesting scoping comments on the proposed exchange/plan amendment were sent in November 1994 and June 1997 to the state and federal agencies listed in Table 3-21 . Eight out of the thirteen agencies listed in Table 5-1 responded.

Table 5-1. State and Federal Agencies Contacted for the Proposed Ray Land Exchange/Plan Amendment

State Agencies	Federal Agencies
Arizona Department of Agriculture & Horticulture	U.S. Army Corps of Engineers
Arizona Department of Environmental Quality	U.S. Environmental Protection Agency
Arizona Dept. of Mines and Mineral Resources	U.S. Geological Survey
Arizona Department of Transportation	U.S.D.A. Forest Service, Tonto National Forest
Arizona Game and Fish Department	U.S.D.I. Bureau of Indian Affairs
Arizona State Historic Preservation Office	U.S.D.I. Fish and Wildlife Service
Arizona State Land Department	
Arizona State Parks Department	

Throughout the NEPA process, BLM will continue to coordinate with the State Historic Preservation Office (SHPO) regarding the identification and treatment of cultural resources and with the U.S. Fish and Wildlife Service regarding potential impacts to threatened and endangered species.

5.2.4 Coordination with Tribal Governments

In 1995, twelve tribes were sent an initial consultation letter to request any concerns about the Ray Land Exchange, including traditional cultural properties and project issues. On June 20, 1997, tribal governments were sent a certified consultation letter regarding the Ray Land Exchange/Plan Amendment. The consultation letter requested comments on the proposed land exchange/plan amendment and listed the locations and times of scoping open houses. A copy of the NOEP was also sent with the consultation letter. Table 5-2 lists the tribal governments contacted for the Ray Land Exchange/Plan Amendment EIS.

Tribal governments and specific tribal individuals were also contacted in April 1998 as part of the EIS process to identify and evaluate traditional cultural properties. Twenty-five letters and copies of related reports were mailed with a 60-day request for comments. Two tribes, the San Carlos and Yavapai-Apache responded with a comment letter. The Tucson Field Office is in the process of re-contacting tribes for further discussions.

Table 5-2. Tribal Governments Contacted for the Ray Land Exchange/Plan Amendment

Ak-Chin Indian Community Council	**San Carlos Apache Tribe**
Colorado River Indian Tribes	Tohono O'Odham Tribe
Fort Mohave Tribe	Tonto Apache Tribe
Gila River Indian Community	White Mountain Apache Tribe
Pueblo of Zuni	**Yavapai-Apache Tribe**
Hualapai Tribe	Yavapai-Prescott Tribe
Hopi Tribe	
Ft. McDowell Mohave-Apache Tribal Council	
Salt River Pima-Maricopa Community	

5.2.5 Public Scoping/Open House

Over one thousand scoping information pamphlets that described the proposed action were mailed by SWCA on behalf of the BLM to agencies, organizations, and interested individuals (Appendices A & B). The scoping period for the Ray Land Exchange was from December 19, 1994 to February 14,1995 and the Ray Land Exchange/Plan Amendment scoping period was from June 20 to August 4,1997. In addition to mailings, legal notices were published in the *Federal Register* as well as in other newspapers throughout Arizona.

During the Ray Land Exchange scoping period, two public open house meetings were held in Kearny and Mesa on January 30 and 31, 1995, respectively. During the Ray Land Exchange/Plan Amendment scoping period, three open house meetings were held in Kearny, Mesa and Kingman on July 21, 22 and 23, 1997. Open house meetings were advertised through publication of the NOI in the *Federal Register*, legal notices in local papers, and the informational mailer sent to interested parties. Fliers written in Spanish and English with scoping open house information were posted throughout the towns of Kearny, Winkelman, and Hayden. Open house participants were provided with a fact sheet and comment form. A total of 190 individuals attended the five open house meetings, each of which lasted four hours.

5.2.6 Public Outreach Activities

Public outreach activities included presentations by the project team to the Arizona Trails Stewards, Boyce Thompson Arboretum, Congressional Staffs and to the Mohave County Public Land Use Committee. The informational fact sheets and comment sheets used for the public scoping meetings were made available at these meetings. All comments and questions raised during and after the presentations are included in this compilation of scoping issues.

5.3 ENVIRONMENTAL JUSTICE

BLM has complied with Executive Order 12898 concerning Environmental Justice and will continue to accomplish notification of impact analysis through these activities: notifications at public meetings identified above involving distribution of meeting fliers in Spanish, notification to adjacent landowners; consultation with Native Americans, and news releases in local newspapers. Attempts to notify and involve low income and minority communities near the project areas will continue during the EIS process.

In reviewing the socioeconomics, water, air and the proposed access route, it was determined that potentially adverse impacts from the land exchange do not disproportionately affect Native Americans or the minority or low income groups.

CHAPTER 6

LIST OF PREPARERS

Responsibility	Name	Qualifications
U.S.D.I. Bureau of Land Management Ray Land Exchange/Plan Amendment EIS Interdisciplinary Team		
Project Manager	Shela McFarlin	B.A. Anthropology, University of Kentucky M.A./Advanced Studies, Anthropology, Michigan State University 17 years BLM experience
Management Oversight	Jesse J. Juen	B.S. Wildlife and Fisheries Science, Texas A&M University M.S. Wildlife Management, Texas Tech University 16 years BLM experience
	Bill Childress	B.S. Physical Geography, Arizona State University 14 years BLM experience
Arizona Exchange Team Leader	Bill Ruddick	Business Administration Studies, Crowder College, Arizona State University 18 years BLM experience
Wildlife Biology	Karen Simms	B.S. Zoology, University of California Davis M.S. Wildlife Biology, University of California Davis 10 years BLM experience
	Bob Hall	Wildlife and Range Management, Humbolt State University 20 years BLM experience
Botany	John Anderson	M.S. Botany, Arizona State University B.A. Botany, University of California at Santa Barbara B.S. Rangeland Resources, Oregon State University
Cultural Resources	Connie Stone	Ph.D Anthropology, Arizona State University 10 years BLM experience
	Don Simonis	M.A. Anthropology, Arizona State University 19 years BLM experience 22 years total experience
Range Management	Darrell Tersey	B.S. Wildlife Ecology, University of Arizona 6 years BLM experience 10 years US Forest Service experience 5 years Arizona State Lands Department experience
Recreation	Jack Ragsdale	B.S. Agriculture, University of Arizona 22 years BLM experience
	Bruce Asbjorn	B.S. Range/Forest Management, Colorado State University 20 years BLM experience
Wilderness Management	Bill Gibson	B.A. Business, Arizona State University 18 years BLM experience, 5 years Wilderness/Environmental Specialist experience

Responsibility	Name	Qualifications
U.S.D.I. Bureau of Land Management, continued Ray Land Exchange/Plan Amendment EIS Interdisciplinary Team		
Geology/Mines	Ron Smith	B.S. Mechanical Engineering, Indiana Institute of Technology B.S. Geology, California State University Northridge 18 years BLM experience
Soil Science	Paul Hobbs	B.S. Soil Science, California Polytechnic State University at San Luis Obispo. 10 years BLM experience, 15 years Soil Science experience
Lands	Laurie Ford	17 years BLM experience
Socioeconomic	Gina Ramos	M.B.A., University of Phoenix B.S. Range Science, New Mexico State University 17 years BLM experience
Appraisal Review	Shawn Redfield	B.S. History, South Dakota State University 19 years BLM experience
Land Law Examiner	Alicia Leone	B.S. Management of Human Resources and Accounting, Park College, Missouri 6 years BLM experience
	Joe Malys	A.A. Civil Engineering Technology, Phoenix College 12 years Civil Engineering Experience 3 years BLM experience
Hazmat Specialist	Robert Smith	B.S. Soil Science, University of Nevada, Reno 20 years BLM experience, 3 years SCS and 12 years HazMat experience
Water Rights	Lin Fehlman	B.S. Secondary Education, Biology, University of Maryland 19 years BLM water rights experience
Hydrology	Steve Markman	M.S. Watershed Management 10 years BLM experience
Project Liaison: Yuma Field Office	Ron Morfin	B.S. Biology, New Mexico State University 8.5 years BLM experience
Project Liaison: Kingman Field Office	Eddie Guerrero	B.S. Wildlife Biology, New Mexico State University 17 years BLM experience
Air Quality	Jim Renthal	M.S. Watershed Management, University of Arizona 22 years BLM experience

Responsibility	Name	Qualifications
Third Party NEPA Contractor SWCA Inc., Environmental Consultants		
Principle-in-Charge	Ron Borkan	M.S. Renewable Natural Resources, University of Arizona 11 years experience
Project Manager	Noelle Sanders	B.S. Geosciences, University of Arizona 3 years experience
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Biological Resources	G. Scott Mills	B.S. Biology, Ohio State University M.S. Zoology, Ohio State University Ph.D. Ecology, University of Arizona 20 years experience
	Kenneth J. Kingsley	B.A. Biology, Prescott College M.S. Biology, University of Nevada, Las Vegas Ph.D. Entomology, University of Arizona 27 years experience
	Kenneth J. Kertell	B.S. Wildlife Biology, Humbolt State University M.S. Wildlife Biology, Humbolt State University 26 years experience
Water Resources	H. David Gold	B.A. Biology and Economics, Tufts University M.S. Watershed Management, University of Arizona 5 years experience
Cultural Resources	R. Thomas Euler	B.A. Anthropology, University of Colorado Graduate course work in Anthropology, Colorado State University 23 years experience
	Richard V.N. Ahlstrom	B.A. Anthropology, Yale University M.A. Anthropology, University of Arizona Ph.D. Anthropology, University of Arizona 22 years experience
Tribal Consultation	Virginia Newton	B.A. Anthropology, University of Washington M.A. Anthropology, Northern Arizona University 6 years experience
	Louise Senior	B.A., Anthropology Harvard University/Radcliffe College M.A., Ph.D., Anthropology University of Arizona 16 years experience
Biology/Land Use	Carol Schauffert	B.S. Wildlife Biology, S.U.N.Y College of Environmental Science and Forestry 6 years experience

Responsibility	Name	Qualifications
Third Party NEPA Contractor, continued SWCA Inc., Environmental Consultants		
Socioeconomics	Lydia Breunig	B.S. Interdisciplinary Studies, Arizona State University M.S. Economics, Duke University 5 years experience
Technical Contractors/Consultants		
Mineral Potential The Winters Company	William L. Oppenheimer	B.S. Geology, Tufts University M.S. Geology, Colorado School of Mines 15 years experience
	Harry J. Winters, Jr.	B.S. Physics, Arizona State University M.S. Geological Engineering, University of Arizona Ph.D. Geological Engineering, University of Arizona 33 years experience
	Richard Zimmerman	B.S. Geology, Carleton College M.S. Geology, University of Michigan 20 years experience
Socioeconomics Western Economic Analysis Center (WEAC)	George Leaming	B.S. Mining Engineering, Lafayette College M.B.A, University of Arizona Ph.D Economics, University of Arizona 45 years experience
Air Resources Tonto National Forest Supervisor's Office	Peter Lahm	Master of Environmental Management B.A. Chemistry 11 years experience

CHAPTER 7

COMMENTS AND RESPONSES

This chapter was added to the Draft EIS (DEIS) to provide 1) a summary of the public review process for the DEIS; 2) reproductions of comment letters received on the DEIS; and 3) BLM's responses to these comments. Please see Chapter 5 for pre-DEIS consultation and coordination.

7.1 THE PUBLIC REVIEW PROCESS FOR THE DEIS

7.1.1 Publication and Mailing

The DEIS for the Ray Land Exchange/Plan Amendment was published on October 28, 1998. Over 350 copies were mailed to citizens, agencies and organizations listed in Appendix C. This mailing list is a compilation of landowners adjacent to the selected and offered lands, elected officials, tribal governments and representatives, state and federal agencies, non-governmental organizations, special interest groups, persons who attended the initial scoping meetings, and persons who requested a copy of the DEIS. Copies of the DEIS were also available at local libraries, at the BLM State and Field Offices, and at the three public hearings.

7.1.2 Notice of Availability

BLM's Notice of Availability (NOA) of the DEIS was published in the *Federal Register* on October 26, 1998. This notice indicated that the DEIS was available for public review and comment for a 90-day period through January 28, 1999.

7.1.3 Public Hearings

Public hearings to answer questions or receive comments on the DEIS were held in Kearny, Mesa and Kingman on December 9, 10, and 11, 1998, respectively. A total of 87 people attended the hearings. Each of these hearings lasted two hours. At each hearing, staff from the BLM and the third-party NEPA contractor (SWCA) were present to respond to comments and questions on the DEIS. An Asarco representative was present to answer technical questions regarding foreseeable uses of the selected lands. All comments submitted during these meetings became part of the formal record of comments received on the DEIS.

Forty-day advance notification for the three public hearings was provided in the BLM's NOA. Notices for the meetings were published in newspapers in the towns of Kearny, Superior, Mesa, Lake Havasu and Kingman.

7.2 CONSULTATION AND COORDINATION WITH AGENCIES, TRIBES AND OTHERS

USFWS. In April 1999, BLM began Section 7 consultation with the U.S. Fish and Wildlife Service (USFWS) regarding threatened and endangered species for the following species: southwestern willow flycatcher, cactus ferruginous pygmy-owl, lesser long-nosed bat, peregrine falcon, and bald eagle and the Arizona hedgehog cactus. BLM has included detailed information regarding each species in a Biological Assessment which was submitted to USFWS in June 1999. BLM has requested concurrence from USFWS on its determinations of may affect, not likely to adversely affect for southwestern willow flycatcher, lesser long-nosed bat, peregrine falcon and bald eagle and has requested a Biological Opinion on the cactus ferruginous pygmy-owl based on the determination of may affect, likely to adversely affect. The BLM has also requested concurrence on its determination of may affect, not likely to adversely affect for proposed critical habitat for the cactus ferruginous pygmy-owl.

AGFD. In April and May 1999, BLM held several project coordination meetings with Arizona Game and Fish (AGFD) to discuss issues such as bighorn sheep, access, and land exchange alternatives. Please see responses to Letters #43 and #52 in Chapter 7.

Tribes. A copy of the DEIS with hearing information was mailed to tribal governments on November 3, 1998 with a 90-day comment period. No letters from tribes have been received with comments on the DEIS. On January 25,1999, an additional letter proposing field visits to the project area was sent to 5 tribes who previously expressed interest during scoping or through separate correspondence on traditional cultural property overviews. At this point the Tohono O'odham, Ak-Chin and Hopi Tribes have participated in field visits and may revisit certain sites; and Apache representatives not yet scheduled field visits.

Silver Creek Community. The Silver Creek Community was informed of the Proposed Action and meetings with the community were held on January 28 and March 31, 1999, to give the residents more detailed information of the Proposed Action and alternatives and to discuss possible impacts. Residents identified their concerns during this meeting, which included water impacts, access routes, visual impacts and air quality impacts (see Letters #35, #44, #45, and #55 in Chapter 7).

Arizona Trail Association. BLM and the Arizona Trail Association have been involved in many coordination meetings regarding the proposed land exchange. The most recent meeting was held on February 23, 1999, to give the association more detailed information of the Proposed Action and alternatives and to discuss possible impacts and mitigation (see Letter #48 and general response no.3 in Chapter 7).

Sierra Club. A meeting was held with the Sierra Club on January 14, 1999, to give the members more detailed information of the Proposed Action and alternatives and to discuss possible impacts. Issues discussed included wilderness impacts, access, biological resources, and mining (see Letters #32 and #58 in Chapter 7).

County Line Riders. A meeting was held with the County Line Riders on November 19, 1998, to give the members more detailed information of the Proposed Action and alternatives and to discuss possible impacts to recreation and access. Members identified concerns of access, trail routes, and mining impacts (see general responses no.1 and no.3 in Chapter 7).

Mohave County Public Land Use Committee. The BLM met with the Mohave County Public Land Use Committee on December 15, 1999, to give the committee more detailed information of the Proposed Action and alternatives and to discuss possible impacts. Committee members identified concerns of future land exchanges and taxes for the County (see Letter #27 in Chapter 7).

7.3 TREATMENT OF COMMENTS AND DEVELOPMENT OF RESPONSES

7.3.1 Compilation of Comments

A total of 61comment letters or notification of no comment were received during the comment period. All responses were assigned an identification number. Specific comments within each letter were identified, numbered, and categorized into one of five response types: 1) comments on inaccuracies or discrepancies; 2) comments on the adequacy of the analysis; 3) comments which identify new impacts, alternatives, or mitigation measures; 4) comments which disagree with significance determinations; and 5) comments which express personal preferences. Comments were then grouped according to resource or other topic to facilitate preparation of a response.

7.3.2 Response Preparation

Six comments or comment themes were frequently raised. These general comment themes are listed below and a general response has been prepared for each. In responding to comments, these general responses to comments are referred to whenever practical and were used to respond to or supplement individual responses.

1) Access to White Canyon Wilderness
2) Copper Butte Alternative
3) Arizona Trail
4) Public Interest and Determination
5) Mine Plan of Operation (MPO) and Land Exchange
6) Mineral Creek/Consent Decree Work Plan Project

BLM Interdisciplinary Team (ID Team) members were assigned to prepare responses to comments within their resource specialty. Comments on inaccuracies or discrepancies were reviewed and researched and corrections made as appropriate. Comments which simply expressed a personal preference for the outcome of the EIS were noted. Comments on the adequacy of the analysis were reviewed and discussed by the ID Team to determine whether additional analysis was necessary, or if the concern could be addressed through additional clarification. Comments which identified new impacts, alternatives, or mitigation measures were reviewed by the ID Team to determine whether these suggestions required additional analysis or were within the scope of the EIS. Comments which were disagreed with significance determinations were reviewed and discussed by the ID Team.

7.4 GENERAL RESPONSES

7.4.1 General Response No.1: Access

The following general response addresses issues concerning public access from Highway 177 west to the White Canyon Wilderness, the artesian well and further west past the Coke Ovens and to the Gila River. Current physical access routes are presented on Figure 3-15. In the EIS, public access is discussed in Sections 3.2.4.3 and 4.4.3. Two alternative public access routes were identified (Route #1 and Route #2, Figure 4-1), both of which would replace public access on the existing Battle Axe Rd. (also called Mitchell Mine Rd.) alignment, as Asarco would use this road for mining at Copper Butte and public access would no longer be safe.

In March 1999, the BLM Interdisciplinary Team (ID Team) discussed Proposed access Routes #1 and #2 (Figure 4-1). BLM decided to select Route #2 (Battle Axe Road) alignment as the preferred access route from Highway 177 to the White Canyon Wilderness. Impacts associated with this route are much less than Route #1, which is too close to the White Canyon Wilderness and Silver Creek community. Impacts associated with each route are discussed in more detail in Section 4.4.3.

Asarco would redesign and construct a replacement public access road when the current Battle Axe Road is developed to support mining. As currently understood from the foreseeable use plan, unprocessed ore from Copper Butte would be hauled day and night across Highway 177 to the Ray Mine for processing. Highway 177 may have to be realigned, have an over pass constructed, or redesign of the egress/ingress point to the existing Battle Axe Road to safely accommodate haul trucks. Any such redesign and construction at Highway 177 to accommodate mine development would require the participation of and approval by the Arizona Department of Transportation (ADOT). Similarly the realignment of Battle Axe Rd. (an existing county ROW # AZA21389), would require Pinal County approval.

Beyond the Battle Axe road, current access to the White Canyon Wilderness has no *legal* access beyond BLM lands. Section 24, where the artesian well is located, is considered legal access because the State requires special use permits. Under the Proposed Action (agency preferred alternative), Asarco has agreed to purchase this Section from the State and donate approximately 480 acres to the BLM. When this occurs,

physical and legal access to the White Canyon Wilderness and artesian well would be resolved. Asarco will reserve any access needs at the time of donation. Currently Asarco has only conceptual plans to utilize a southern route between Buckeye and Copper Butte or a conveyance system to support future mining. Also included in the Proposed Action is access from the artesian well to the Coke Ovens and Gila River across Parcel CB-1. Under the exchange, BLM would be granted an easement across Section 26 (Parcel CB-1) to allow continued access to the Gila River and Coke Ovens.

7.4.2 General Response No.2: Alternatives

This general response responds to the public support of the Proposed Action and/or the Copper Butte Alternative. In March 1999, the BLM ID team considered all comment letters and revisited each of the four alternatives. The ID Team is represented by BLM staff from several offices representing management areas for both the selected and the offered lands. Chapter 5 identifies the team members who prepared or had oversight responsibilities for the EIS. Team members represent a wide variety of resource values and uses and considered these in reviewing the alternatives. Listed below is a summary of public comments in support of the Proposed Action or Copper Butte Alternative:

Comments on the Proposed Action (Agency Preferred Alternative[55]): About two dozen comments stated "support, fully support, strong support, preference or support with caveats" for the Proposed Action. Among the reasons given:

- the exchange is a win-win situation; it balances the public interests of preservation and development;
- almost an acres for acres exchange between selected and offered lands;
- BLM acquires lands on its highest priority list, allowing BLM to meet management objectives for riparian, special habitat, endangered species and cultural resources;
- Asarco gets lands for continuing mining, environmental buffering and for orderly planning for future mineral development;
- exchange allows the rural economy of Pinal County to be sustained and generates state revenue;
- the exchange, through enhancing the continuation of mining, permits the mining-dependent communities to sustain their economies and residents to continue their livelihoods;
- The future land use is mining regardless of the exchange;
- Asarco has the right to mine with/or without the exchange so why not obtain offered lands for BLM/public use; or, the BLM is coming out ahead with an exchange because Asarco will mine anyway;
- Private (offered) lands acquired by BLM would be open for public use and benefit;
- BLM can improve its management efficiency;
- The exchange will result in the greatest long term environmental benefit although short-term impacts occur to the White Canyon wilderness during mining.

Comments on the Copper Butte Alternative: Seven comments expressed support for the Copper Butte Alternative. A few letters used the language "If BLM proceeds with the land exchange, the Copper Butte alternative is the least harmful or onerous alternative". Some of the reasons cited by commentors for this alternative included:

- Preferred in efforts to retain Walnut Canyon and the Battle Axe road in public ownership;
- this alternative lessens the future mining impacts on White Canyon Wilderness Area;
- the Copper Butte alternative exchanges the least amount of land;
- the alternative minimizes the exchange impacts on potentially high value desert bighorn sheep habitat and preserves access to the Gila River;
- This alternative minimizes conflicts with scenic and natural values in the White Canyon area.

The BLM chose the Proposed Action as the Agency's preferred alternative with the agreement from Asarco that if Section 24 is acquired by Asarco from the State, Asarco would donate approximately 480 acres to

[55] To meet the requirements of 40 CFR 1502.14(e), the BLM authorizing officer chooses the preferred alternative for the agency based on FLPMA Section 106. All comments were made available to the affected managers along with responses.

BLM for special management in accordance with the White Canyon Plan Amendment/EA Decision Record (April 16, 1998, Appendix I in the DEIS). Please see the discussion in Section 2.1.1.1 regarding the Agency's preferred alternative.

7.4.3 General Response No. 3: Arizona Trail

This general response responds to the Trail groups interested in designating the Arizona Trail near the project area. During the preparation of this EIS, a number of comment letters have been received at all stages which provided specific concerns or identified proposed trail segments. Several field visits and meetings have occurred between BLM and Arizona Trail stewards and organizations, and Asarco to look at specific segments or consider possible mitigation for proposed exchange alternatives.

Detailed planning for the Arizona Trail (and the Great Western Trail) through this area will be done by the BLM Tucson Field Office in separate future efforts. The trail planning may occur as part of a coordinated management plan for the Middle Gila, which will likely include the White Canyon Wilderness or White Canyon ACEC plans, or a separate trail designation plan. The effort will involve additional public scoping and involvement to identify issues and potential trail segments. Proposed trail corridors are subject to NEPA and other federal regulations. The trail planning will also conform to the Phoenix RMP and other activity plans in the affected area. Currently, BLM has agreed to discuss future potential routes through the area and discuss the difficulties involved in planning a trail through the White Canyon area, which include some of the following:

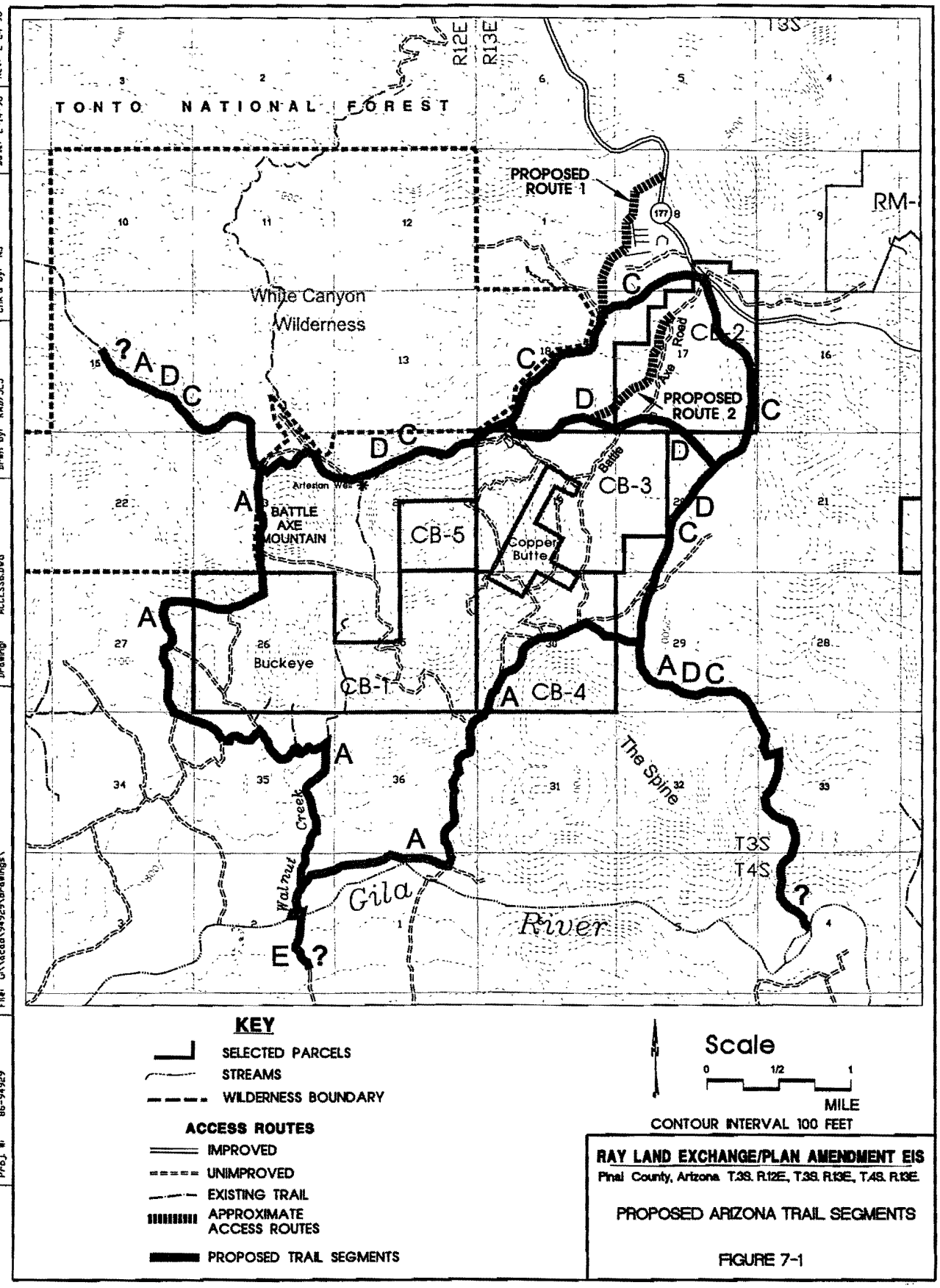
- mixed land ownership pattern of BLM, state and private;
- foreseeable land use of mining development and its associated roads, waste areas and other features;
- limited crossing sites for the Gila River;
- topographic features such as "The Spine" which prohibit economical trail-building or severely limit the construction of safe routes for people, horses and other non-motorized vehicles;
- specially designated areas including White Canyon ACEC and White Canyon Wilderness which require specific use and management;
- the presence of high value resource areas such as Walnut Creek riparian zone;
- the Arizona Trail's need for separate travel from motorized traffic.

In addition, planning for the wilderness, the ACEC and the trail have been delayed due to changing administrative boundaries, competing priorities for staff time and an unknown outcome (configuration) of this land exchange and the ultimate ownership of Section 24.

While it is outside the scope of this EIS to plan or designate the trail, the analysis of potential impacts and mitigation for the Arizona Trail are addressed even if possible trail routes are only suggestions at this point. Figure 7-1 illustrates five routes labeled A, C, D, E, and ADC, which are the trail segments analyzed in this EIS. Neither identify where the Gila River might be crossed although discussions point to the Kelvin Bridge. All assume that the White Canyon Wilderness might be crossed by the Arizona Trail although no decision has been made regarding this crossing. Note that potential routes to the west of the wilderness are not listed herein but are being discussed as well.

- Proposed Trail Segment A: This proposed segment begins from within the White Canyon Wilderness and travels south across Section 23 around Battle Axe Mountain, through Section 26 (Parcel CB-1) and traverses west to Section 27 and heads south to Section 34 and 35. The trail segment then connects with Walnut Creek and heads south following the Gila River east in Sections 2 and 1 and heads north in Sections 36 and 30 around the Spine. The trail eventually connects to Segment ADC and heads south in Section 29 to the Gila River.

- Proposed Trail Segment C: This proposed segment begins from Segment ADC within the White Canyon Wilderness west across Sections 23 and 24 near the artesian well and heads north across Section 18 and 17 up to Highway 177 crossing Battle Axe Road. The segment crosses Parcel CB-2


TONTO NATIONAL FOREST
R12E
R13E
T3S
T4S
PROPOSED ROUTE 1
PROPOSED ROUTE 2
White Canyon Wilderness
BATTLE AXE MOUNTAIN
Artesian Well
CB-1
CB-2
CB-3
CB-4
CB-5
Copper Butte
Buckeye
Battle Axe Road
The Spine
Walnut Creek
Gila River
KEY
SELECTED PARCELS
STREAMS
WILDERNESS BOUNDARY
ACCESS ROUTES
IMPROVED
UNIMPROVED
EXISTING TRAIL
APPROXIMATE ACCESS ROUTES
PROPOSED TRAIL SEGMENTS
Scale
0 1/2 1
MILE
CONTOUR INTERVAL 100 FEET
RAY LAND EXCHANGE/PLAN AMENDMENT EIS
Pinal County, Arizona T.3S. R.12E., T.3S. R.13E., T.4S. R.13E.
PROPOSED ARIZONA TRAIL SEGMENTS
FIGURE 7-1

and heads south across Sections 17 and 20 and connects to segment ADC and approaches the Gila River.

- Proposed Trail Segment D: This proposed segment begins from segment ADC within the White Canyon Wilderness west across Sections 23 and 24 and follows the proposed Route #2 segment for Battle Axe Road. Segment D would cross the proposed Battle Axe haul road in Parcel CB-2 and connect to segment with segment C in Section 20.

- Proposed Trail Segment E: This proposed segment would stem off of segment A and cross the Gila River and head south. The exact crossing of the Gila River has not been identified at this time.

- Proposed Trail Segment ADC: This segment combines segments A,C and D in the White Canyon Wilderness and heads north toward the Tonto National Forest. The southern portion of this segment starts in Section 29 and heads south toward the Gila River.

Proposed Mitigation. Should BLM (through its planning process) designate the Arizona Trail in an alignment similar to the segments identified above, the following mitigation would apply:

- Segment A: This proposed segment would require Asarco to allow for a temporary Arizona Trail loop to cross an existing track in the southern half of Section 30 of Parcel CB-4 to connect BLM sections. Since the foreseeable use for Parcel CB-1 is mining, Asarco would need to coordinate with BLM and the Arizona Trail Steward to determine if and how a segment could be constructed off Asarco's private land or at least the area subject to mining uses. Asarco would engineer and construct this permanent loop in or around Section 30 once the temporary loop was no longer safely passable due to mining activities.

- Segments C or D: Either of these two segments would require Asarco to allow for a temporary crossing of the existing Battle Axe Road until it becomes used for mining activities and replaced by a new public access road. For a permanent segment, Asarco will work with BLM and the Arizona Trail Steward to identify, engineer and fund a suitable segment connecting the trail to the newly constructed public access. This could involve the following: crossing BLM or Asarco land to safely connect the trail to Highway 177 for a short distance before looping onto the newly constructed public access road; or, construction of an underpass as part of an overhead bridge that Asarco develops for their haul road; or, building a trail alignment paralleling Highway 177 to the west if that highway is relocated. All of these possible actions require Asarco to work with ADOT for design and approval. Additionally, for segments C and D, Asarco would construct the new public access road with an additional 24-inch trail tread to separate the Arizona Trail from motorized traffic for the length of the new road.

7.4.4 General Response No. 4: Public Interest Determination

This response addresses the issues concerning how BLM can determine whether disposing of the selected lands and the resource values therein is in the public interest. BLM's objectives and criteria for disposing or acquiring public land are identified in Table 1-4 based on the Phoenix RMP. The objectives identified fully meet the "public interest" determination identified in 43CFR2200: achieving better management of federal lands; meeting state and local needs and economies; and, securing important resource objectives.

As discussed in Chapter 1, Section 1.6.3.1, the BLM is authorized to complete land exchanges under Section 206 of FLPMA, passed by Congress in 1976. In considering a land exchange, BLM must determine, per the requirements of Federal Lands Exchange Facilitation Act (FLEFA) and FLPMA, whether the public interest is being served by the proposed exchange.

> Section 206 (a) of FLPMA states that "...when considering public interest the Secretary concerned shall give full consideration to better Federal land management and the needs of State and local people, including needs for lands for the economy, community expansion, recreation areas, food, fiber, minerals, and fish and wildlife and the Secretary concerned finds that the values and the objectives which Federal lands or interests to be conveyed may serve if retained in Federal

ownership are not more than the values of the non-Federal lands or interests and the public objectives they could serve if acquired".

On a statewide basis in Arizona, BLM identifies specific lands or criteria for disposing public lands through resource management plans such as the Phoenix, Safford District or Kingman RMPs. These plans also identify state or private lands for acquisition. On a state-wide basis, the criteria for acquisition are: inholdings in wilderness; inholdings in ACECs; inholdings in other designated areas such as National Conservation Areas or Resource Conservation Areas; other lands with high resource values such as wildlife habitats for threatened and endangered species or for special species such as desert tortoise; highly valued riparian zones or watershed protection areas; lands which exhibit other values such as recreation or cultural resources; and last but also important, private lands which are inholdings within other public lands or parcels which acquired would improve management through consolidation.

This EIS becomes the analysis of values and uses for the public interest determination as referred to in 43 CFR 2200 by comparing the resources, habitats and values, the local and regional economies and needs, and opportunities for improving management of public lands. In Chapter 3 of the EIS, the existing values and uses on both the selected and offered lands are described. Chapter 4 provides a resource and use comparison as the land exchange consequences are identified. The EIS for the proposed Ray Land Exchange does not make a decision or public interest determination statement however it does provide the analytical basis for BLM's decision.

The Purpose and Need for Action in Chapter 1 identifies the federal management objectives that will be met to serve the public interest. In the BLM's Record of Decision (ROD), the specific interests that will be served and objectives that will be accomplished by completing or not completing the exchange will be presented as the rationale for the BLM's decision. The authorizing officer will issue the BLM's ROD after review and consideration of the potential impacts of the Proposed Action and action alternatives as disclosed in this FEIS.

7.4.5 General Response No. 5: Mine Plan of Operations (MPO) and Land Exchange

This general response addresses concerns about the Foreseeable Uses, specifically, the lack of a Mine Plan of Operations (MPO) for the exchange lands, a No Mining Alternative, and regulations pertinent to mining before and after any exchange of the selected lands (See Sections 1.6.4.1 and 2.1).

The removal of BLM from administering mining and other public land laws from the selected lands in no way exempts Asarco from regulations and permits as summarized in Tables 1-5 and E-1. Many of these, such as the Aquifer Protection Program permit, Title V air quality permit, Clean Water Act permits and Arizona state reclamation rules, require public notification and review prior to issuance of the permits. Major roles are assumed by EPA, ADEQ and the COE under their authorities to require, approve and administer these permits and regulations on federal and private lands. The State of Arizona administers the reclamation programs on private lands under Arizona Revised Statues Title 49 and Arizona Administrative Code Title 18. The Arizona State Mine Inspector has the option, however, of continuing reclamation approved by BLM under 43 CFR 3809.

There are no requirements that Asarco provide an MPO for BLM to consider or approve when evaluating a land exchange. Any new or existing MPOs filed with BLM for the selected lands are no longer binding once the land becomes private. The regulations pertinent to land exchanges, especially FLPMA and FLEFA, do require, however, the disclosure and evaluation of reasonable foreseeable uses. The foreseeable uses presented for the Ray land exchange in Chapter 2, Figures 2-7, 2-8, and 2-9, are based on planning information provided by Asarco during the preparation of the DEIS and updated in 1999 for the FEIS.

The land exchange is not required to approve mining since under the Mining Law of 1872, as amended, individuals are permitted to enter open public lands to explore and develop claims. In applying the Mining Law of 1872, BLM finds that Asarco holds 747 active mining claims on the selected lands as shown in Figures 3-12 and 3-13. These claims, subject to the provisions of 43 CFR 3809 regulations, provide Asarco with the right to utilize the public lands, exchange or no exchange. Under the 43 CFR 3809 and 43 CFR 3715 provisions, BLM would analyze any MPOs utilizing a NEPA process. Unless unnecessary or undue

degradation of the public lands as defined by 43 CFR 3809.0-5(k) and 43 CFR 3715.0-5 were found to result from the analysis, BLM must approve the MPO(s). Land exchanges are, however, discretionary decisions made under the public interest determinations under FLPMA Section 206.

7.4.6 General Response No. 6: Mineral Creek Consent Decree/Work Plan Project

This general responds addresses comments related to the Mineral Creek Consent Decree/ Work Plan Project involving the isolation of Mineral Creek from Ray Mine's Operations to ensure that water quality standards are met in Mineral Creek under the scheme established by the Clean Water Act (CWA) and pursuant to provisions stated in the Consent Decree entered into between Asarco Incorporated, the United States and the State of Arizona. Asarco intends to satisfy the requirements of the CWA and comply with the Consent Decree in stages throughout the next six years. On February 17, 1999, the Corps of Engineers released a public notice to issue a 404 permit for the Mineral Creek project. The environmental analysis currently being conducted for this project is an Environmental Assessment, which analyzes the impact of approximately 386 acres of private land and less than 12 acres of BLM land (Parcels RM-2 and RM-3). Under the Proposed Action, approximately 67.56 acres of waters of the U.S. and 27.6 acres of wetlands would be impacted.

The Mineral Creek Consent Decree/Work Plan Project and the Ray Land Exchange/Plan Amendment EIS are considered separate projects, involving different agencies. The Mineral Creek Project needs a Section 404 permit under the Clean Water Act administered by the Corps of Engineers. The Ray Land Exchange is a discretionary land exchange being evaluated by BLM. Approximately 12 acres of BLM land are involved in both projects. Should the land exchange be completed prior to the issuing of the Section 404 permit, then Asarco will own the 12 acres. If the land exchange is not completed prior to the Section 404 permit, then BLM would need to approve an MPO to use the land.

7.5 INDIVIDUAL RESPONSES

The following pages provide reproductions of comment letters received during the DEIS comment period and corresponding responses by the BLM. Individual comments in each letter have been identified by line numbers along the left margin of the comment. Table 7-1 is a list of commentors whose letters were not included in the chapter, but were in support of the Proposed Action.

Table 7-1. Commentors in support of the Proposed Action (unpublished letters)

Letter Number	Commentor
3	Robert Thompson
4	Raul Estrada
5	Steven McGhee
6	Lynn Sheppard
8	Name Withheld
12	Andy Clark
16	Thomas Heyn
23	Senon Jaurigue
24	Name Withheld

LETTER #1

NOV 3 0 1998

Mark Belles
9318 Willard Street
Rowlett, TX 75088-4403

Shela McFarlin
BLM – Arizona State Office
222 N. Central Avenue
Phoenix, Arizona 85004

25 November, 1998

Dear Ms. McFarlin,

Thank you for the prompt delivery of the Draft Environmental Impact Statement (DEIS) and the Ray Land Exchange Plan Amendment. Congratulations on a excellent document. I found it very easy to read with ample information to form an opinion.

In summary, the proposed action is a solid plan which seems to balance the public interests of preservation and development. The compensation to the public for the selected lands also appear to be fair. I support the proposed alternative.

Please retain my name on your mailing list for this process.

Thank you for the opportunity to comment,

Mark Belles

▸ Thank you for your comment.

LETTER #2

RAY LAND EXCHANGE AND PLAN AMENDMENT
ENVIRONMENTAL IMPACT STATEMENT

PUBLIC COMMENT SHEET
PLEASE SUBMIT COMMENTS BY JANUARY 28, 1999

Please share your ideas, comments and concerns in the space provided below (or you may send your comments on a separate form to the address below). Fold this form, staple it shut, attach postage, and return to BLM by January 28, 1999. For additional information, please contact

Shela McFarlin, BLM Arizona State Office
222 North Central Avenue, Phoenix, Arizona 85004
(602) 417-9568

(1) My Main Concern is That ASARCO Already Owns More Land Than They Need in the Kearny/Ray Area.

(2) I Am Sickened By Your Tailings Piles Being Dumped on Top Cactis.

Please help us keep our mailing list accurate and up to date.

Last Name O'HARA First Name JOHN Initial
Title (Optional)
Organization (if applicable)
Mailing Address 5836 JAVELINA LN.
City KEARNY State AZ Zip Code 85237-4000
Phone ( ) Fax

☑ Please send me a copy of the Final EIS/Plan Amendment when it becomes available.
☑ Please send me the project update, but not the Final EIS.
☐ Please take my name off the mailing list.

▸ Your comments have been noted.

LETTER #7

RAY LAND EXCHANGE AND PLAN AMENDMENT
ENVIRONMENTAL IMPACT STATEMENT

PUBLIC COMMENT SHEET
PLEASE SUBMIT COMMENTS BY JANUARY 28, 1999

Please share your ideas, comments and concerns in the space provided below (or you may send your comments on a separate form to the address below). Fold this form, staple it shut, attach postage, and return to BLM by **January 28, 1999.** For additional information, please contact

Shela McFarlin, BLM Arizona State Office
222 North Central Avenue, Phoenix, Arizona 85004
(602) 417-9568

I BELIEVE WE SHOULD ACT ON THIS EXCHANGE AS PROPOSED. THIS WOULD BE AN ADVANTAGE FOR THE BLM & ASARCO & ALL THE RESIDENTS OF ARIZONA.

Please help us keep our mailing list accurate and up to date.

Last Name SERVANT	First Name RONALD	Initial L	
Title (Optional) ACCOUNTING MANAGER			
Organization (if applicable) ASARCO			
Mailing Address P.O. BOX 1025			
City KEARNY	State AZ	Zip Code 85137	
Phone (520) 363-7357	Fax		

☒ Please send me a copy of the Final EIS/Plan Amendment when it becomes available.
☐ Please send me the project update, but not the Final EIS.
☐ Please take my name off the mailing list.

▸ Thank you for your comment.

LETTER # 9

RAY LAND EXCHANGE AND PLAN AMENDMENT
ENVIRONMENTAL IMPACT STATEMENT

PUBLIC COMMENT SHEET
PLEASE SUBMIT COMMENTS BY JANUARY 28, 1999

Please share your ideas, comments and concerns in the space provided below (or you may send your comments on a separate form to the address below). Fold this form, staple it shut. attach postage, and return to BLM **by January 28, 1999.** For additional information, please contact

Shela McFarlin, BLM Arizona State Office
222 North Central Avenue, Phoenix, Arizona 85004
(602) 417-9568

I support the preferred land exchange. This alternative provides a winning situation for BLM, ASARCO & the general public. Progress & the prosperity that accompanies the continuation of ASARCO's efforts as well as the obtained prime land BLM would aquire are beneficial to the public all around. I appreciate the opportunity to be informed and participate in this process.

Chad G Cooper

Please help us keep our mailing list accurate and up to date.

Last Name Cooper First Name Chad Initial G.
Title (Optional) Env. Eng.
Organization (if applicable) ASARCO
Mailing Address Po Box 240
City Claypool State Az. Zip Code 85532
Phone (520) 473-5158 Fax 520 - 356 - 2801

☑ Please send me a copy of the Final EIS/Plan Amendment when it becomes available.
☐ Please send me the project update, but not the Final EIS.
☐ Please take my name off the mailing list.

▸ Thank you for your comment.

LETTER #10

RAY LAND EXCHANGE AND PLAN AMENDMENT
ENVIRONMENTAL IMPACT STATEMENT

PUBLIC COMMENT SHEET
PLEASE SUBMIT COMMENTS BY JANUARY 28, 1999

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Shela McFarlin, BLM Arizona State Office
222 North Central Avenue, Phoenix, Arizona 85004
(602) 417-9568

I believe this exchange to be beneficial to all the parties concerned. The Private Lands seem to be useful to the BLM while the Federal Lands can also assist the Ray Mine in its long range mining programs. The communities of Kearny, Florence, Winkelman, Hayden, and Superior are all dependent on the continued operation of the Ray Mine.

Please help us keep our mailing list accurate and up to date.

Last Name	TOON	First Name JAMES	Initial W.
Title (Optional)	SENIOR MINING ENGINEER		
Organization (if applicable)	ASARCO		
Mailing Address	P.O. BOX 107		
City	KEARNY	State AZ	Zip Code 85237
Phone	(520) 356-2204 (ASARCO)	Fax 520-356-2801	

☒ Please send me a copy of the Final EIS/Plan Amendment when it becomes available.
☐ Please send me the project update, but not the Final EIS.
☐ Please take my name off the mailing list.

▸ Thank you for your comment.

LETTER #11

RAY LAND EXCHANGE AND PLAN AMENDMENT
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Shela McFarlin, BLM Arizona State Office
222 North Central Avenue, Phoenix, Arizona 85004
(602) 417-9568

THANK YOU BLM! THIS WAS A VERY WELL LAID OUT AND PREPARED EIS. ALL PARTIES WERE ADDRESSED AND I FEEL MOST CONCERNS ANSWERED. (YOU JUST HAVE TO LOOK AND READ).

I CAN SEE THAT THIS LAND EXCHANGE WILL BE A "WIN-WIN" FOR ALL PARTIES OUR FAMILIES WILL KNOW WE HAVE A FUTURE; THE PAST WILL BE PROTECTED AND THE PRESENT IS BEING ADDRESSED WITH AN EYE TO THE FUTURE. THE ENVIRONMENT WILL BE PRESERVED AND MINING WILL BE ONGOING, FULFILLING OUR MINERAL NEEDS. ASARCO IS A RESPONSIBLE - PARTNER. AFTER ALL WE LIVE HERE TOO.!

THANK YOU FOR THE OPPORTUNITY TO EXCHANGE VIEWS.

Please help us keep our mailing list accurate and up to date.

MICHAEL	J	FALLA
Last Name	First Name	Initial

Title (Optional) MAINTENANCE SUPERVISOR II
Organization (if applicable) ASARCO INC
Mailing Address PO BOX 8
City HAYDEN State AZ Zip Code 85235
Phone (520) 356 7511 X 4214 Fax 520 356-4223

☑ Please send me a copy of the Final EIS/Plan Amendment when it becomes available.
☐ Please send me the project update, but not the Final EIS.
☐ Please take my name off the mailing list.

▸ Thank you for your comments.

LETTER #13

ARIZONA DEPARTMENT OF COMMERCE

S T A T E C L E A R N G H O U S E

JANE DEE HULL, GOVERNOR | JACKIE VIEH, DIRECTOR | JONI SAAD, MANAGER

MEMORANDUM

TO AZ STATE BLM OFFICE
DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE RAY LAND EXCHANGE/PLAN AMENDMENT 15.999
AZ981030800037

FROM : Arizona State Clearinghouse

DATE November 27,1998

This sign-off letter is in response to the above project submitted to the Arizona State Clearinghouse for review, and may be filed with the original completed proposal. Please reference the State Application Identifier (SAI) Number in any further correspondence related to this project.

The appropriate review time has elapsed pursuant to the Executive Order 12372 and certain Arizona State officials and/or Regional Councils of Government have reviewed and supported this project as written. All written comments submitted by the reviewers will be enclosed with this letter, should comments of concern be written, you will be immediately informed and permitted to reply. Federal agencies have been notified of this signoff- letter; however, their review may remain in progress.

If you are a state agency and are granted federal moneys send a copy of the federal award letter with the State Application(SAI) Number assigned to that application. If you are to administer these funds (subgrants) through an application process, you are obligated to submit a notice or sample of the application to the Clearinghouse prior to the application period, and advise your applicants of Clearinghouse requirements.
Thank you.

Joni Saad,
Manager Arizona State Clearinghouse

3800 NORTH CENTRAL AVENUE • SUITE 1400 • PHOENIX, AZ 85012 • 602-280-1315 • TDD 602-280-1301

▸ Thank you for your comments.

LETTER #14

RAY LAND EXCHANGE AND PLAN AMENDMENT
ENVIRONMENTAL IMPACT STATEMENT

PUBLIC COMMENT SHEET
PLEASE SUBMIT COMMENTS BY JANUARY 28, 1999

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Shela McFarlin, BLM Arizona State Office
222 North Central Avenue, Phoenix, Arizona 85004
(602) 417-9568

I encourage you to vote in favor of Asarco's Preferred plan. Copper is a staple metal in our economy. It just can't be picked out of the air. The economy of our rural areas will be highly impacted if Asarco could not maintain as usual business.

Please help us keep our mailing list accurate and up to date.

Last Name Swingle First Name Jody Initial M
Title (Optional)
Organization (if applicable)
Mailing Address P.O. Box 752
City WINKELMAN State AZ Zip Code 85292
Phone (502) 356-6901 Fax

☑ Please send me a copy of the Final EIS/Plan Amendment when it becomes available.
☐ Please send me the project update, but not the Final EIS.
☐ Please take my name off the mailing list.

Thank you for your comment.

LETTER #15

RAY LAND EXCHANGE AND PLAN AMENDMENT
ENVIRONMENTAL IMPACT STATEMENT

PUBLIC COMMENT SHEET
PLEASE SUBMIT COMMENTS BY JANUARY 28, 1999

Please share your ideas, comments and concerns in the space provided below (or you may send your comments on a separate form to the address below). Fold this form, staple it shut, attach postage, and return to BLM **by January 28, 1999.** For additional information, please contact

Sheila McFarlin, BLM Arizona State Office
222 North Central Avenue, Phoenix, Arizona 85004
(602) 417-9568

I WOULD LIKE TO EXPRESS MY SUPPORT FOR THE PROPOSED ACTION ALTERNATIVE. I HAVE WORKED IN THE COPPER INDUSTRY FOR 27 YEARS AND AM EXTREMELY CONCERNED ABOUT THE CONTINUED VIABILITY OF OUR OPERATIONS AND FUTURE PROJECTS.

Please help us keep our mailing list accurate and up to date.

Last Name VERDUGO First Name SYLVIA Initial
Title (Optional)
Organization (if applicable) ASARCO RAY COMPLEX
Mailing Address P O BOX 1205
City KEARNY State AZ Zip Code 85237
Phone ( ) Fax

☐ Please send me a copy of the Final EIS/Plan Amendment when it becomes available
☐ Please send me the project update, but not the Final EIS.
☐ Please take my name off the mailing list.

99 NOV 22 01

▸ Thank you for your comment.

LETTER # 17

RAY LAND EXCHANGE AND PLAN AMENDMENT
ENVIRONMENTAL IMPACT STATEMENT

PUBLIC COMMENT SHEET
PLEASE SUBMIT COMMENTS BY JANUARY 28, 1999

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Shela McFarlin, BLM Arizona State Office
222 North Central Avenue, Phoenix, Arizona 85004
(602) 417-9568

The communities in the area depend on Asarco for livelihood, I work for and support Asarco in their business efforts and therefore support the proposed land exchange between Asarco and the BLM.

Please help us keep our mailing list accurate and up to date.

Last Name Wilhelm First Name Joseph Initial A.
Title (Optional) Manager - Hayden Operations
Organization (if applicable) Asarco Ray Complex
Mailing Address PO Box 8 Hayden Arizona
City Hayden State AZ Zip Code 85235
Phone (520) 356 3401 Fax 520 356 3803

- ☐ Please send me a copy of the Final EIS/Plan Amendment when it becomes available.
- ☐ Please send me the project update, but not the Final EIS.
- ☐ Please take my name off the mailing list.

▸ Thank you for your comment.

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2
3

LETTER #18

RAY LAND EXCHANGE AND PLAN AMENDMENT
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PLEASE SUBMIT COMMENTS BY JANUARY 28, 1999

Please share your ideas, comments and concerns in the space provided below (or you may send your comments on a separate form to the address below). Fold this form, staple it shut, attach postage, and return to BLM by January 28, 1999. For additional information, please contact

Shela McFarlin, BLM Arizona State Office
222 North Central Avenue, Phoenix, Arizona 85004
(602) 417-9568

I WOULD LIKE TO REGISTER MY SUPPORT FOR THE PROPOSED RAY LAND EXCHANGE PROPOSAL OPTION #1. I THINK IT MAKES GOOD SENSE TO KEEP ASARCO IN THE MINING BUSINESS, KEEP 1500 ARIZONANS EMPLOYED AND AT THE SAME TIME PURCHASE PRIME LAND FOR BLM USE. WHAT A GOOD PLAN. GOOD LUCK.

THANKS
Jim Murphy

12/16/98

Please help us keep our mailing list accurate and up to date.

Last Name	MURPHY	First Name JAMES	Initial W
Title (Optional)			
Organization (if applicable)	ASARCO		
Mailing Address	PO BOX 548		
City	KEARNY	State AZ	Zip Code 85137
Phone	(520) 3625086	Fax	

☐ Please send me a copy of the Final EIS/Plan Amendment when it becomes available.
☒ Please send me the project update, but not the Final EIS.
☐ Please take my name off the mailing list.

DEC 18 10 32 AM

LETTER #19

RAY LAND EXCHANGE AND PLAN AMENDMENT
ENVIRONMENTAL IMPACT STATEMENT

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Shela McFarlin, BLM Arizona State Office
222 North Central Avenue, Phoenix, Arizona 85004
(602) 417-9568

Although I have little enthusiasm for any disposal of lands in the Copper Butte area, I would prefer the Copper Butte Alternative over the preferred alternative or the other alternatives presented by BLM. This will allow much of the trade to go forward while still retaining Walnut Canyon and the Battleaxe Road in public ownership, and minimizing conflicts with scenic and natural values in the White Canyon area. Again, I prefer the Copper Butte Alternative as the least among various evils.

Please help us keep our mailing list accurate and up to date.

Last Name Wright First Name Tom Initial
Title (Optional)
Organization (if applicable)
Mailing Address 7102 E. Oak St. #9
City Scottsdale State AZ Zip Code 85257-2144
Phone (602) 947-0155 Fax

☒ Please send me a copy of the Final EIS/Plan Amendment when it becomes available.
☐ Please send me the project update, but not the Final EIS.
☐ Please take my name off the mailing list.

▸ Please see general response no.2, Alternatives and general response no.1, Access.

LETTER #20

G L E N D A L E H I K I N G C L U B

6043 West Willow Avenue
Glendale, Arizona 85304
(602) 412-8718

December 26, 1998

Ms. Shela McFarlin
Project Manager
Bureau of land Management
Arizona State Office
222 N. Central Ave.
Phoenix, AZ 85004

Dear Ms. McFarlin

I have received the Draft EIS for the Ray Land Exchange. After reviewing the very complete information on behalf of the Glendale Hiking Club (paid membership upwards of 125 people) and presenting it at our December meeting, I would like to make the following comments.

Due to our interest in hiking, we are especially concerned about mining operations in the proximity of the boundary of White Canyon Wilderness Area. Another concern is the hydrological integrity of the very rare artesian well located near the entry way to White Canyon. White Canyon is very special and the BLM should make an attempt to preserve its scenic, cultural and natural attributes.

To somewhat lessen the future mining impacts on White Canyon Wilderness Area, we therefore strongly urge the BLM to choose the "Copper Butte Alternative" in its Final EIS for the Ray Land Exchange. Similarly, we will urge the State Lands Department not to trade its holding in Section 23 and 24 (adjacent to the wilderness) to ASARCO.

The remaining 9,161 acres of the Copper Butte Alternative (83% of lands selected by ASARCO) should be quite sufficient for its mining purposes.

Thank you for taking our comments.

Sincerely yours,

Gabriel Zinsli
Environmental Officer
Glendale Hiking Club

- Lines 21-22. The Arizona Desert Wilderness Act, establishes the White Canyon Wilderness and denies the creation of buffer zones around any such wilderness area. According the Act, the fact that nonwilderness activities or uses can be seen or heard from areas within a wilderness shall not, of itself, preclude such activities or uses **up to the boundary** of the wilderness area. BLM agrees that foreseeable mining activities will impact areas adjacent to White Canyon Wilderness. Mining activities potentially will be seen from 42% of the Wilderness (Figure 4-2). There will be potential impacts from the residual noise, night lights, and air quality degradation onto the designated Wilderness.

- Lines 22-23. An analysis of potential impacts to the artesian well in Section 24 is not possible at this time for several reasons: 1) It is not currently known how close mining operations will be to the well; 2) The exact type of mining operations in the area are not known; and 3) Detailed hydrologic studies of the area showing the occurrence and flow of groundwater do not exist.

- Lines 27-28. Please see general response no. 2, Alternatives.

- Lines 29-30. Section 23 is not State land. If Asarco were to acquire Section 24 from the State, Asarco has agreed to donate 480 acres of Section 24 to BLM and keep the remaining 160 acres to develop Parcel CB-5 (Please see Section 2.1.1.1., agency preferred alternative).

LETTER #21

RAY LAND EXCHANGE AND PLAN AMENDMENT
ENVIRONMENTAL IMPACT STATEMENT

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Shela McFarlin, BLM Arizona State Office
222 North Central Avenue, Phoenix, Arizona 85004
(602) 417-9568

The proposed land exchange between the Bureau of Land Menagement and ASARCO should procede.
This exchange clearly improves the BLM land holdings in environmentlly sensitive areas with out sacrifice of the environment in the Ray Mine area.
This exchange of land does not alter the effective environmental control which ASARCO must adhere to in its mine operations.
The BLM gains further consolidation of its land holdings in other parts of Arizona.

Please help us keep our mailing list accurate and up to date.

Last Name McCulloch First Name Walter Initial E.
Title (Optional) Process Engineer
Organization (if applicable) Bateman Engineering
Mailing Address 1860 E River Rd Suite 300
City Tucson State AZ Zip Code 85718
Phone (520) 529-2477 Fax (520) 529-2703

☐ Please send me a copy of the Final EIS/Plan Amendment when it becomes available.
☒ Please send me the project update, but not the Final EIS.
☐ Please take my name off the mailing list.

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▸ Thank you for your comment.

LETTER #22

RAY LAND EXCHANGE AND PLAN AMENDMENT
ENVIRONMENTAL IMPACT STATEMENT

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Shela McFarlin, BLM Arizona State Office
222 North Central Avenue, Phoenix, Arizona 85004
(602) 417-9568

THIS LETTER IS IN STRONG SUPPORT OF THE RAY LAND EXCHANGE. THE EXCHANGE OF THE SELECTED AND OFFERED LANDS WILL GREATLY BENEFIT ALL PARTIES INVOLVED. THE OFFERED LANDS IN Mohave, La Paz, and Pinal counties are high quality and are very attractive for preservation of riparian environments and for use in recreation. THE selected lands will ensure the continued viability of Asarco as one of the primary employers in the Hayden and Kearny areas. I believe that accepting the Final EIS Plan will benefit all Copper Basin communities (Globe, Miami, San Manuel and Ray) as wellas preserve high quality land for future generations.

Please help us keep our mailing list accurate and up to date.

Last Name MARSH	First Name BRETT	Initial R
Title (Optional) Geologist		
Organization (if applicable) ASARCO, INC		
Mailing Address PO Box B		
City HAYDEN	State AZ	Zip Code 85235
Phone (520) 356-2711	Fax 520 356 2801	

- ☐ Please send me a copy of the Final EIS/Plan Amendment when it becomes available.
- ☐ Please send me the project update, but not the Final EIS.
- ☐ Please take my name off the mailing list.

▸ Thank you for your comment.

LETTER #25

RAY LAND EXCHANGE AND PLAN AMENDMENT
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Shela McFarlin, BLM Arizona State Office
222 North Central Avenue, Phoenix, Arizona 85004
(602) 417-9568

This is a win win situation. The state of Arizona has a chance to greatly benefit from this land exchange as well as the ASARCO Ray Mine. The mine potential land is so near to the existing Ray Complex that the land is basically useless to all but mining. The other land that is currently privately owned by ASARCO is near Wilderness areas and is very clean and unharmed by mining activity. This land is just beautiful and the public could truly benefit by making it public land.

BUREAU OF LAND MANAGEMENT
ARIZONA STATE OFFICE
PHOENIX, ARIZONA
JAN 11 11 53 AM '99

Please help us keep our mailing list accurate and up to date.

Last Name FRANDSEN First Name DAN Initial K
Title (Optional) Electrical General Foreman
Organization (if applicable) ASARCO Inc
Mailing Address PO Box 8 Hayden AZ
City Hayden State AZ Zip Code 85235
Phone (520) 356-7556 Fax

☐ Please send me a copy of the Final EIS/Plan Amendment when it becomes available.
☒ Please send me the project update, but not the Final EIS.
☐ Please take my name off the mailing list.

▸ Thank you for your comment.

LETTER #26

RAY LAND EXCHANGE AND PLAN AMENDMENT
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Shela McFarlin, BLM Arizona State Office
222 North Central Avenue, Phoenix, Arizona 85004
(602) 417-9568

I support the land exchange. As written, the ~~was~~ proposed exchange will satisfy the delicate balance of key land preservation ~~efforts~~ as well as land development for economic purposes.

Please help us keep our mailing list accurate and up to date.

Last Name MOSS First Name MICHAEL Initial D
Title (Optional) MAINTENANCE GENERAL SUPERVISOR
Organization (if applicable) ASARCO RAY COMPLEX
Mailing Address PO BOX 8
City HAYDEN State AZ Zip Code 85239
Phone (520) 356-2340 Fax 520-356-2806

- ☐ Please send me a copy of the Final EIS/Plan Amendment when it becomes available
- ☐ Please send me the project update, but not the Final EIS.
- ☐ Please take my name off the mailing list.

▸ Thank you for your comment.

LETTER #27

MOHAVE COUNTY PUBLIC LAND USE COMMITTEE

P.O. Box 7000 ✦ Kingman, Arizona 86402-7000
3675 E. Highway 66 ✦ (520) 757-0903 ✦ FAX 757-3577 ✦ TDD (520)753-0726
Michael Kondelis, Chairman James Butcher, Vice Chairman

January 13, 1999

Ms. Shela McFarlin, Project Manager
Bureau of Land Management
222 North Central Avenue
Phoenix, AZ 85004

RE: BLM/AZ/PL-98/0013, Ray Land Exchange/Plan Amendment DEIS

Dear Shela:

Members of the Mohave County Public Land Use Committee have reviewed the Ray Land Exchange DEIS and do not have any detailed questions or comments pertaining to the draft. In general, it appears that the parcels in the exchange will benefit both parties involved.

One concern we do have is that private land and tax revenue in Mohave County is lost to an exchange in another county. There must be some balance to this equation and in future exchanges Mohave County should realize an offsetting gain.

Again, thank you for the opportunity to comment. I appreciate the time you have taken to attend the PLUC meetings and keep the committee informed.

Sincerely,

Michael J. Kondelis P.E.
Chairman

SUBCOMMITTEE CHAIRPERSONS:

Don Van Brust	Jim Butcher	Anita Waite	Mike Kondelis	Bryan Corbin	Truman Puchbauer	Phil Strittmatter	Elno Roundy	Don Martin
Air Quality & Hazardous Materials	*Business & Industry*	*Grazing*	*Mining*	*Recreation*	*Timber*	*Transportation*	*Water*	*Wilderness, Wildlife &, Endangered Species*

- Lines 20-21. Thank you for your comment.
- Lines 23-24. Please see text changes in Section 4.6.2.3, Taxes.

LETTER #28

To: Ms. Shela McFarlin, Project Manager
Ray Land Exchange
AZ State Office - Bureau of Land Management USDI
222 N. Central Ave.
Phoenix, AZ 85004

Jan. 11. 1999

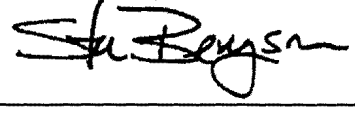
Dear Ms. McFarlin:

I would like to voice my support for the Proposed Ray Land Exchange. This method of exchanging mineral important lands for environmentally sensitive private lands offers the citizen's of this country a great opportunity. We can have our cake and eat it too! We can produce the copper minerals so vital to our economy and way of life; while protecting the valuable natural resources we all treasure. Through this exchange process the federal government will attain ownership and protection of valuable riparian and sensitive wildlife habitat that may otherwise be lost. ASARCO will get the already mining impacted lands it needs for the expansion and future development of the Ray Mine Complex. This is the best of both worlds.

It is not often in these days of land-use debates that a "win - win" program can be implemented. Most often it is an "all or nothing" battle. Usually those with the greatest political clout are the winners. In this case everyone wins; the taxpayers of AZ, Gila & Pinal Counties; the environmental community; the mining company; and society as whole. From this Ray Land Exchange valuable copper will be produced to advance and sustain our society, taxes will be paid to local governments to provide vital services, and payrolls will be provided to sustain hundreds of local families. All this is made possible because a few acres of valuable mineral lands that have already been impacted by mining will be exchanged for lands that contain very sensitive riparian and wildlife habitat values. I can't think of a better allocation of our natural resources.

Thank you for this opportunity to express my thoughts on the Ray Land Exchange. If you have any questions, or if I can assist in this endeavor in any way, please contact me.

Stu Bengson
8900 N. Camino de Anza
Oro Valley, AZ 85737



▸ Thank you for your comments.

LETTER #29

Marlene A. O'Hara
58636 Javelina Lane
Kearny AZ 85237-4000
19 December 1998

U.S. Representative J.D. Hayworth
1017 S Gilbert Road
Mesa AZ 85204

Dear Representative Hayworth,

It is with a sad heart that I am writing this letter. I recently attended a meeting at which I learned that BLM intends to swap nearly 11,000 acres of awesome public land with some acreage offered by ASARCO. The "offered lands", supporting desert tortoise populations, were purchased by ASARCO on the recommendations of BLM, according to their statement, specifically to be used for swapping. I find these sorts of shenanigans appalling! This proposed action has me deeply concerned, as the environmental disaster that has already occurred with open pit mining in the Kearny area is heartbreaking. With the vast amount of land that ASARCO presently owns in the vicinity of the Ray Mine, I fail to understand why they require an additional 11,000 acres of public land to use as a "buffer" around the mine area.

Looking out the window, as I am writing this, is some of the most incredibly beautiful scenery you could imagine. Saguaro, Palo verde, creosote bushes and all the varied fauna range from the valley areas to the tops of the mountains. This part of the Sonoran Desert is so breathtaking that it brings tears to ones eyes. It is prime area for typical Arizona outdoor activities, which will be lost forever if this land exchange is allowed. BLM is accepting comments from the public until 28 January 1998 but I would wager that there are few citizens aware this proposal is even on the table. Whether or not you are able to help save this exquisite area for posterity, I implore you to please try to do something!

I have enclosed copies of the Ray Land Exchange/Plan Amendment DEIS Fact Sheet in the event you have not seen it.

Thank you, Representative Hayworth, for any help you are able to offer.

Sincerely

Marlene A. O'Hara

▸ Lines 15-22. As discussed in Chapter 1 (Purpose and Need), Asarco intends to consolidate its land holdings within and adjacent to areas of ongoing mining-related operation. The uses of these lands are described in Table 2-6, which include uses such as expansion of rock deposition areas, haul/access roads, buffer zones, and copper/silica flux development.

▸ Lines 28-30. Section 5.2 details the public participation process for all phases of the land exchange process. The information presented in this section should address the concerns noted here.

LETTER #30

RAY LAND EXCHANGE AND PLAN AMENDMENT
ENVIRONMENTAL IMPACT STATEMENT

PUBLIC COMMENT SHEET
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Shela McFarlin, BLM Arizona State Office
222 North Central Avenue, Phoenix, Arizona 85004
(602) 417-9568

I FULLY SUPPORT THE RAY LAND EXCHANGE. IT SEEMS TO ME TO BE A WIN-WIN SITUATION. WITH THE TRADED LAND, THE MINE CAN STAY OPEN WHICH WILL DIRECTLY AFFECT ISDO + JOBS. THE BLM WILL RECEIVE QUALITY LAND THAT CAN BE USED BY THE PUBLIC, AND THAT WILL HELP MAINTAIN THE ENVIRONMENT.

Please help us keep our mailing list accurate and up to date.

Last Name JARVIS	First Name Scott	Initial B
Title (Optional)		
Organization (if applicable)		
Mailing Address PO Box 201		
City KEARNY	State AZ	Zip Code 85237
Phone (520) 363-7763	Fax	

☐ Please send me a copy of the Final EIS/Plan Amendment when it becomes available.
☑ Please send me the project update, but not the Final EIS.
☐ Please take my name off the mailing list.

▸ Thank you for your comment.

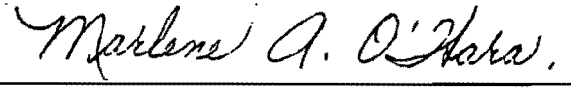
LETTER #31

Marlene A. O'Hara
58636 Javelina Lane
Kearny AZ 85237-4000
(520)363-9824
22 January 1999

To Whom It May Concern:

I am still trying to understand how BLM can even consider exchanging nearly 11,000 acres of the most awesome Sonoran Desert to ASARCO to use as a "buffer zone" for their Ray Mine operation. They already control such a vast amount of land in this area that the necessity of additional acreage evades me. For BLM to have advised ASARCO to purchase desert tortoise land near Kingman in order for the land exchange to occur is absolutely galling! I cannot believe the citizens of our state would condone such shenanigans if they were aware of them. The Ray open-pit mine is an environmental disaster and how BLM can even consider allowing ASARCO to encroach even further onto OUR land is alarming!

Please reconsider this horrible plan and leave this incredibly beautiful land to be enjoyed by the people of Arizona.



- Lines 16-17. Please see response to Letter #29.
- Lines 19-20. BLM advised Asarco to purchase desert tortoise land near Kingman because these parcels are on BLM's *statewide* acquisition list and acquiring these parcels would comply with BLM's desert tortoise habitat management rangewide plan (Appendix F of the DEIS).

LETTER #32

SIERRA CLUB

Rincon Group

738 North 5th Avenue #214
Tucson, Arizona 85705 (520) 620-6401

January 21, 1999

Sheila McFarlin
Project Manager
BLM - Arizona State Office
222 N. Central Avenue
Phoenix, AZ 85004

Re: DEIS Ray Land Exchange/Plan Amendment

Dear Ms. McFarlin,

The Rincon Group of the Sierra Club is strongly opposed to this land exchange and change in land tenure classification from retention to disposal. The 10,339 acres of affected land have high resource values and have been designated as a Resource Conservation Area, indicating that they are important natural areas. The plan amendment goes against the intent of the Resource Management Plans (Phoenix and Safford), and is unwarranted and frivolous. Justifying it as necessary in order to consider the land exchange is likewise frivolous and absolutely indefensible. This action does not need to occur prior to evaluating the merits of the proposed land exchange. It could occur later, if the exchange was approved. This action serves no one but Asarco who would gain free reign over these lands, and the BLM staff who wouldn't have to manage a mine (e.g. less work for them).

The selected lands are valuable areas. The White Canyon ACEC is listed as having outstanding scenic, wildlife and cultural values (Phoenix RMP/FEIS, Dec. 1988, Table 2-3). The entire RCA was considered to have high resource values, and identified for retention and protection in the 1988 RMP/FEIS. Why have these values suddenly become non-important and these lands suitable for disposal?

Asarco's arguments regarding the mineral and economic values (Phoenix RMP & FEIS, Dec. 1988) are irrelevant. The copper that might be recovered from Copper Buttes and Buckeye is inconsequential to the long term economy or standard of living in Pinal County, or Arizona. The value of White Canyon and Copper Buttes, however, as wild, natural open space is priceless and will last into perpetuity. It has become widely accepted and recognized that the majority of people, including those in Arizona, place a high value on natural open space, especially when close to urban areas as these lands are. Furthermore, tourism provides more for the economy and is more sustainable than mining. Tourists from all over the world visit Arizona for the spectacular scenery - red rock canyons, sky island mountains, Sonoran Desert vegetation - not to see copper mines.

Most of the offered lands are indeed desirable lands, however, are they in danger of being developed or degraded under their present status? What is the rush to acquire these lands? If acquired, all of the offered lands should be withdrawn from mineral entry to prevent any degradation. Why aren't the Sacramento Valley and McCracken Mountains parcels proposed for withdrawal from mineral entry? Both have high category 1 desert tortoise habitat and should be protected if acquired.

The DEIS states that mining could occur through patenting under the Mining Law of 1872. (Has BLM verified the validity of all of Asarco's mining claims?) This is a misleading statement. Patenting has been suspended for the last several years through a congressional moratorium that is expected to continue for the foreseeable future. Furthermore, it is likely that the Mining Law of 1872 will be reformed soon, at which time

▸ Lines 18-23. The Ray Land Exchange EIS process combines the plan amendment process under BLM regulations 43 CFR 1600 with the NEPA analysis required to analyze the proposed exchange. Under 43 CFR 1610.5-5, a resource management plan may be changed through amendment as initiated by a number of changes in circumstances or a proposed action that may result in a change in the scope of resource uses or a change in the terms, conditions and decisions of the approved plan. Since the land exchange would represent a change in decisions made regarding land tenure in the Phoenix and Safford District Resource Management Plans (RMPs), a plan amendment must be considered. As a results of protests on the White Canyon Plan Amendment (Decision Record provided in the Ray Land Exchange DEIS), BLM agreed to combine both processes into one EIS-level analysis.

▸ Lines 24-26. If BLM decides to change the land tenure from retention to disposal by exchange, this will be done through the Proposed Plan Amendment combined within the Ray Land Exchange EIS. The Phoenix RMP (1988) identifies the criteria for when a land exchange will be considered for the White Canyon RCA and other public lands covered by the plan. Since this RMP was completed, the following changes have occurred or continue to be define the management situation: BLM can no longer enter into exchanges with the State of Arizona to exchange large blocks of land within the White Canyon RCA (as discussed in Section 1.3); the Arizona Desert Wilderness Act passed in 1990 designated the White Canyon Wilderness with strict management guidelines; the White Canyon ACEC was reconsidered and re-designated in 1998 through a separate plan amendment; and, Asarco proposed the Ray Land exchange for consideration. No changes are proposed to the White Canyon ACEC.

▸ Lines 28-32. The economic consequences of copper mining to Pinal County are addressed in Section 3.2.6.2. Taxes paid by Asarco as a result of operations at Copper Butte are expected to maintain an even balance to make up for the Ray Mine's decrease in mining activities as discussed in Section 4.6.2.3.

LETTER #32 (continued)

the patenting process will be eliminated or dramatically altered. Stating in the DEIS that Asarco would be able to mine by patenting is intentionally misleading to the public, giving the impression that the probability of mining is greater than it actually is.

The DEIS also notes that Asarco does not need the land exchange to mine the selected lands. It would seem then, that Asarco is pursuing this land exchange for a specific reason: to avoid federal and public oversight of its mining operation. Mining on private land has advantages over mining on public land, including weaker reclamation standards (in Arizona), and no public review or required periodic updates. Asarco has a bleak environmental record. In fact, it has one of the worst histories of environmental pollution and violations of environmental regulation in Arizona. It is no wonder it wants to take the easiest route.

One of the primary reasons for disposing of lands through a land exchange is to make land management easier and more economic. Most of the selected lands in this land exchange are adjacent to or surrounded by public lands and will be used for mining related activities. Wouldn't it be the least difficult and most economic to manage these lands as public lands, given the foreseeable use? Once the BLM and the public have no oversight of the mining activity, the environmental protection of the surrounding areas is drastically reduced. This is especially critical given that mining has a proven record of causing degradation to land and water resources both on-site and off-site.

Because of Asarco's dismal environmental history, we would like to see some stipulations place on this land exchange, if granted. For example, since the majority of the selected parcels are adjacent to or nearby wilderness areas or resource conservation areas, we suggest that Asarco be required to comply with higher standards of environmental protection (with respect to air and water quality) than the minimum requirements usually achieved by the mining industry.

Asarco has usually tried to divert attention from its dismal record by claiming to be a good neighbor to the community (by building playgrounds or libraries, for example). We would like to see Asarco show some real commitment to nearby communities by complying with higher environmental protection standards such as better leak detection systems, more frequent and longer-term water quality monitoring, and stronger reclamation and site restoration goals. This is especially important since most (about 75%) of the selected land would be used for peripheral non-mining uses: dumps ("overburden deposition areas" or "solution-extraction rock deposition areas"), tailings deposition areas, refuse dumps, or for toxic operations (copper/silica flux development). These areas are more prone to toxic releases.

Land exchanges of public land should also be for the benefit of the public, not just the management convenience of the BLM. Asarco should be required to provide detailed information on how it intends to use the selected public lands. Otherwise how can meaningful comments and decisions be made regarding the value of the offered lands in comparison to the lands we are losing?

In conclusion, we are opposed to the plan amendment and land exchange. However, of the alternatives offered, we prefer the Copper Buttes alternative. It exchanges the least amount of land. Only 320 of offered lands are south of Phoenix (Gila River Parcel at Cochran), making this exchange a net loss of approximation 4000 acres of public land in Southern Arizona. In addition, we object to parcel RM-18 being included in the selected lands. This area contains important desert springs and is Class II desert tortoise habitat, and should remain in public ownership for optimal protection.

Sincerely,

Lainie Levick

Lainie Levick
Mining Issues Chairperson

- Lines 34-37 (previous page). Table 2-4 describes the potential disposition for each offered land parcel should the land exchange not be approved. Asarco intends to sell certain parcels for development or hold the Gila River parcel for mitigation. The Tomlin Parcel #4 will be withdrawn from mineral entry. The Sacramento Valley parcel has low potential for metallic mineral deposits. There is a moderate potential for salable mineral in the Sacramento parcel, such sales are discretionary decisions by BLM. The McCracken Mountains parcels are covered in ACEC guidance within the Kingman RMP. Tortoise mitigation and possibly compensation would also be required for any disturbance to tortoise habitat.

- Lines 38-40 (previous page). See response to Lines 3-4 on next page.

- Lines 3-4. As discussed in Section 1.6.3.4, BLM has verified that all of Asarco's mining claims are currently active claims. Validity examinations occur during the patent process. BLM is currently processing a first half final certificate application (to which the moratorium does not apply) for approximately 387 acres in the Copper Butte/Buckeye area.

- Lines 6-9. Asarco does not need the land exchange to mine the selected lands as prescribed under the General Mining Law. However, by conducting the land exchange, the BLM gains public lands which would otherwise be lost without the exchange. Table 1-5 summarizes the required permits and approvals that Asarco must obtain before they can begin mining on the selected lands. In addition, Table E-1, compares Federal and State mine land reclamation standards that will need to be met if Asarco mines the selected lands.

- Lines 11-15. As discussed in Section 3.2.4.2 and 4.4.2, BLM's management responsibilities would be expected to increase if mining were regulated under 43 CFR 3809.

LETTER #33

RAY LAND EXCHANGE AND PLAN AMENDMENT
ENVIRONMENTAL IMPACT STATEMENT

PUBLIC COMMENT SHEET
PLEASE SUBMIT COMMENTS BY JANUARY 28, 1999

Please share your ideas, comments and concerns in the space provided below (or you may send your comments on a separate form to the address below). Fold this form, staple it shut, attach postage, and return to BLM by **January 28, 1999.** For additional information, please contact

Shela McFarlin, BLM Arizona State Office
222 North Central Avenue, Phoenix, Arizona 85004
(602) 417-9568

We are Concerned About Our Roads to Come in And go out which We presently use, will be re-routed. Any other option Would be very unsafe and in rainy seasons, very impractical. Our creek fills up With Water and furthermore We have erosion.

We also fear Asarco With its high rise dumps obstructs Our View And Also the dust and noise Would be very bad for Our health. We are mostly Senior Citizens and a few children here.

Please help us keep our mailing list accurate and up to date.

Last Name Caldera First Name Margarita Initial C
Title (Optional)
Organization (if applicable)
Mailing Address Kearny
City (Silver Creek Area.) State AZ Zip Code 85237
Phone ( ) Fax

☐ Please send me a copy of the Final EIS/Plan Amendment when it becomes available
☐ Please send me the project update, but not the Final EIS.
☐ Please take my name off the mailing list.

- Lines 17-19 (previous page). For Asarco to continue mining at the Ray Mine or to develop new areas, the company must acquire a number of permits (identified in Table 1-5 and Appendix E). These permits and reclamation plans are outside BLM's jurisdiction since these are administered by other federal, state and county agencies. As appropriate, these agencies will determine what stipulations, design modifications or operating standards are required under various environmental laws.

- Lines 21-26 (previous page). BLM is required to comply with those laws and regulations listed in Table 1-3 for processing a land exchange. Although the selected lands would become privately owned by Asarco under the Proposed Action, potential future mining projects on these lands would still be subject to the COE and/or EPA's federal jurisdiction through their respective permitting authorities under the Clean Water Act. Furthermore, other federal laws such as the Clean Air Act would also likely trigger federal involvement in such future activities.

- Lines 28-29 (previous page). Please see general response no. 4, Public Interest Determination.

- Lines 31-32 (previous page). Please see general response no.2, Alternatives

- Lines 15-27. BLM has determined that Route #2 would be the preferred public access road- south of the Silver Creek community. Route #2 would provide public access adjacent to the existing Battle Axe Road to the White Canyon Wilderness. South of Route #2, Asarco would construct a haul road to be used for mining only. While operations can be expected to be 24 hours a day, each shift (3) will be required to run water trucks to control dust levels. Dust levels will also be monitored and contained based on weather conditions (e.g., blowing dust) according to Mine Safety and Health Administration (MSHA), ADEQ and air quality permits. Please see general response no. 1, Access.

LETTER #34

Rec'd 1/27/99 #34

"Managing and conserving natural, cultural, and recreational resources"

Arizona State Parks

Jane Dee Hull
Governor

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1300 West Washington
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from (520) area code
http://www.pr.state.az.us

General Fax:
602-542-4180

Director's Office Fax:
602-542-4188

January 25, 1999

Shela McFarlin
Bureau of Land Management
222 N Central Avenue
Phoenix, Arizona 85004

RE RAY LAND EXCHANGE DEIS COMMENTS

Dear Shela:

These comments are in response to the BLM/ASARCO Land Exchange/Plan Amendment proposed in the October 1998 Draft Environmental Impact Statement (DEIS). The primary concern with the exchange is future recreational access and a continuous Arizona Trail to the White Canyon Wilderness Area and BLM lands north of the Gila River.

It is imperative that the Arizona Trail is guaranteed access from the Kelvin bridge on the Gila River to existing trail northwest of the Wilderness Area (refer to attached map). The combination of land ownership and rugged terrain (such as the Spine, Walnut Canyon, and Battle Axe Butte) have hindered locating a route for this segment of trail. Designation of an Arizona Trail route through this area has been on hold in anticipation of the Ray Land Exchange.

The proposed exchange of BLM land in Sections 24 (CB-5), 25 (CB-1), and 26 (CB-1) and the proposed ASARCO mining operations in Sections 19 (CB-3) and 30 (CB-4) are directly in the path of the proposed Arizona Trail route. In order to assure continued access for the future route of the Arizona Trail, we have relocated the proposed route to circumnavigate those lands affected by the exchange. We are now proposing that the Arizona Trail cross (south to northwest) Sections 20, 17, 18, 24, and 23 in an effort to follow Battle Axe Road to the Wilderness Area.

Regardless of which alternative is chosen, the EIS and Plan Amendment must address the proposed Arizona Trail route. To ensure safe passage through this area by hikers, equestrians, and mountain bikers, the Arizona Trail would require:

a) an easement from ASARCO through Section 17 to include an agreed upon crossing of the mining operations access road;
b) a separated pathway alongside the rerouted Battle Axe Road from Sections 17 or 18 to Section 23; and
c) a trailhead alongside Battle Axe Road (parking and horse trailer access in Sections 17/18 and/or Sections 23/24).

- Lines 19-20. It is beyond the scope of this EIS to address trail access across the Gila River and/or designate trail routes.

- Lines 24-37. Please see general response no.3, Arizona Trail.

LETTER #34 (continued)

We look forward to working with the BLM and ASARCO to further define the route and finally construct the Arizona Trail in accordance with required environmental compliance. While we do not expect to complete this segment of the Arizona Trail by our goal of the year 2000, we would like to begin working towards completion as soon as possible. If there are any questions about these proposed additions to be included in the EIS/Plan Amendment, please contact me at (602) 542-7120. Thank you for the opportunity to comment.

Sincerely,

Cynthia A. Lovely
Arizona Trail Steward

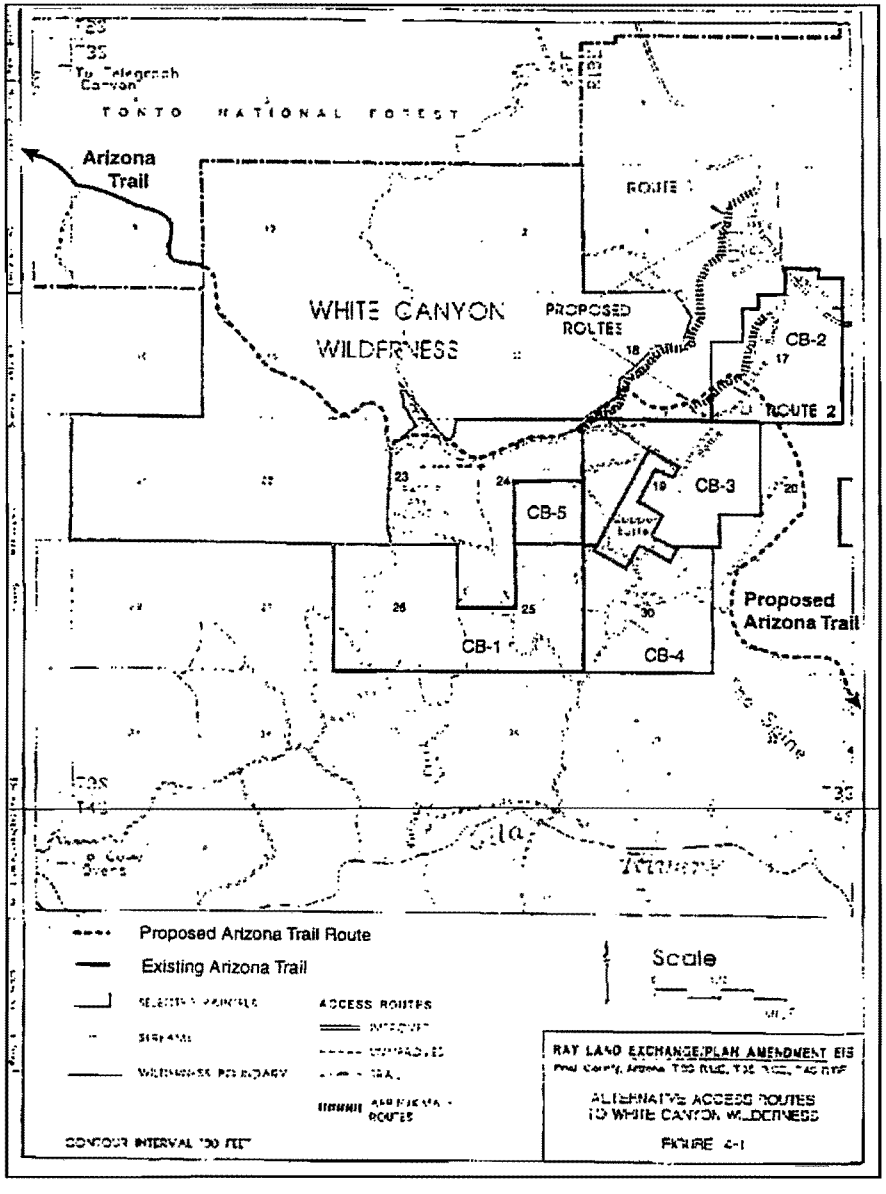
cc: Jan Hancock, President, Arizona Trail Association
Larry Snead, Executive Director, Arizona Trail Association
Steve Saway, Board of Directors, Arizona Trail Association
Jim Martin, Board of Directors, Arizona Trail Association

CAL

Enclosure

▸ Thank you for your comment.

LETTER #34 (continued)



▸ Please see Figure 7-1 under general response no.3, Arizona Trail.

LETTER #35

Jan 26 1999

Dear Mrs McGaslin

Thank you for coming out to the Calderas home and addressing our communitys concerns. I do have lots of concerns about the access road. First I got alot of confusion about the road who it was for and how it would run I think we need better maps detailing this, especially for the people out here that they would affect. There was confusion as to what it would be for - the community to get home - so closely of our existing road - Asarco's Big dump trucks etc. I understood as it to be for the recreation access. I have concerns about the dust - our water well and just the over all beauty of the scenery. Please keep our small happy community in mind while all you people that do not live around here make your decisions. Please do not let a wrong decision ruin our happy quiet lives

Thank you

Samantha Cobb

48205 E Battle Axe St

Kearny Az 85237

- Lines 9-21. BLM has determined that Route #2 would be the preferred public access road- south of the Silver Creek community. Route #2 would provide public access adjacent to the existing Battle Axe Road to the White Canyon Wilderness. South of Route #2, Asarco would construct a haul road to be used for mining only. While operations can be expected to be 24 hours a day, each shift (3) will be required to run water trucks to control dust levels. Dust levels will also be monitored and contained based on weather conditions (e.g., blowing dust) according to Mine Safety and Health Administration (MSHA), State Mine Inspector and air quality permits.

- Line 25. The water well would not be impacted, it is adjacent to Route #1. Route #2 has been identified by BLM as the preferred route. If Route #1 were chosen, extensive mitigation would be required by Asarco to ensure the road is safe and the water well is not impacted. Please see general response no.1, Access.

- Lines 25-27. Based on knowledge of Asarco's Copper Butte mining, of the 26 residents of the Silver Creek Community, less than 8% will have a direct view of the mine as rock is removed. The remainder of the community could probably be able to view some, but not all of the mining operation.

LETTER #36

Ms. Shela McFarlin
BLM Arizona State Office
222 North Central Avenue
Phoenix, Arizona 85004

RE: Ray Land Exchange and Plan Amendment EIS

Dear Ms. McFarlin:

I am writing to state my support for the proposed Ray Land Exchange (Proposed Action) between ASARCO Incorporated and the Bureau of Land Management (BLM). I attended the Mesa Public Meeting, reviewed the Draft EIS, and concur with the BLM that the Proposed Action is a "win-win" for all parties involved.

First, the exchange of offered and selected lands are similar on an acre per acre basis. This means that Asarco is able to secure lands adjacent to its existing Ray Mine to support and expand current and future mining-related operations, and to improve security and environmental buffers. The BLM, on the other hand, is able to acquire a similar acreage of high resource valued lands on their "priority list of acquisition" for better managing of habitat, cultural resources, public access, and overall managing efficiency. If the land exchange were not approved, the BLM would not acquire any land, yet Asarco could still use the "selected" lands for future mining as allowed per the General Mining Law of 1872.

Second, acquisition of the selected lands by Asarco has a positive benefit to the local rural economy. Not only does the transfer of the public lands to private ownership generate more taxes for the local economy, but it fortifies Asarco's presence in the area. Mining began in the area before the turn of the century; Asarco intends to continue mining activities well into the next century. During this time, Asarco will continue providing excellent paying jobs (presently, the Ray Complex employees about 1,600 people) and supporting the local communities including Kearny, Winkelman, Hayden and Superior both directly and indirectly.

Finally, as was stated in the Public Meeting, it is important for the public to understand that Asarco must still comply with all local, state and federal environmental regulations even after the land exchange. Contrary to what some people may believe, the proposed land exchange does not give Asarco an "out" for complying with environmental regulations. Asarco must still secure all applicable local (i.e., Pinal Air Quality Permit), state (i.e., Aquifer Protection Permit, Reclamation), and federal (i.e., NPDES, 404 Permit) permits before any future mining activities may occur on the selected lands.

Once again, I strongly support the Proposed Action alternative. Thank you for allowing me to comment.

Sincerely,

Derek Cooke

▸ Thank you for your comments.

LETTER #37

Neil A. Gambell
P. O. Box 471
Kearny, Arizona 85237

January 27, 1999

Ms. Shela McFarlin, Project Manager
Native American Minerals/Arizona Land Exchange Teams
Arizona State Office
Bureau of Land Management
222 North Central Avenue
Phoenix, Arizona 85004

RE: ASARCO - BLM LAND EXCHANGE

Dear Ms. McFarlin:

Regrettably, I was unable to attend any of the Public Hearings on the Draft Environmental Impact Statement for the Ray Land Exchange/Plan Amendment and, therefore, appreciate the opportunity to provide written comments.

I strongly support the Proposed Action Alternative. This is a balanced alternative from the standpoint of property values, riparian habitat and species management. Asarco will be acquiring the land it needs to maintain a viable copper mining operation in the Ray area while providing for future expansion. and the BLM would be getting lands which the public desires such as Southwest Willow Flycatcher habitat, wilderness access and inholdings, and desert tortoise habitat. Additionally, outside of the exchange, Asarco has gone the "extra mile" in trying to clear up a difficult land problem for the BLM. This problem relates to the White Canyon Area of Critical Environmental Concern (ACEC). A portion of the ACEC and the access to the southern side of the White Canyon Wilderness area is across state land which Asarco has made application to purchase and has agreed to donate the ACEC portion to the BLM upon the successful conclusion of the land exchange.

I understand there is a lot of concern about the environmental impacts of mining, and would like to reinforce the fact that Asarco is required by law to comply with state and federal environmental permitting requirements prior to any expansion of the mining operation. This is true if Asarco acquires the land by this exchange or expands under the Mining Law.

Finally, Asarco and its predecessors in the Ray Mine have been important to the nation and the people of the local communities since the turn of the century. The proposed action alternative would assist Asarco in going forward with this important economic base.

Sincerely,

Neil A. Gambell

▸ Thank you for your comments.

LETTER #38

Judy A. Buttery
HC1 Box 3637
Winkelman, Arizona 85292

January 27, 1999

Ms. Shela McFarlin, Project Manager
Native American Minerals/Arizona Land Exchange Teams
Arizona State Office
Bureau of Land Management
222 North Central Avenue
Phoenix, Arizona 85004

Dear Ms. McFarlin:

I am writing in support of the proposed Ray Land Exchange (Proposed Action) between ASARCO Incorporated and the Bureau of Land Management (BLM). I attended the Kearny Public Meeting, reviewed the Draft EIS, and concur with the BLM that the Proposed Action is in the best interests of all parties involved.

First, the exchange of offered and selected lands are similar on an acre per acre basis. It allows Asarco to secure lands that are adjacent to the existing Ray Mine for current and future mining-related operations as well as improve environmental and security buffer zones. The exchange also allows the BLM to acquire lands that is on its "priority list of acquisition." If the land exchange were not approved, the BLM would not acquire any land and Asarco could still use the "selected" lands for future mining as allowed per the General Mining Law of 1872.

Second, the acquisition of the selected lands by Asarco would be very positive for our local rural economy. The transfer of public lands to private ownership generates more taxes for the local economy and strengthens Asarco's presence in our area. Mining has been in this area over 100 years, and Asarco plans to continue mining well into the next century. During this time, Asarco will continue to provide excellent paying jobs and support the local communities directly and indirectly. These communities include Kearny, Winkelman, Hayden, Superior, as well as Mammoth, Oracle and other outlying communities where the employees live.

Finally, it is important that the public be aware and understand that Asarco still must comply with all local, state and federal environmental regulations even after the land exchange. Apparently some people have had the false impression that the proposed land exchange would give Asarco an "out" for complying with environmental regulations. As was stated at the Public Meeting, Asarco must still secure all local, state and federal permits BEFORE any future mining activities can occur on selected lands.

I appreciate the opportunity to comment on this and again reiterate my support of the Ray Land Exchange Proposed Action.

Sincerely,

Judy A. Buttery

▸ Thank you for your comments.

LETTER #39

phelps dodge Corporation

2600 N. Central Avenue, Phoenix, AZ 85004-3014 • (602) 234-8241
Fax: (602) 234-8067

Cynthia M. Chandley
Senior Counsel
Director, Land & Water Resources

January 27, 1999

Ms. Sheila McFarlin, Project Manager
Bureau of Land Management
Arizona State Office, 222 N. Central Avenue
Phoenix, AZ 85004

Dear Ms. McFarlin:

Phelps Dodge Mining Company (PDMC) has reviewed the Draft Environmental Impact Statement (DEIS) for the Ray Land Exchange/ Plan Amendment and is pleased to provide the following comments in support of the proposed land exchange.

The proposed land exchange would allow the Bureau of Land Management (BLM) to acquire approximately 7,300 acres of environmentally sensitive lands in exchange for 10,976 acres of public and mineral estate lands adjacent to Asarco's existing mining operation in Pinal County.

Land exchanges of this nature are a "win-win" opportunity for the public and resource developers. If the proposed action is approved, the BLM will acquire lands that are of significant riparian, cultural and ecological value. In addition, the acquired or "offered lands" also provide valuable habitat for the desert tortoise, bald eagle, American peregrine falcon, and the southwestern willow flycatcher.

In exchange, Asarco will have the opportunity to consolidate its land holdings within areas of ongoing mineral development. It is important to note that the "selected" lands within the Asarco district could be developed, in accordance with the applicable environmental statutes, absent a land exchange under the 1872 mining law. Asarco's decision to expand their operations pursuant to a land exchange is an environmentally sound approach to mineral development and should be commended.

In addition to the aforementioned environmental benefits, the proposed action has financial benefits for the BLM and Pinal County. The BLM would acquire valuable lands at no cost and future mining administration costs would be eliminated with respect to the "selected lands". The economic benefits to Pinal County include well paying jobs and general financial support to the local economy.

▸ Thank you for your comments.

LETTER #39 (continued)

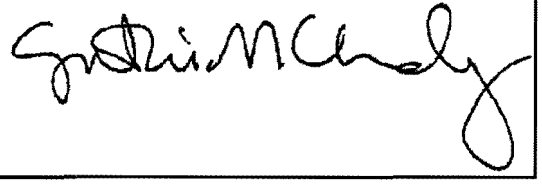
The DEIS estimates that the total direct wages and salaries paid during full scale production would average $1,882,000 each year at the Copper Butte/Buckeye operation and $3,877,000 at the Casa Grande site.

- The DEIS estimates increases in sales for local businesses in Pinal County to be $5,300,000 as a result of the Copper Butte Mine operations and $11,638,000 from the operations at Casa Grande. In comparison, the direct economic loss to Pinal County from displacement of current activities on selected lands is estimated at only $122,000 per year.

Finally, pursuant to NEPA requirements, the DEIS adequately examines and documents the impacts to surface water, groundwater, air emissions, wildlife and cultural resources and discusses prospective mitigation alternatives to offset the minimal impacts to those resources.

Phelps Dodge Corporation appreciates the opportunity to provide comments on this land exchange and looks forward to reviewing the final environmental impact statement and record of decision for this project.

Sincerely,



LETTER #40

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

JAN 26 1999

Gordon Cheniae, Field Director
Native American Minerals/Arizona Land Exchange Teams
Bureau of Land Management
222 North Central Avenue
Phoenix, AZ 85004-2208

Dear Mr. Cheniae:

The U.S. Environmental Protection Agency (EPA) has reviewed the Ray Land Exchange Draft Environmental Impact Statement (DEIS). Our review and comments are provided pursuant to the National Environmental Policy Act (NEPA), the Council on Environmental Quality's NEPA implementation regulations at 40 CFR 1500-1508, and Clean Air Act Section 309. Our comments also reflect comments we previously made to you regarding the scoping notice (February 9, 1995, and June 30, 1995, letters from David Farrel, EPA); to Sheila McFarlin of your staff regarding the Preliminary DEIS (January 19, 1998, letter from Jeanne Geselbracht, EPA); and to you, your staff, and Asarco in several other letters, meetings, and conference calls between December, 1997, and October, 1998.

Asarco Incorporated (Asarco), a mining company, has proposed to trade private lands ("offered lands") for public lands ("selected lands") administered by the Bureau of Land Management (BLM) near Asarco's Ray Complex facilities and other areas in Pinal and Gila counties, Arizona. Asarco wishes to acquire 8,196 acres of federal surface and mineral estate and 2,780 additional acres of federal mineral estate in exchange for 7,300 acres of land currently owned by Asarco, which would be acquired by BLM. Asarco's project purpose is to consolidate its land holdings within and adjacent to areas of ongoing mineral development at the Ray Complex and the Santa Cruz In-Situ Copper Mining Research Project. BLM's project purpose is to acquire lands containing important natural resources and other values and move toward achieving its land tenure adjustment objectives, as stated in the Phoenix and Kingman Resource Area Resource Management Plans.

Over the past several decades, approximately one billion tons of material have been excavated at the Asarco Ray complex. The proposed action would enable Asarco to excavate and process approximately three billion more tons of material over the next 40 years. In several meetings, letters, and conference calls with BLM since scoping for this project began in 1994, EPA has recommended that the DEIS provide certain information that we believe would be useful and relevant in a NEPA analysis for a land exchange where the foreseeable future uses of mining are known. In our comment letter on the preliminary DEIS, we stated that the document did not appear to have evaluated all reasonable alternatives and strongly

- Lines 35-36. The Proposed Action does not enable Asarco to mine over the next 40 years. Under the General Mining Law of 1872, Asarco may already pursue mining through BLM's 43 CFR 3809 regulations. Please refer to Section 1.6.4.1 and to general response no.5, MPO.

- Lines 36-38. All EPA comments received have been considered throughout the EIS process individually and collective with other agency and public comments by the interdisciplinary team, individual specialists and through several EPA/BLM conference calls. As one example of the consideration, BLM developed the Copper Butte alternative as a direct result of discussions with EPA in February 1998.

LETTER #40 (continued)

recommended that additional information regarding the alternatives be included in the DEIS. In that letter and several others to BLM, we also recommended that the potential impacts of the land exchange and the foreseeable future mining be discussed in much greater detail in the DEIS and specifically outlined the needed information.

Although BLM has not received an acceptable mine plan of operations (MPO) from Asarco, it appears that Asarco has fairly specific plans for the selected parcels. We believe that additional detailed information regarding geology, geochemistry, hydrogeology, and biological resources is relevant and necessary for this analysis to constitute full disclosure under NEPA. It is also evident that all reasonable alternatives have not been evaluated and that impacts of foreseeable activities on the selected lands have not been sufficiently addressed in the DEIS. We are extremely dismayed that BLM has ignored most of our recommendations in finalizing the DEIS and are particularly troubled that the DEIS was published at a time when our headquarters office was still discussing the issues with BLM headquarters and the two agencies had not yet come to a resolution.

We have rated this DEIS as EO-2 – Environmental Objections-Insufficient Information. We have strong objections to the proposed project because we believe there is potential for significant environmental degradation that could be corrected by project modification or other feasible alternatives. The scope of alternatives and the impacts analysis are not sufficient to present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public, as required by 40 CFR 1502.14. Therefore, the most appropriate alternative cannot be determined at this time without additional information. In addition, we believe that the proposed action and its presentation in the DEIS sets a precedent for future actions that collectively could result in significant environmental impacts. We continue to contend that a substantial amount of information should be added to the EIS for BLM to meet its public disclosure obligations.

Our specific comments are enclosed and include reiterations of comments we have made in the past regarding this project, as well as more specific comments regarding issues that did not receive the level of detailed analysis in the DEIS which we believe is necessary for a sufficient environmental analysis. We urge BLM to reconsider our comments and substantially revise this document. One way to accomplish this would be to circulate a revised DEIS rather than a Final Environmental Impact Statement (FEIS). We recommend that BLM seriously consider this option. The Revised DEIS or FEIS should include additional information regarding other alternatives, the affected environment, and environmental consequences, including indirect and cumulative impacts. The Revised DEIS or FEIS should address in much greater detail site geology and geochemistry, hydrology and hydrogeology, existing and potential future water and air quality, riparian and aquatic resources, facilities design, minerals and land management, environmental justice, and mitigation measures.

- Lines 4-5. The FEIS contains updated information supplied by Asarco in March 1999 for the Foreseeable Use Plan.
- Lines 13-16. Discussions between the EPA Headquarters, the CEQ staff and the U.S.D. I. Office of the Solicitor resulted in the errata printed in the front of the DEIS. The BLM suspended printing the DEIS for 90 days while reviews and discussions were held and final wording for Section 2.1.5 (DEIS) was provided by the Office of the Solicitor. Please see Section 2.3.7 of this EIS.
- Lines 18-28. Your comment and rationale for the EPA rating are noted. Refer to Section 1.3 for purpose and need, Section 1.4 for the two decisions to be made, general response no.4 and Section 1.6.3.1 for what constitutes the public interest determination for a land exchange decision.
- Lines 30-40. BLM issued this FEIS document in complete form rather than abbreviated to fully respond to agency and public comments, to update and correct information and to improve mitigation language.

LETTER #40 (continued)

Please send three copies of the Revised DEIS or FEIS to this office at the same time it is officially filed with our Washington, D.C., office. We wish to discuss these issues further with you. We will contact you to schedule a conference call between our agencies. In the meantime, if you have any questions, please call me at (415) 744-1566, or have your staff contact Jeanne Geselbracht at (415) 744-1576.

Sincerely,

Deanna M. Wieman, Deputy Director
Cross-Media Division

002356

Enclosures: (1) EIS Rating Definitions
(2) EPA Comments

cc: Dick Sanderson, EPA HQ, Office of Federal Activities
Ellen Athas, Council on Environmental Quality
John Leshy, Department of Interior, Office of the Solicitor
Marjorie Blaine, U.S. Army Corps of Engineers - Tucson
Lt. John P. Carroll, U.S. Army Corps of Engineers - Los Angeles
Dennis Turner, Arizona Department of Environmental Quality
Nancy Wrona, Arizona Department of Environmental Quality
Tom Scartiocini, Asarco
Don Gabrielson, Pinal County Air Pollution Control District
Pat Mariella, Gila River Indian Community
Shela Mc Farlin, BLM - Phoenix

LETTER #40 (continued)

Cumulative Impacts

In May, 1998 the United States, Arizona, and Asarco entered a consent decree regarding that company's multiple violations of Section 402 of the Clean Water Act (CWA) at the Ray mine. That consent decree requires that Asarco provide remedial actions to comply with CWA Section 402. During a February 2, 1998, meeting between Asarco, BLM and EPA, EPA staff indicated that the nexus between the impendent consent decree and the proposed land exchange would need to be addressed in this DEIS.

We disagree with BLM's response in the DEIS (p. 1-18) to our previous statements that the Section 402 and 404 Clean Water Act actions at the Ray mine are connected and relevant to the land exchange and its impacts. The DEIS states that the land exchange and foreseeable mining activities that will require Clean Water Act permits are not connected, cumulative, or similar actions as defined at 40 CFR 1508.25. We believe this statement is completely erroneous under NEPA and strongly recommend it be deleted from the EIS. The foreseeable actions resulting from the land exchange and compliance with the Consent Decree would indeed result in both indirect and cumulative impacts, as defined by the regulations, and should be included in the scope of the EIS as defined at 40 CFR 1508.25. Indirect impacts are defined as impacts that "are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable." [40 CFR 1508.8]. "'Cumulative impact' is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." [40 CFR 1508.7].

According to the DEIS, Asarco seeks to consolidate its land holdings within and adjacent to areas of ongoing mineral development at the Ray site and other sites, and to use the selected lands to support and expand current mining-related operations. In addition, Asarco has submitted to EPA a preliminary engineering plan for compliance with the consent decree. Many of these options involve use of the selected lands from the land exchange, constituting a direct link between the Consent Decree and the land exchange. For example, at least two small Selected Land parcels (RM- 2 and RM-3) are located near upper Mineral Creek between Big Box Dam and the tunnel intake. One of Asarco's Consent Decree alternatives would involve fill of most of a 34-acre wetland in this area, plus all of the area that has already been approved for fill in the existing Ray 404 permit. This alternative also involves extending the Mineral Creek diversion tunnel further up the creek to the southeast corner of section 34. RM-2 and RM-3 would be filled as an indirect impact of the extended tunnel diversion if the diversion ultimately allows for filling of the entire wetland. Because some of the actions

- Lines 7-9. BLM agreed in February 1998 to include the Consent Decree settlement/404 permitting in the FEIS and has done so to the degree that information is now available on the 404 permit. Please see general response no.6.

- Lines 10-11. The nexus between the land exchange action and the consent decree/404 permit being processed by COE is simply that two federal estate parcels (RM-2 and RM-3) totaling less than 12 acres and one split-estate parcel (RM-7), are proposed for the land exchange and have been identified in the 404 permit proposed action. Approving the land exchange is not required for the 404 permit to be approved or implemented. These parcels (or other BLM managed lands) are available through 43 CFR 3809 for mining related uses or other land use permits as applicable.

- Lines 18-27. The land exchange does not authorize proposed mineral development; mining exploration, nor development and processing. (See Section 2.1.5). Direct and indirect impacts of the land exchange and of the foreseeable uses are presented in Table 2.7 in summary form and in Chapter 4. Cumulative impacts are presented in Section 4.7 and include cumulative impacts both from the exchange as proposed and the foreseeable uses. Actions resulting from the Consent Decree settlement especially the 404 permits require separate and appropriate levels of NEPA analysis by the federal agencies with jurisdiction involved in these actions.

- Lines 29-39. Please see general response no.6, Mineral Creek Consent Decree/Work Plan Project.

LETTER #40 (continued)

needed will require further CWA permitting, specifically under Section 404 of the CWA, Asarco has also begun discussing possible alternatives with the U.S. Army Corps of Engineers (COE), which administers that Section of the CWA.

Furthermore, on February 2, 1998, Asarco indicated that if upper Mineral Creek could be filled with mine material, Asarco might not need all of the Selected Land parcels in the proposed action. Under the Consent Decree, Asarco needs to take action that will bring the current Ray mine operations into compliance with the Section 402 of the Clean Water Act (CWA) and Asarco must assure that all future expansions will be in compliance with CWA Section 402. Inasmuch as the expansion of the Ray mine onto selected lands is both (1) the proposed action for the land exchange, and (2) considered in the alternatives for compliance with the consent decree, these actions appear to be connected and cumulative, as defined at 40 CFR 1508.25, and should be addressed appropriately in the EIS.

We believe that, in order for the impacts of the land exchange to be appropriately addressed in the EIS, the Consent Decree and its relationship to the land exchange should be thoroughly discussed. The discussion should disclose a reasonable range of options for compliance with the Consent Decree, as well as the potential impacts commensurate with those options (e.g., filling of 34-plus acres of wetlands in upper Mineral Creek). This information is needed so that the public, agencies, and decisionmaker are aware of the cumulative impacts associated with the land exchange and other related or unrelated actions, and can determine which alternatives would result in less environmental degradation.

In a February 9, 1998, letter to Sheila McFarlin, BLM, Jeanne Geselbracht, EPA, asked for projections of tonnage of material to be moved over the mine life as well as the acreage the company would need to accommodate that material. Asarco has produced maps depicting various site alternatives for placing mined material in the future, including filling upper Mineral Creek. It is unclear what alternatives exist for keeping both the fill out of Mineral Creek and preventing the mine material on the slopes above Mineral Creek from leaching into the creek. The Revised DEIS or FEIS should provide estimates of mine material tonnage and acreage to accommodate it in order for different scenarios to be sufficiently developed to predict the potential impacts to Selected Land parcels for the land exchange EIS, as well as to determine the least environmentally damaging practicable alternative (LEDPA), in accordance with CWA 404(b)(1), and a preference for complying with the Consent Decree.

Alternatives Analysis

The Council on Environmental Quality's (CEQ) Regulations for Implementing the Procedural Provisions of NEPA require that an EIS "provide full and fair discussion of significant environmental impacts and shall inform the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment....It shall

▸ Lines 6-13. Alternatives for the land exchange were not developed based on the Consent Decree settlement which is a later action that did not involve BLM as a discussant or signing party. Under FLPMA Section 206 and FLEFA Section 2, land exchanges are discretionary actions considered under the public interest determination that implement better management of public lands, meet the needs of state and local residents and economies, and secure important resource objectives. An appropriate range of land exchange alternatives was developed which reflect both Asarco's and BLM's purpose and needs as well as the required equalization of monetary values (Please see Section 1.6.3.3).

▸ Lines 16-22. Developing a reasonable range of options for the compliance of the consent decree actions or permits is within the jurisdiction of the federal agencies approving or implementing the Consent Decree settlement. BLM has not received an application for the use of public lands for the Consent Decree/404 permit, which reflects the COE's public notification for the 404 permit. This MPO modification will be processed once the COE has established the 404 Proposed Action. BLM will then analyze impacts at the appropriate NEPA level either independently or as a cooperating agency issuing a separate decision. The analysis of alternatives for the 404 permit does not determine which lands are in the land exchange nor is completing the exchange a requirement to authorize public lands for other uses.

▸ Lines 24-33. Developing mining scenarios for a land exchange is not required for BLM to process a land exchange; instead, in accordance with BLM policies and the Land Exchange Handbook (H-2200-1), reasonably foreseeable impacts of the exchange must be considered. The Foreseeable Use Plan with its five major categories of use/disturbance. (As shown in Section 2.2.2) was developed as the basis for considering reasonably foreseeable impacts

LETTER #40 (continued)

be used by Federal officials in conjunction with other relevant material to plan actions and make decisions." [40 CFR 1502.1].

Furthermore, in accordance with 40 CFR 1502.14, the EIS should "present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public." EPA believes that the DEIS does not include an appropriate alternatives analysis. It appears that all reasonable alternatives have not been rigorously explored and objectively evaluated as required by 40 CFR 1502.14(a).

EPA believes that a true No Action Alternative should be evaluated in the EIS. The DEIS assumes that if the land exchange does not occur, the selected lands will, nevertheless, be used by Asarco for mining purposes under a BLM-managed mine plan of operations (MPO). We agree that the EIS should analyse the predictable or potential consequences of "no action" by the BLM (See CEQ's 40 Questions Memorandum, Q#3). We do not agree, however, that no action (i.e., no land exchange) would necessarily lead to MPOs on all of the parcels. It is likely that Asarco would seek MPOs for many selected land parcels, but its allowable activities could be somewhat different under an MPO than under a land exchange after which BLM has no further management authority. These differences should be described and discussed in more detail in the Revised DEIS or FEIS. For example, just as an MPO EIS would include a No Action Alternative (i.e., no MPO alternative), we believe that such a no action alternative should also be included in this land exchange EIS for purposes of providing a benchmark in order to compare the magnitude of environmental effects of the action alternatives.

Alternatives including the No Action Alternative may also depend on the validity of mining claims on the Selected Lands. The DEIS (p. 1-18) states that " Asarco has filed mining claims to nearly all of the selected lands and has indicated its intent to pursue mining activities on these lands regardless of the outcome of the land exchange." Elsewhere, the DEIS (p. 4-20) states, "Under current mining laws, Asarco could utilize existing claims to pursue the foreseeable mining uses on all of the selected lands except Parcel CH-5 and portions of the Chilito/Hayden parcels." This last statement, however, may not be accurate. The EIS should identify the lode and mill site claims that are included in the proposed project and discuss their validity. According to BLM's Mineral Report on the Selected Lands, Asarco has five lode claims and 61 millsite claims in parcels CB-2, CB-3, and CB-4. This is not possible under the 1872 Mining Law because only one millsite claim up to five acres in size may be associated with each lode claim. The Revised DEIS or FEIS should discuss the alternatives in the context of the validity of existing claims and BLM's authorities under the 1872 Mining Law as amended, the Federal Land Policy and Management Act, and other relevant statutes and regulations.

of mineral development on exchange lands. These uses and categories have been carried through the EIS in direct, indirect and cumulative analysis. Under its jurisdiction from the CWA, the COE determines the least environmentally damaging practical alternative (LEDPA) for the 404 permit and evaluates all impacts. The land exchange configuration does not depend on COE's evaluation of alternatives. For any BLM land included in COE's LEDPA, BLM would be required to approve the land use whether or not BLM were a cooperating agency with COE.

▸ Lines 6-10. The land exchange alternatives considered the purpose and need of both Asarco and BLM. BLM's needs stem from FLPMA Section 206 and FLEFA Section 2 as well as the planning documents and land acquisition decisions made in the identified resource management plans.

▸ Lines 12-24. The EIS evaluates a "true" No Action Alternative for the land exchange/plan amendment. The CEQ guidance referred to defines No Action both as a continuation of present conditions (as in planning documents) and for externally-generated proposals where the agency approves or disapproves an action. The "true" No Action Alternative referred to in the comment was not analyzed by BLM because: 1) the decision to be made by BLM is whether or not to approve a plan amendment and land exchange, not whether to authorize mining; and 2) is addressed under Section 2.3.7, the No Mining Election Alternative. Additionally, disagreement exists as to whether a true No Action alternative exist under the General Mining Law of 1872. See 1996 *United States District Court of the District of Arizona Dan Zobel et al. vs. Charles R. Bazan et al and Carlota Copper Company*-- in this case, the Court concluded ..."a true "no action" alternative under NEPA is, as a practical matter, not available to the [defendant] as a consequence of the mining laws..." The No Mining alternative was not considered a reasonable alternative as a consequence of the existing mining laws.

LETTER #40 (continued)

Several action alternatives may also exist for the offered and selected lands which meet the stated project purposes. We believe that, in addition to the Buckeye and Copper Butte alternatives, there may be other selected land parcels that could be deleted from the proposed package based on the potential environmental impacts of foreseeable future uses on those parcels. However, the DEIS lacks sufficient information to determine the impacts of those uses on resources or to allow for a comparison of resources on selected lands and offered lands. Until more information is provided in the EIS regarding potential environmental impacts and their significance, the full spectrum of reasonable alternatives cannot be determined.

Additional reasonable alternatives to the offered lands packages currently in the DEIS should be developed and included in the EIS based on prioritization and comparison of the offered land parcels, and commensurate with the additional selected land alternatives that we recommend be developed. Developing alternatives that involve deletion of certain parcels, based on the significance of potential impacts of foreseeable future uses of those parcels, is consistent with 40 CFR 1502.14. For example:

- Neither BLM's Mineral Report nor the DEIS describe the mineral potential or the type of claims (millsite or lode claims) that Asarco has on parcel CB-5. It is unclear, therefore, that CB-5 is really a necessary parcel to carry out Asarco's stated project purpose. It is unclear why BLM does not obtain the entire section 24 from the State of Arizona for inclusion in the White Canyon Area of Critical Environmental Concern (ACEC).

- The DEIS should discuss why the New Water Mountain parcel was eliminated from the proposal rather than the Tomlin parcels.

- The Hackberry Alternative was eliminated from further consideration in the DEIS because Asarco already has plans to use Hackberry Gulch as a tailings impoundment. EPA believes this is not an appropriate reason for eliminating this alternative. Asarco has plans for *all* of the selected land parcels, but this does not exempt all parcels from deletion from Asarco's selected land package.

- As stated on page 2 above, Asarco is currently discussing the requirements for a Clean Water Act Section 404 permit with COE for filling upper Mineral Creek with leachable rock. If Asarco is permitted to do so, it would not need as much of the Selected Land. This is not discussed anywhere in the DEIS. The Revised DEIS or FEIS should describe the acreage that such a facility would use in this case and the reduction in acreage of Selected Land that would be needed by Asarco. The potential impacts associated with such an alternative should be described and discussed in the Revised DEIS or FEIS.

- Lines 27-39 (previous page). Section 3.2.3.2 describes the mineral rights on selected lands, 99.5% of which are held by Asarco as active claims. Active claims are those which are properly filed and maintained; these do not require validity examinations under the General Mining Act of 1872 to be utilized in mining activities. Validity examinations are only required in the case of patent application processing or to resolve resource conflicts on a case by case decision. BLM considers the lode and mill site ratio in the patent process and under MPOs only if unacceptable resource conflicts apply. In these cases, careful considerable is given to defining what the project area includes and to all past and current claims connected with the patent application or with the mining activities under an MPO. If a completed MPO were filed for Copper Butte, the ratio would be applied to the appropriate area at that time which would probably include the Ray Complex where processing would occur. Of the Asarco claims filed on the selected lands, the overwhelming number are lode claims. See also Figures 3-12 and 3-13.

- Lines 5-11. Under Section 206 of FLPMA and Section 2 of FLEFA, BLM may consider land exchanges based on a number of considerations as identified in Section 1.6.3.1 and general response no. 4, Public Interest. Table 1-4 defines BLM's objectives and criteria for considering disposing lands and acquiring new lands; and identifies specific parcels to dispose of or to acquire under land exchanges, through sales and other authorities. BLM agreed to include all parcels identified by Asarco for evaluation in the EIS (including Parcel RM-18 and CB-5) because these support BLM objectives and criteria under FLPMA and FLEFA. Two ensure comparison of values on selected and offered lands, two other alternatives were identified for evaluation based on scoping comments including EPA's.

- Lines 19-23. In April 1998, BLM signed a decision record on the White Canyon Plan Amendment (DEIS Appendix I) that indicates it will seek to acquire 480 acres of Section 24 to be managed as part of the ACEC from the state or subsequent land owners. Section 24 cannot be obtained by BLM through exchange since no

LETTER #40 (continued)

Environmental Impacts

EPA's past scoping comments to BLM on the Ray Land Exchange recommended providing as much information as possible in the EIS regarding the effects of mining activities on the selected lands. The DEIS lacks the specificity of impacts which we believe is necessary in order to provide a clear basis for choice among options by the decisionmaker and the public. The DEIS (p. 1-19) states, "Until a detailed mine plan is prepared by Asarco, BLM's attempt at describing anticipated detailed mining activities, suitable for a specific analysis, would be highly speculative." We are disappointed by Asarco's unwillingness to provide the information needed, and puzzled as to why BLM has not more diligently pursued this information from Asarco. Sufficient information for a more meaningful NEPA analysis would not have to be in the form of a complete mine plan. BLM is expected to work with the mining company to obtain information necessary for the NEPA analysis. We believe that Asarco has very specific plans for the selected lands at this time, including mining rates it hopes to attain within the first nine years of the Ray expansion as well as the Copper Butte project. For example, the socioeconomics section of Chapter 4 of the DEIS indicates that Asarco has an expected rate of production at the Copper Butte mine over a nine-year period (pp. 4-39-42).

Furthermore, Asarco is evaluating best available demonstrated control technology (BADCT) for purposes of meeting Arizona groundwater standards that would be included in its Aquifer Protection Program (APP) permit for the Ray complex. Arizona BADCT, however, does not necessarily ensure that water quality standards will be met because the definition of BADCT is not based on water quality. In fact, at the February 2, 1998, meeting, Asarco indicated that they might not be able to line the leach pads because of steep slopes on some of the selected parcels. In addition, at a January 15, 1998, meeting, Derek Cooke of Asarco stated that, assuming one pinhole per acre on a lined leach pad, the amount of copper seeping into groundwater and into Mineral Creek would result in an exceedence of water quality standards. Moreover, the tailings impoundment in Elder Gulch, which is a fairly new facility using current technology in Arizona, is already adversely affecting groundwater with contaminated seepage. Asarco intends to use parcel RM-18 for another tailings impoundment. The Revised DEIS or FEIS should indicate whether heap leach and tailings facilities would be lined, to what extent, and what general liner thickness and construction procedures would most likely be followed to provide for stability and prevent leakage. The Revised DEIS or FEIS should also discuss the specific potential impacts that a tailings impoundment in RM-18 could cause should seepage occur. The document should discuss BADCT and how it would apply to the various foreseeable actions and whether it would be protective of groundwater quality.

We urge BLM to obtain more detailed information from Asarco for this Revised DEIS or FEIS. Pursuant to 40 CFR 1502.22(a), "[i]f the incomplete information relevant to

current exchange authority exists with the state, and because Asarco has applied to purchase the land from the state. If Asarco obtains Section 24 at the completion of the state's sale process, under the preferred agency alternative, Asarco has agreed to donate the 480 acres to BLM. Parcel CB-5 was added to the land exchange in 1997 since this is a split-estate parcel with Asarco mining claims in place. Figure 3-12 has been corrected to show the claims on Parcel CB-5.

▸ Line 26 (previous page). At the conclusion of the appraisal process, to equalize values between the offered lands and the selected lands, certain parcels were dropped from further consideration in the Ray Land Exchange: the New Waters and three Tomlin parcels. Please see Tables 1-4 and 2-3 for parcel descriptions and parcel priority.

▸ Lines 28-31 (previous page). The Hackberry Alternative was eliminated because the alternative did not meet the public lands management objectives discussed under Section 1.3, Purpose and Need.

▸ Lines 33-39 (previous page). Please see general response no. 6, Mineral Creek Consent Decree/Work Plan Project.

▸ Lines 5-18. The decisions that BLM will make based on the EIS are provided in Section 1.4. The impacts of the land exchange have been fully described in Table 2-7 and Chapter 4. Mining activities are projected under the reasonably foreseeable use which is the same for all action alternatives providing the decision-maker the same level of knowledge for all alternatives. BLM requested that Asarco update the Foreseeable Use Plan but revisions resulted in only slight changes. Additionally, BLM reviewed detailed drawings made available for the alternative analysis for the Consent Decree/404 permit; existing MPOs for the Ray Mine, and mineral potential reports.

LETTER #40 (continued)

reasonably foreseeable significant adverse impacts is essential to a reasoned choice among alternatives and the overall costs of obtaining it are not exorbitant, the agency shall include the information in the environmental impact statement." In addition, agencies shall ensure the professional integrity, including scientific integrity, of the discussions and analyses in EISs, as well as identify any methodologies used (40 CFR 1502.24). A discussion of BADCT required for the proposed project should be included in the Revised DEIS or FEIS. The discussion should include an analysis of any shortcomings inherent in a system that permits groundwater pollution control technology, even if it is not 100 percent effective.

Under the Consent Decree, Asarco is also currently analysing alternatives for filling waters of the U.S. for the purpose of obtaining a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers. BLM stated in a March 12, 1998, meeting (see meeting minutes) that by the time the final EIS is filed, the selected alternative for the 404 fill action should be known and would be discussed in greater detail in that document. The Revised DEIS or FEIS should include this information pursuant to 40 CFR 1500.2(c) and 1502.25(a).

The DEIS (p. 1-18) states that issuance of a National Pollutant Discharge Elimination System (NPDES) permit by EPA to Asarco would constitute a federal action subject to NEPA and, thus, future actions would be analysed at the time of permitting. This is true in the case of the Copper Butte or Buckeye sites, as they would be considered new sources. Any future expansions of the Ray complex, however, would not be analysed under NEPA because renewed NPDES permits for existing sources are not subject to NEPA analysis. Furthermore, the U.S. Army Corps of Engineers has informed us that they do not circulate draft environmental assessments for public review. We are not confident, therefore, that future NEPA analyses conducted by COE for a Clean Water Act Section 404 permit for the proposed project would undergo public scrutiny to the degree we believe is necessary for the magnitude of the potential impacts associated with this land exchange. We recommend that paragraph five on page 1-18 of the DEIS be revised to more accurately reflect the situation.

Water Resources

EPA believes that much more detailed information regarding affected environment and environmental consequences is needed in the Revised DEIS or FEIS. For example, the Revised DEIS or FEIS should include detailed sections on geology, hydrogeology, and hydrology. How much groundwater and surface water is Asarco using? Is there a cone of depression? Will there eventually be pit lakes at Ray and Copper Butte? Is there any flow toward the Gila River? How would the Ray complex and future mining at Copper Butte affect Mineral Creek, Walnut Creek, the Gila River, and other waters of the U.S.? Describe and discuss the hydrogeology in the Casa Grande area. We are aware that data on groundwater in the Ray complex area are being collected as part of the APP permit for this project. Baseline information on groundwater and surface water, as well as modelling to

- Lines 21-37 (previous page). This discussion is outside the scope of the land exchange EIS, as explained in Section 1.8.2. A discussion of BADCT is simply not required for the land exchange and is outside BLM's jurisdiction to approve, monitor or enforce under land exchange regulations.
- Lines 4-10 Please see response on previous page.
- Lines 12-16. See general response no.6, Mineral Creek Consent Decree/Work Plan project.
- Lines 18-27. The 404 permit processing by COE or other NPDES processing by EPA is not within BLM's jurisdiction and these permits are not required for the land exchange.
- Lines 31-39. BLM has addressed water quality issues with the detailed analysis at the level required for BLM to make a decision on the proposed land exchange. No decision is being made to authorize mining activities. See also water issues under Section 4.7, cumulative impacts.

LETTER #40 (continued)

predict future impacts to surface waters and groundwater are necessary in the Revised DEIS or FEIS.

The Revised DEIS or FEIS should include geochemical characterizations of the rock that would be excavated from or deposited on selected lands. The Revised DEIS or FEIS should also analyse the potential geochemical reactions and interactions that could result from the foreseeable future actions on the selected lands, including actions at waste rock piles, leach pads, tailings impoundments, and open pits. Acid-base accounting should be conducted, including kinetic testing if necessary, to predict the acid generation potential associated with activities on selected lands. The Revised DEIS or FEIS should discuss how the APP would be expected to affect the prevention of groundwater contamination.

Asarco has four different process materials that could affect groundwater and surface water chemistry. These are (1) barren waste rock (no copper--but may have sulfide and/or toxic leachable constituents); (2) run of mine ore (ROM) which is low grade ore, both oxide and sulfide, which Asarco plans to leach without any crushing or preparation; (3) oxide ore, most of which will be crushed and agglomerated (what percentage?); and (4) tailings. In its geochemical characterization Asarco should provide estimated percentages of the three rock types and tailings at Ray and Copper Butte, and provide the geochemistry requested, including leach tests. The character of the interstitial fluids in the tailings should also be provided along with any Arizona Aquifer Protection Program (APP) data or Clean Water Act violation-related data with regard to the existing tailings facilities. EPA has requested a copy of the geochemistry reports but has never received them.

The Revised DEIS or FEIS should include a discussion of potential threats to groundwater and surface water quality of Mineral Creek and the Gila River from seeps related to the proposed barren rock, ROM, and Oxide heaps. The discussion should also address whether and how potential threats to surface waters from the foreseeable actions would be entirely and satisfactorily mitigated by provisions of the consent decree, the NPDES permit, and the APP. The document should also describe what is needed for any proposed facilities in addition to those provided for in the consent decree. It should also discuss potential impacts, including ecological risks from the tailings facility to Mineral Creek and the Gila River.

Asarco has indicated that all waste rock, such as that proposed for placement in RM-17, is potentially leachable. If this is the case, we would recommend that all waste rock and potentially leachable material be placed on properly engineered, lined heap leach pads to ensure complete capture of pregnant solution. The Revised DEIS or FEIS should discuss whether areas can be assigned for placing different kinds of rock (e.g., leachable sulfidic waste rock, non-leachable sulfidic waste rock, non-leachable oxide waste rock, potentially leachable ROM, oxide ore to be leached, etc.) and whether this would make a difference in the potential impacts to surface water and groundwater.

- Lines 5-11. This discussion is outside the scope of the land exchange EIS, as explained in Section 1.8.2. A discussion of geochemical characterizations of rock would have no bearing on BLM's decision regarding the land exchange and is outside BLM's jurisdiction to approve, monitor or enforce under land exchange regulations.

- Lines 14-23. This discussion is outside the scope of the land exchange EIS, as explained in Section 1.8.2. A discussion of groundwater and surface water chemistry is not required for the land exchange and is outside BLM's jurisdiction to approve, monitor or enforce under land exchange regulations.

- Lines 25-32. See cumulative impacts discussion in Section 4.7.

- Lines 34-39. This discussion is outside the scope of the land exchange EIS, as explained in Section 1.8.2. A discussion of waste rock would have no bearing on BLM's decision regarding the land exchange and is outside BLM's jurisdiction to approve, monitor or enforce under land exchange regulations.

LETTER #40 (continued)

Under Section 1431 of the Safe Drinking Water Act, it is unlawful to discharge a contaminant to an underground source of drinking water (USDW) via injection wells, surface impoundments, or in any other manner if that discharge may pose an imminent and substantial endangerment to the health of persons. Endangerment is considered imminent and substantial if contaminants could migrate to a current or future supply of groundwater (i.e., USDW) in a concentration that could cause an exceedence of a primary drinking water standard (MCL as described at 40 CFR 141 and 142), or otherwise affect the health of persons. A USDW is generally defined as any aquifer that 1) currently supplies any public water system, OR 2) contains a sufficient quantity of water to supply a public water system (25 or more persons), AND currently supplies drinking water for human consumption or has a total dissolved solids (TDS) content of less than 10,000 ppm. The Revised DEIS or FEIS should identify the USDWs in the affected area, provide current groundwater quality data from drinking water wells in the vicinity of the Ray complex, and discuss how impacts to water quality would be prevented by Asarco's foreseeable actions.

The Revised DEIS or FEIS should provide the hydrogeologic parameters and character of fracture permeability in the affected area, as we previously requested. The groundwater system should be modelled for baseline conditions, future conditions, and ultimate equilibrium conditions; including cones of depression, transport and fate of leachate from "waste rock" (leachable or potentially leachable material) deposition areas under BADCT conditions, prediction of pit lakes at Ray and Copper Butte, and effects of groundwater flow direction near the Ray pit on groundwater supply to the Gila River. Bedrock underlying RM-17 is mostly granitics with low permeability, but characterization of weathered granite and fracture permeability still must be provided. The DEIS implies that with proper mine design for the Ray expansion and Copper Butte, potential significant impacts (aside from visual, noise and air impacts to the wilderness area) could probably be mitigated to less than significant. The Revised DEIS or FEIS should provide assurances and specific information for this.

The DEIS (p. 1-19) states that the Gila River Indian Community holds rights to approximately 1.6 million acre-feet per year of water from the Gila River. Elsewhere, the DEIS (p. 4-15) states that groundwater quantity may be depleted if mining operations require local groundwater withdrawals. The Revised DEIS or FEIS should discuss whether this would affect BLM's federal trust responsibilities to protect the tribe's water interests, as well as associated environmental justice implications under Executive Order 12898 and the Department of Interior environmental justice strategy.

Riparian and Aquatic Habitat

The Revised DEIS or FEIS should include an estimate of acres and functions of surface waters, including wetlands, springs, riparian zones, and ephemeral streams in the affected

- Lines 3-27. These comments pertain to permits and decisions issued by other agencies with jurisdiction over these Acts and regulations. BLM considers this detailed analysis as beyond the scope of this EIS since BLM has no jurisdictions over such permits.

- Lines 30-36. The land exchange does not approve mining nor does it change water rights on the Gila River. Asarco and the Gila River Indian Community have a 1992 U.S.D.I. approved agreement for Asarco's purchase of the tribe's water for the Ray Mine, if needed. This is not an environmental justice issue for the proposed land exchange nor a trust issue.

LETTER #40 (continued)

environment, and historical waters that have already been disturbed. The Revised DEIS or FEIS should also describe the specific plans for foreseeable uses on parcels with surface waters and discuss how these waters could be affected, including estimated acreages and functions. The document should describe and discuss aquatic resources, including native fisheries, that could be affected, and estimate the acreage or riparian habitat that could be affected. Impacts to both surface water and groundwater quality should be discussed.

We suggest that some of this information may be available if the Phoenix field office has implemented BLM's *Riparian-Wetland Initiative for the 1990's* (1991) and its *Riparian Area Management: Process for Assessing Proper Functioning Condition* (1993). Another method of achieving a planning level inventory is to gather aerial photography of the various sites. If the larger sites contain segments of different geomorphological character, each segment should be analysed separately. A person familiar with interpretation of aerial photography should make estimates of the length, width, and type (perhaps Cowardin classification, or some other standard classification system) of all streams and wetlands on the parcels. These estimates should have some degree of ground-truthing to establish the validity of the estimates (a rough estimate of variance). The ground-truthing could be done in concert with currently ongoing surveys, and/or by using delineations of waters done in the past. Ground truthing need not be done on each unit, if there is reason to believe that several units have very similar characteristics, including gradients, stream frequencies, and stream types.

In addition to an inventory, there should be a functional assessment of the waters found on the various parcels. Use of the Cowardin system would facilitate that assessment since it is based on habitat types. This section can be simply descriptive, as long as it carefully describes habitat functions, water quality functions, and flood flow characteristics.

Waters of the U.S. and Clean Water Act Section 404 process

The discussion should make clear that this inventory would be refined into a more precise delineation of waters of the U.S. at the time of Clean Water Act Section 404 permitting. Definitions of ordinary high water, wetland boundary, and the lateral extent of waters should be included in the discussion.

The Revised DEIS or FEIS should also include information on maximal areas of waters of the U.S. that Asarco could need in the future, including a discussion of waters and wetlands in Mineral Creek below Big Box Dam. The Revised DEIS or FEIS should discuss the 404 permitting process in some detail, making clear to the reader that a decision about the eventual uses of many of the selected parcels will be made during that permitting process. The discussion should note the differences between the Corps' NEPA evaluations and those done by the BLM. Concepts such as "least environmentally damaging practicable alternative,"

▸ Lines 3-40. An inventory and analysis of the waters of the U.S. is beyond the scope of this EIS. Please see Sections 3.2.1.2 and 3.2.2 for a discussion of riparian and water resources. As noted in Table 2-7, the net gain is 118 acres, which is consistent with BLM standards for improving and acquiring riparian resource values.

LETTER #40 (continued)

"avoidance," "minimization," "compensatory mitigation," "in-kind mitigation," "functions and values," "ESA Section 7 coordination," "106 co-ordination," and "401 certification" should be developed as part of the discussion.

Floodplains

The DEIS states that floodplains are not considered a major issue. According to page 4-51, however, approximately 180 acres of selected lands are located within the 100-year floodplain. Pursuant to Executive Order No.11988, Section 3(d), when property in floodplains is proposed for disposal to non-Federal public or private parties, the Federal agency shall (1) reference in the conveyance those uses that are restricted under identified Federal, State, or local floodplain regulations; and (2) attach other appropriate restrictions to the uses of properties by the grantee or purchaser and any successors, except where prohibited by law; or (3) withhold such properties from conveyance. The Revised DEIS or FEIS should address this issue in more detail by including a map with floodplains in the selected lands, as well as identifying all applicable Federal, State, and local floodplain regulations, and any actions that BLM would need to take in order to comply with this Executive Order.

Air Quality

The DEIS does not sufficiently describe the potential air pollutant emissions for the foreseeable future projects and analyse the impacts of those emissions. The DEIS states that no increase in PM10 emissions would be allowed under current regulations. In a February 2, 1998, meeting, however, Asarco indicated that expanding the Ray Complex would require major modifications to its Ray Mine Title V permit. It is unclear how the continuation of excavating and processing Ray ore along with the excavation, haulage and processing of Copper Butte ore would not increase air emissions, particularly PM10 emissions. The Revised DEIS or FEIS should provide more detailed information on the potential impacts of each alternative to air quality, including haul distances and estimated emissions from the expanded Ray/Copper Butte area.

The DEIS does not provide sufficient information regarding existing air quality on the Selected Lands. PM10 is the only criteria pollutant for which ambient concentrations are provided for the Ray Complex, Copper Butte/Buckeye, Chilito/Hayden area and Casa Grande. According to the DEIS (p. 3-31), however, ADEQ also collects air quality data for lead in Hayden; sulfur dioxide in Hayden, Winkelman and Chilito; and carbon monoxide and ozone in Casa Grande. In addition, we understand that a report on the results of a fugitive particulate emissions study at the Asarco Hayden Smelter was prepared in 1995, and could provide this information. The Revised DEIS or FEIS should include this information. The Revised DEIS or FEIS should also identify air toxics, (e.g., lead, arsenic, and selenium) monitored at the Hayden smelter, mill, and tailings impoundments, where copper originating from the Ray

- Lines 8-17. The following will be in the conveyance documents if this land exchange is approved per Executive Order 11988, Section 3b: "Lands purchased in the exchange area is subject to restrictions which may be imposed by the Pinal County Floodplain Administrator in accordance with the Floodplain ordinance for Pinal County, Arizona."

- Lines 22-29. As discussed in Section 4.2.4, BLM analyzed air quality impacts associated with the foreseeable uses. If there were to be significant emission increases which exceed the current permit, then the proponent would be legally obligated to modify its permit. To the extent possible, BLM can only assume that emissions would likely increase at the Copper Butte operations, based on an increase in haulage distance. Emissions at the Ray Complex would likely remain constant with expansion onto adjacent parcels. Parcel RM-18 would be an expansion of the Elder Gulch facility resulting in few additional miles of haulage, as the same with Parcels RM-1, RM-8, RM-12, RM-13 and RM-17 (POS use parcels). The remaining parcels would be used later in time and/or would not result in increased emissions, and therefore are not compared at this time.

- Lines 32-40. Relevant, available data on sulfur dioxide, carbon monoxide, ozone and lead has been added to Section 3.2.2.4.

Complex would continue to be processed. The Revised DEIS or FEIS should provide existing and projected emissions data for these other pollutants, discuss their impacts on human health, and include a map depicting sampling locations.

As stated on page 2 above, BLM is obligated to pursue information necessary for the NEPA analysis, regardless of the company's willingness to cooperate and provide the information. We believe that Asarco has very specific plans for the selected lands, including mining rates the company hopes to attain within at least the first ten years of the Ray expansion, as well as the Copper Butte project. Based on Asarco's short-term and long-term goals for operations at the Ray Complex, Copper Butte, and Chilito/Hayden, the Revised DEIS or FEIS should provide estimates of air emissions for all criteria pollutants, in addition to relevant air toxics, at all Selected Lands sites. Simply stating that no increase in PM10 emissions would be permitted does not provide information on expected emissions for PM10 or criteria pollutants, their effect on the State Implementation Plan (SIP), or how they would affect Prevention of Significant Deterioration increments in the attainment area that constitutes part of the selected lands (i.e., Copper Butte area) or in nearby Class I areas. This information should be provided in the Revised DEIS or FEIS.

Environmental Justice

The DEIS (pp. 3-61,62) provides some low-income and minority population information for the counties where the selected lands are located. No site-specific analysis is provided, however, for either the affected environment or in the context of the environmental consequences. In an April 21, 1998, meeting, BLM stated that Battle Axe Road is near an "environmental justice" community. However, the potential impacts to this community are not evaluated with respect to its low-income or minority status. The conclusion on page 4-42 that there would be *no* disproportionate adverse human health or environmental effects on minority and low-income populations is not analyzed and, therefore, unjustified in the DEIS. Additional information is needed in the Revised DEIS or FEIS in order to justify such a statement. The revised DEIS or FEIS must be consistent with Executive Order 12898, Department of Interior's environmental justice strategy, and the Council on Environmental Quality's environmental justice guidance to Federal agencies.

Minerals and Land Management

BLM's stated project purposes are to improve resource management efficiency by: 1) disposing heavily encumbered, isolated and difficult-to-manage public lands; 2) acquiring lands that will consolidate ownership patterns within wilderness and special management areas; and 3) acquiring lands with fewer encumbrances and higher resource values. In light of these objectives, EPA urges BLM to withdraw the offered lands from mineral entry, especially for *all* parcels that have at least a moderate mineral potential.

- Lines 15-17. The effects on Prevention of Significant Deterioration increments of future actions on the selected lands cannot be analyzed prior to development of the MPO which is not required under a land exchange action such as this. The consumption of increments is the responsibility of the respective air quality regulatory authority which track this issue when new permits or permit modifications occur. In this case, increment consumption would be the responsibility of the Pinal County Air Pollution Control District.

- Lines 21-31. The BLM met the Executive Order 12898 by: 1) identifying Silver Creek as a low income, minority community; 2) meeting with residents and identifying issues for analysis and possible mitigation steps; and 3) found that BLM's preferred alternative access route did not cause significant disproportionate adverse impacts to Silver Creek. Please see Sections 3.2.6.1.1 and Section 7.1 for BLM discussions with the Silver Creek community and general response no. 1, Access.

- Lines 36-40. All the offered lands have low or moderate potential for mineral development as discussed in Section 2.1.1.1 and .3.3.3.1. The BLM will petition to withdraw the Gila River Parcel at Cochran as well as the Tomlin #4 Parcel.

LETTER #40 (continued)

We understand that BLM intends to withdraw Tomlin parcel #4 from mineral entry if the land exchange is completed. According to BLM's Mineral Report for the offered lands, Tomlin parcel #3 also has a moderate potential for metallic minerals. We recommend that this parcel also be withdrawn from mineral entry.

Section 25 in the McCracken parcels also exhibits moderate mineral potential (DEIS, p. 2-3). We recommend that this parcel be withdrawn from mineral entry.

We recommend that BLM commit to closing the Sacramento Valley parcel to salable minerals (e.g., decorative rock boulders).

According to the 1993 Kingman Resource Area Resource Management Plan (RMP) final EIS, one of the objectives of the RMP is to achieve proper functioning condition for riparian areas (DEIS, p. H-10). The RMP EIS illustrated this need by identifying several areas of severe/critical erosion, including the Big Sandy River and Sacramento valleys. In order to meet this objective, BLM indicated that it would prepare/revise activity plans involving riparian-wetland areas prescribing actions to meet management objectives. It is unclear whether the activity plan has been developed for the Kingman Resource Area. If so, for the purpose of cumulative impact analysis, the Revised DEIS or FEIS should include a summary of the plan and discuss how effective it has been thus far. The Revised DEIS or FEIS should also discuss how management of the offered parcels would be consistent with the RMP objectives and describe the methods that would be used to improve riparian areas (e.g., exclosure fencing around riparian zones, piping of water outside to grazing animals, rotation of livestock). We previously recommended (April 12, 1991, DEIS comment letter from Deanna Wieman, EPA, to Elaine Marquis, BLM) on the RMP that these areas be closed to livestock grazing. Depending on the success of the activity plan, this may still be a desirable option.

In addition, the 1988 Phoenix District RMP indicated that an activity plan for the Gila River Riparian Management Area would be developed (DEIS, p. H-5). If this plan exists, for the purpose of cumulative impact analysis, the Revised DEIS or FEIS should include a summary of it and discuss how management of the Gila River parcel would be consistent with it. What methods would be used to improve riparian areas (e.g., exclosure fencing around riparian zones, piping of water outside to grazing animals, rotation of livestock)?

The specific potential impacts of routes #1 and #2 to replace Battle Axe Road are not discussed in the DEIS. It appears, however, that Route #1 would have a greater adverse environmental impact than Route #2 because it would be located in Walnut Canyon wash and adjacent to the White Canyon Wilderness boundary for approximately 1.3 miles. Route #2 would be further removed from the wilderness, which would reduce noise, air quality, odor, flora and fauna, and visual impacts to the wilderness area and would not be located in a wash.

▸ Lines 3-10. Please see response on previous page.

▸ Lines 13-26. The proper functioning for riparian areas, monitoring and evaluation of specific management objectives is outside the scope of this land exchange EIS. As discussed in Section 2.1.2.1, the Mohave County offered lands would be subject to the RMP objectives and future or existing activity plans for the areas containing the parcels. Currently, the Kingman Field Office applies riparian objectives during allotment planning, or grazing permit renewals or where high riparian values and T&E species exist.

▸ Lines 29-33. The Gila River Riparian Management Area Activity Plan has not been developed. As mentioned in Section 2.1.1.1, the Gila River acquired parcel would be managed in accordance with the RMP and plan amendment decisions for that area This would include activity-level management plan which might consider fencing, monitoring or other specific prescriptions.

▸ Lines 36-40. Please see general response no.1, access.

LETTER #40 (continued)

The Revised DEIS or FEIS should discuss these impacts, as well as any other impacts that could result from building routes #1 or #2. The Revised DEIS or FEIS should also discuss the impacts associated with using Battle Axe Road for mining operations. We recommend that BLM seriously consider developing Route #2 to replace access to the wilderness area, with a design sufficient to prevent any safety problems.

Mitigation of Impacts

The DEIS does not discuss mitigation measures for many potential indirect impacts from the land exchange. For example, the DEIS (p. 4-51) indicates that federal reserved water rights would be irretrievably lost. It also appears that there would be a net loss of waters of the U.S., including wetlands, as well as floodplains, and groundwater quality could be adversely affected down-gradient of certain mining facilities even though aquifer water quality standards are met at specific point of compliance wells (DEIS, p. 4-15). The proposed alternative would cause impacts to: eight roosts providing potential habitat for Townsend's big-eared bat, California leaf-nosed bat and cave myotis on Parcels RM-1, RM-8, RM-10 and RM-18; desert tortoise habitat; 1,150 acres of potential habitat for chuckwalla; longfin dace in Walnut Creek; and 40 acres of potential habitat for Western burrowing owl on CG-3; and eliminate an artificial pond containing lowland leopard frog (DEIS, p. 2-24). The DEIS states that BLM would acquire habitat for ten special status wildlife species, including thousands of acres for Category I and II desert tortoise habitat. It does not, however, specifically indicate how the impacts to other species would be mitigated on the Offered Lands or elsewhere. Pursuant to 40 CFR 1502.14(f) and 1502.16(h), the Revised DEIS or FEIS should discuss means to mitigate adverse environmental impacts. The Revised DEIS or FEIS should identify and discuss appropriate provisions that could be included in the land exchange in order to mitigate or offset potential direct, indirect, or cumulative impacts of the proposed project and alternatives.

A matrix table, similar to Table 2-7 in the DEIS, with mitigation measures associated with potential impacts would be extremely useful in the Revised DEIS or FEIS.

▸ Lines 15-33. Please see Section 4.10 for a full discussion of mitigation and general responses no.1, Access, general response no.2, Alternatives, and general response no. 3, Arizona Trail. The land exchange itself is designed to offer compensatory, off-setting or improved resource values. Chapters 3 and 4 discuss the values lost and gained in detail.

LETTER #41

January 27, 1999

To: Shela McFarlin, Project Mgr., BLM, Az. State Office
From: Frank Welsh, Maricopa Audubon Society
Re: Ray Land Exchange

Thank you for your presentation on the Ray exchange at the Sierra office and the additional info you provided by phone. In general we are opposed to the proposed exchange since we do not believe the "public interest" will be served (FLPMA & FLEFA @ 1-8 DEIS).

First let me note that the exchange of 10,970 acres of our land for 7,300 acres from ASARCO does not on its face make economic sense. Most of the selected land is in central Arizona near the Phoenix-Tucson corridor while the offered lands are in Mohave County with Kingman and Las Vegas as the nearest cities.

It appears that the selected lands contain more than 170,000 tons of High Potential HD copper resources on approximately 40 acres in CB-1, CB-3 & 4, and RM-64. Another 72 acres of H/C & H/B high potential ore exists on RM-10, while 72 acres of Moderate Potential M/D ore is on CB-1, 3 & 4. This 112 to 184 acres is apparently the most valuable and the remaining 10,800 acres could remain in the public domain.

The offered lands are primarily in Mohave county, where land with roads is being sold in 40 acre parcels for $400/acre. The 160 acre Knisely parcels have no access apparently, & this is the case with most of the 6,384 acre McCracken group & the 320 acre Tomlin parcels. Only about 200 acres along the Big Sandy & 146 acres of the Gila parcel are riparian. Table 1-4 at page 1-9 has riparian habitat for its prime criteria for BLM acquisition.

This Society is most concerned about riparian habitat, especially in the desert. BLM's second criteria is wildlife habitat. The DEIS at p. 3-9 notes that 60% of all wildlife in Az. depends upon riparian and aquatic habitats (we note that this % is higher in the desert). You also note that only 0.5% of Arizona is riparian/aquatic and needed to support 28 priority species, further buttressing both your criteria.

Yet we appear to be giving up more than 1 1/2 miles of riparian deciduous forest and getting only 1 1/2 miles of the Gila & Big Sandy. The latter do not appear to be riparian deciduous. The former appear to be intermittent and Mineral Creek (Page 3-21)

Page 2 - Welsh

and at least 0.5 acres of RM-10 are perennial (although the location is not shown on RM-10 in fig. 3-1).

Based upon your own riparian and wildlife criteria, the riparian deciduous forest should remain under BLM while the Gila and Big

- Lines 8-9. Your comment has been noted. Please see general response no. 4, Public Interest Determination.
- Lines 10-13. The appraisal value of the lands are equal, although the acreages are not.
- Lines 15-19. The mineralized properties are analyzed using a mineral income approach. If this does not yield a value exceeding the value of the surface, mineral development is not the current highest and best use (economic) and the land is valued at the higher surface value. The income approach considers the resources present value weighed against the cost to exploit them. The mere presence of minerals does not automatically translate into a mineral value. Fair market value is the legally mandated standard, and the market considers the cost to extract the minerals.
- Lines 15-19. A similar alternative, the Production Lands Alternative (Section 2.3.6), was considered by the interdisciplinary team. A proposed alternative that only the high mineral potential lands be exchanged does not meet the purpose and need of the project identified for Asarco and for BLM's land tenure program. The selected parcels identified are already available for mining under the Mining Law of 1872 and Asarco already holds active claims on most of the selected lands for mining exploration and development.
- Lines 21-25. BLM's acquisition list has a variety of parcels with different resources. The two offered land parcels (Cochran and Tomlin #4) are in this exchange for their unique water resources as well as riparian habitat.
- Lines 33-40. Portions of the Gila Parcel at Cochran is considered to have Sonoran Riparian Deciduous Forest vegetation and this correction has been made. This vegetation community was not directly comparable to the vegetation communities on the selected lands and therefore was not calculated.

LETTER #41 (continued)

Sandy parcels could be exchanged for some of the high copper potential parcels. The RM 7, 10, 18 and CB-1 and 4 and CH-1 parcels are potentially the most important riparian areas from a wildlife perspective since the 6 parcels are dispersed, intermittent or perennial or with perennial pools or springs. The Gila and Big Sandy are generally overgrazed and this practice is expected to continue.

The DEIS makes much ado about desert tortoise habitat for the offered lands. This habitat also exists on the selected lands. Next to development, the major problem with the tortoise is competition from cattle. If the BLM is concerned about that reptile, they should reduce or eliminate grazing on land under their control. This will do more for the tortoise than acquiring the 120 acre category 1 Sacramento parcel. How much of this and the McCracken parcels are category 1? The selected lands contain 3,276 of category II and 3,082 acres of category III land so we doubt the tortoise will be helped by this trade.

The Sacramento parcel appears most likely for development but it is not clear where it is and how close to paved roads. Also why will it remain open to mineral entry if "metallic" potential is low? The other parcels are quite remote & unlikely to be developed in the near future & mineral potential appears low.

I would suggest that riparian areas be noted in miles rather than acres. Otherwise one must determine whether we are addressing the 10 or 100 year floodplain. The presence of leopard frogs and longfin dace along Walnut Creek (p. 3-14) indicates perennial pools at least, not an ephemeral stream (p. 3-21). The Gila and Big Sandy Rivers minimum flows should be noted (0.1 cfs at Kearney and probably 0 on Big Sandy). It is difficult to find the Gila at "Cochran" on maps. A Mohave County location map, similar to the color plate of selected lands, would be helpful. Generally I would consider this DEIS as more of a sales tool for ASARCO than a disclosure statement for public involvement.

Should your agency decide to proceed with the exchange, we strongly favor the Copper Butte Alternative.

Sincerely,

Frank Welsh
Conservation Committee
Maricopa Audubon Society

- Line 7. Under the Proposed Action, improved grazing management would be implemented on the offered lands in an effort to meet Arizona's Standards for Rangeland Health in accordance with 43 CFR 4180.

- Lines 9-16. The Sonoran population of desert tortoise typically occupy hillsides dominated by rocks and boulders, which may not be as accessible to livestock. BLM's mandate is to manage under the multiple use concept while meeting the objectives of the BLM Desert Tortoise Rangewide Management Plan (Appendix F in the DEIS). Desert tortoise habitat on the McCracken Mountains Parcels is discussed in Section 3.3.1.4.2, which includes approximately 6,384 acres of Category I habitat.

- Lines 18-21. The Sacramento Valley Parcel is open for mineral entry because it has low potential for metallic mineral deposits.

- Line 23. Vegetation community descriptions are provided in acres for both upland and riparian communities. The lengths of the major riparian habitats (Big Sandy, and Gila River) can be delineated in miles off Figures 2-1 and 2-3.

- Lines 24-27. Section 4.9 of the EIS discusses floodplains as required by Executive Order 11988. The text of Section 3.2.2.1 of the FEIS has been slightly modified to acknowledge that isolated, perennial pools may exist in Walnut Creek. The description of the flow of the Gila River and Big Sandy River in Section 3.3.2.1 was reviewed and is considered accurate and no changes have been made.

- Lines 29-32. The Gila River Parcel at Cochran is shown on Figure 2-1 at a scale of 1:2,000 feet for purposes of highlighting specific features on the parcel (e.g., railroad, Gila River). The parcel can be seen at a 1:24.000 scale on the 7.5' USGS North Butte, Arizona quadrangle. The parcels in Mohave County can also be seen at 1:24,000 scale on the Mount Nutt, Greenwood Peak, Groom Spring, Dutch Flat, and Mt. Tipton quadrangles.

- Line 34. See general response no.2, Alternatives.

LETTER #42

Pinal County Air Quality Control District

P. O. Box 987
Florence, Arizona 85232

(520) 868-6760 Fax: (520) 868-6754

January 28, 1999

Shela McFarlin, Project Manager
Native American Minerals/Arizona Land Exchange Teams
Arizona State Office
United States Department of the Interior, Bureau of Land Management
222 North Central Avenue
Phoenix, Arizona 85004

Re: Comment on Draft EIS for Proposed "Ray Land Exchange"

Dear Ms. McFarlin:

I am the Director of Pinal County's Division of Air Quality Control, an operating division of the County's Department of Health and Human Services.

This letter pertains to the responsibility of the Bureau of Land Management ("BLM") to address the air quality consequences of the proposed land exchange. Specifically, those consequences include the air quality impacts of Asarco's proposed mining operations on attainment areas lying within or adjacent to the Copper Butte/Buckeye areas identified in the draft EIS. The affected areas specifically include the White Canyon Wilderness ("WCW"), and adjoining "areas of critical concern" ("ACEC").

One of the BLM's stated principal objectives in considering this exchange is to minimize that agency's ongoing regulatory involvement with regard to future mining activities. Specifically, the BLM has expressed a wish to avoid having to approve and administer a "mining plan of operations" ("MPO"), which requirement would otherwise prevail if Asarco elected to commence mining under the Mining Law of 1872.

Generally, state-level regulation of air quality reflects the minimal standards defined by the EPA regulations implementing the requirements of the Clean Air Act ("CAA").

LETTER #42 (continued)

Under the scheme of the CAA, states have an obligation to formulate a generally applicable "state implementation plan" ("SIP"). The generally applicable or "attainment area" SIP needs to provide for protection of the national ambient air quality standards ("NAAQS").[1] In addition, where an area falls subject to a "nonattainment" designation, the state must formulate and implement a curative "nonattainment area plan."

The generally applicable SIP also must provide for preservation of "maximum allowable increases" or "increments" in attainment areas.[2] In Pinal County, corresponding short-term and long-term "increments" for particulate matter have been approved as elements of the generally applicable attainment area SIP.[3] In the attainment areas affected by the proposed exchange, emissions from all sources must be considered in determining whether the relevant "increment" has been "consumed".[4] Here, parcels CB-1 and CB-5 lie within an PM_{10} attainment area,[5] and thus fall subject to "increment" limitations.

While "increments" clearly constitute *mandatory limitations* on the degree to which ambient air quality may be degraded, the EPA has not offered a complete regulatory definition of the local actions required to effectively prevent violation of those limitations.[6] As a result, the prevailing permit-regulation scheme in Arizona defines increments as limitations, but at least arguably allows substantial loopholes in actually applying those limitations to non-PSD class sources. In effect, permitting agencies in Arizona have clearly defined "increments" as *limitations*, but have only developed a marginally effective regulatory mechanism for actually implementing those limitations.

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[1] Generally, see CAA §110 and 40 CFR Part 51.

[2] See CAA §§161 and 163, which explicitly requires that the applicable attainment area SIP expressly contain "measures assuring that maximum allowable increases ... shall not be exceeded."

[3] See PCAQCD Code §2-5-160, approved as a SIP-element at 61 FR 15717 (4/9/96).

[4] After the "minor source baseline date," emissions from all sources count toward increment consumption. 40 CFR §51.166. In Pinal and Gila Counties, the "minor source baseline date" has long since been triggered. See PM-affected permit applications received by the EPA with regard to ABC Manufacturing (2/1/79) and Cyprus Casa Grande (4/18/88).

[5] See Figure 3-11 of the Draft EIS.

[6] While 40 CFR §51.166(k) requires an increment-related "PSD" permitting program for major emitting sources and major modification at such sources, the generic "catch all" standard (*i.e.* 40 CFR §51.166(c)) merely requires that as to other sources, the "plan shall contain emission limitations and such other measures as may be necessary to assure that" the increments are not violated.

▸ Lines 8-12. Under any of the alternatives, Asarco would be obligated to meet the restrictions on new emissions within the non-attainment area, and to meet the State Implementation Plan.

LETTER #42 (continued)

In addition, requirements that befall the states, certain other requirements under the CAA apply directly to Federal agencies, such as the BLM. For example, in certain situations, no agency of the Federal Government shall license or permit any activity that does not conform to an applicable implementation plan.[7] That requirement is generally known as the "General Conformity Requirement." In relevant part, the General Conformity Requirement arises where the agency action will enable a source located in a nonattainment area to emit particulate emissions in excess of certain numerical thresholds.[8]

The General Conformity Requirement defined under CAA §176(c) makes the "assurance of conformity to such an implementation plan ... an affirmative responsibility of the head of [the affected Federal] department, agency or instrumentality." That is, the affected Federal agency has an obligation to verify compliance with the substance of SIP-approved limitations regarding ambient air quality. And that requirement applies, without regard to the adequacy of local permitting requirements to effectively achieve that goal.

Accordingly, to the extent that the lands affected under this proposed exchange lie partly or wholly within a nonattainment area, and assuming that the reasonably anticipated aggregate emissions would exceed the numerical thresholds defined in 40 CFR §93.153, then retention of administrative authority would require the BLM to perform a conformity analysis at the time a specific MPO was presented for review and approval. And to the extent that the BLM proposes to transfer these lands simply to avoid the administrative burden of reviewing and acting upon such an MPO, the proposed action constitutes a deliberate abdication of the BLM's affirmative responsibility as defined under CAA §176(c).

To the extent that the BLM finds that the "General Conformity" requirements as discussed above do not apply, then I repeat the request of my prior scoping-period comment letter of August 5, 1997, asking that the EIS "at least make clear that actual development of such a facility may well escape any need to demonstrate whether or not [the anticipated attainment area ambient air quality] impact complies with the seeming unequivocal requirement of CAA §163."

Lines 5-16. The action of the land exchange itself is exempt from conformity determination requirement under 40 CFR 93.153 c (2) (x) and (xiv). Please see general response no. 5, MPO.

LETTER #42 (continued

Letter to Sbela McFarlin
January 28, 1999
Page 4

Lastly, even if the BLM exchanges part or all of the lands in question, the BLM will retain administrative dominion over the WCW and its associated ACEC. Accordingly, I also request that in the final EIS the BLM expressly address its apparent fiduciary responsibility to protect and preserve air quality within the WCW and associated ACEC.

I appreciate your consideration of my comments.

Sincerely yours,

Donald P. Gabrielson
Director

cc: N. Gambell, Asarco
N. Wrona, ADEQ

Lines 16-19. Discussion of air quality in the White Canyon Wilderness can be found on in Section 4.2.4.1. Any increases in emissions for any regulated air pollutant beyond the state's existing significance levels will result in an application by Asarco to modify their Title V permit and a visibility analysis of potential impacts to Class I airsheds.

LETTER #43

E STATE OF ARIZONA

GAME & FISH DEPARTMENT

2221 West Greenway Road, Phoenix, Arizona 85023-4399 (602) 942-3000
www.gf.state.az.us

Governor
Jane Dee Hull
Commissioners:
Chairman, Herb Guenther, Tucson
Michael M. Golightly, Flagstaff
William Scriar, Tucson
M. Jean Hassell, Scottsdale
Dennis D. Manning, Alpine
Director
Duane L. Shroufe
Deputy Director
Thomas W. Spalding

January 28, 1999

Ms. Shela McFarlin, Project Manager
Bureau of Land Management
Arizona State Office
222 North Central Avenue
Phoenix, Arizona 85004

Re: Draft Environmental Impact Statement for the Ray Land Exchange and Plan Amendment

Dear Ms. McFarlin

The Arizona Game and Fish Department (Department) has reviewed the above-referenced draft Environmental Impact Statement (EIS). ASARCO Incorporated (ASARCO) proposed the Ray Land Exchange to acquire approximately 10,976 acres of public lands in Pinal and Gila Counties. In exchange, the Bureau of Land Management (BLM) would acquire approximately 7,304 acres in Pinal and Mohave Counties. As you know, our agency has provided substantial comments to BLM regarding this project in previous Department comment letters and during meetings or telephone discussions. The Department would appreciate BLM's consideration of those comments, as well as the following comments, during preparation of the final EIS.

The Department could not completely and accurately assess potential impacts to fish and wildlife resources as a result of the Proposed Action without a more complete description of the type, location and size of the proposed mining facilities. For example, without a Mining Plan of Operations (MPO), the Department could not evaluate and determine whether constructing an open-pit mine at Copper Butte will result in surface water contamination or if groundwater pumping for mining use will impact surface flows of the Gila River.

We understand that ASARCO will be required to mitigate impacts to water resources when applying for federal and state mining permits after acquiring the Selected Lands. However, ASARCO would not be required to mitigate impacts to habitat for non-federally protected species, such as bighorn sheep and the Sonoran desert tortoise, or to maintain existing public access to adjacent public lands. The lack of consideration of impacts to wildlife resources and public access in the EIS is of concern to the Department.

- Lines 29-33. Please see general response no. 5, MPO.
- Lines 35-40. Acquisition of the offered lands mitigates for the loss of tortoise habitat on the selected lands with a net increase in quality and quantity of desert tortoise habitat (BLM Desert Tortoise Compensation Policy (IM AZ-932-46) and Supplement relating to Land Exchanges); therefore compensation would not be required as a result of the exchange. There is no comparable compensation plan for desert bighorn sheep.
- Line 40. Impacts to wildlife is analyzed in Section 4.1.3 and access is discussed in Section 4.4.3. Please see general response no.1, Access.

LETTER #43 (continued)

Riparian Habitat

The Department believes that the EIS does not adequately address the potential mining impacts to riparian areas adjacent to the Selected Lands. Mining uses could result in unmitigated impacts to surface water quality in Mineral and Walnut Creeks, and the Gila River. In our scoping letter to BLM, dated August 4, 1997, we recommended Walnut Canyon be excluded from the proposed land exchange due to the environmental importance of riparian areas to fish and wildlife. Walnut Canyon is removed from foreseeable mining uses in the Buckeye and Copper Butte Alternatives, but not the Proposed Action. This portion of Walnut Canyon included in the Proposed Action would not be subject to direct mining activity, but would link the "Production Operation and Support" areas with "Long-range Prospects", and could potentially be impacted by mine development and associated support facilities.

The Department believes potential impacts to water quality, riparian plant communities, wildlife habitat, and wildlife populations occurring adjacent to Selected Lands should be thoroughly analyzed in the EIS. For example, the EIS should address potential impacts to riparian habitat in Walnut Canyon adjacent to parcels CB-5 and CB-1. Special status species, such as the lowland leopard frog and longfin dace found in Walnut Creek, could be negatively impacted by mining operations. Fragmentation of Walnut Creek may hinder movements of native fishes and other wildlife species between the Gila River and the Walnut/White Canyon watershed.

Desert Bighorn Sheep

The Department believes that the Proposed Action does not provide adequate mitigation for cumulative impacts to bighorn sheep habitat. The EIS refers to an evaluation completed by the Department for the Dripping Springs Mountains (3-10). However, the EIS does not discuss potential sheep habitat of the Picketpost/Copper Butte area. On page 3 of the BLM's 1994 Biological Evaluation (BE), it states: "These parcels are part of a contiguous block of potential sheep habitat from Picketpost Mountain south to the Gila River." The Department's habitat evaluation of this area identified high quality bighorn sheep habitat, including extensive areas of escape terrain and potential lambing areas around Picketpost Mountain and White, Wood, and Walnut Canyons. This area is considered a priority for future bighorn sheep transplants.

Offered Lands

The Sacramento Valley parcel is a 120-acre parcel located in Mohave County, adjacent to the Warm Springs Wilderness. The heading on page 2-3 states that the Offered Lands have important bighorn sheep values. The same heading on page 3-68 claims the parcel is adjacent to high

- Lines 6-7. The BLM agrees with the general statement that future mining uses could result in impacts to Mineral Creek, Walnut Creek, and the Gila River. However, analyzing specific impacts to these streams and their associated riparian areas is not possible at this time as discussed in Section 4.2.1.1 of the FEIS.

- Lines 9-10. Walnut Canyon is not removed from the foreseeable mining uses under any alternatives since the foreseeable use plan (Figure 2-7) represents current knowledge of future mining activities under any of the alternatives.

- Lines 10-14. Based on a field visit by BLM in April, 1999, it was determined there was no riparian habitat along Walnut Creek on Parcel CB-1. Also, the BLM ID Team considered the Buckeye and Copper Butte Alternatives, but decided to keep the entire package of offered and selected lands. Please see general response no. 2, Alternatives.

- Lines 16-23. This FEIS has been modified to include additional information on riparian and water resources. Please see Section 4.1.2, environmental consequences to biological resources and physical resources.

- Lines 22-23. Fragmentation of Walnut Creek is not expected to occur as an impact of the land exchange, but could occur under the foreseeable uses. The ownership pattern surrounding Walnut Creek is already fragmented between BLM and the State. Asarco would need to obtain a 404 permit from the COE in order to conduct any modifications to the creek.

LETTER #43 (continued)

value bighorn sheep habitat in the Black Mountains. This parcel has little topographic relief and no water sources, and is approximately one mile from the Black Mountains. This parcel is adjacent to an area the BLM and the Department have classified as medium value sheep habitat (Kingman Resource Area Proposed Resource Management Plan and Final EIS: page 179). Although the parcel contains high value desert tortoise habitat (BLM Category I) and Wilderness values, we recommend that statements referring to bighorn sheep habitat on the Sacramento Valley parcel be deleted. The McCracken Mountains parcels heading on page 3-68 should identify the offered lands within this mountain range as low value bighorn sheep habitat

Wild Horse and Burro

The Special Management Area heading of section 3.3.4.2 (page 3-78), states that the Black Mountains Herd Management Area contains an estimated 890 burros. Within the last year, the Department and BLM have conducted burro census and removal operations, and numbers should now be more consistent with the herd management level documented in the Black Mountain Ecosystem Management Plan.

The Knisely Ranch parcels are part of the Cerbat Herd Area and have approximately 70 wild horses which utilize these offered lands. The Department suggests including this information under the "Special Management Area" or "Grazing" heading within section 3.3.4.3 on page 3-79.

Desert Tortoise

The EIS should address the issue that most existing protections for desert tortoise on the Selected Lands would be removed. In addition, the EIS does not include parcels CH-1 through CH-8, which are classified as Category 2 desert tortoise habitat.

Public Access

The Proposed Action identifies two new public access routes to replace current access to the White Canyon Wilderness. However, existing access to the Gila River and the Coke Ovens could be lost through section 26, which should be addressed in the EIS.

General Comments

The acreage figures in Table 2-7 (page 2-24 through 2-26) do not appear to be accurate. For Upland Plant Communities, the Proposed Action claims that BLM will acquire 7,148 acres, but the No Action lists 7,300 acres would remain in private ownership. Within the Wildlife/Wildlife Habitats section, it states the BLM would acquire 7,300 acres of wildlife habitat for both the Proposed Action and the Buckeye Alternative, even though a section of Offered Lands is excluded from the Buckeye. Similarly, the Special Status Species row

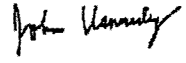
- Lines 25-35 (previous page). In May 1999, BLM discussed this issue with Region 5 of AGFD in a series of meetings. The EIS has been corrected to recognize that Region 5 AGFD considers Picketpost Mountain (Mineral Mountains) as their highest priority reintroduction site for desert bighorn sheep and that a statewide ranking for the site is still pending. The EIS has also been corrected to include impacts to the reintroduction proposal from foreseeable uses and the land exchange based on the limited information that is currently available.
- Lines 4-11. Section 2.1.1.1 (DEIS, page 2-3), correctly states that the Sacramento Valley Parcel offers important bighorn sheep values. This acquisition is part of BLM's effort to improve bighorn sheep habitat in the Black Mountains. Over the past decade, through exchanges, BLM has acquired approximately 13,640 acres of bighorn sheep habitat, mostly in the Black Mountains. Approximately 9,320 acres are considered high value habitat, 3,840 acres considered medium value, and 480 acres low value, all of which is in conformance with the Kingman Resource Area RMP.
- Lines 17-18. The updated burro number is 478. This change has been made to Section 3.3.4.2.
- Lines 21-22. This information has been included in Section 3.3.4.3.
- Lines 25-27. Your comment has been noted and the change has been made in Section 3.2.1.4.2.
- Lines 30-32. Please see general response no. 1, Access.
- Lines 35-40. The acreage associated with wildlife habitat in Table 2-7 also combines the riparian and upland habitat acreage.

LETTER #43 (continued)

states the BLM would acquire 6,680 acres of desert tortoise habitat in the Proposed Action, but the No Action Alternative includes 7,144 acres of tortoise habitat within the Offered Lands. The Department recommends altering these figures to correct any discrepancies. Under the Surface Water row, the draft EIS shows that BLM would acquire surface water features, including a Department wildlife catchment [McCracken Mountains #1 (412)]. The Department would like to discuss with BLM the issue of ownership and maintenance of this wildlife water catchment.

The Department appreciates the opportunity to review and provide comments on the draft EIS. Again, the opportunity to review a complete description of the mining facilities and the MPO would assist in our efforts to fully evaluate this project. The Department would appreciate an opportunity to review more detailed information regarding the mining proposal (MPO), and additional review of the EIS after the public review period and prior to distribution of the final EIS. This would allow for a more complete, Department-wide, review of the EIS and further discussion between our agencies, if needed, prior to distribution of the final EIS. We look forward to continued cooperation with BLM on this proposed land exchange. Please contact me at (602) 789-3602 if you have any questions regarding this letter.

Sincerely,



John Kennedy
Project Evaluation Program Supervisor
Habitat Branch

JK:bb

cc: Duane Aubuchon, Habitat Program Manager, Region III, Kingman
Joan Scott, Habitat Program Manager, Region V, Tucson
Russ Haughey, Habitat Program Manager, Region VI, Mesa

AGFD# 10-26-98(01

- Lines 4-5. Table 2-7 has been corrected in the FEIS.
- Lines 7-9. AGFD would continue to own and maintain the catchment once the parcel becomes public land. As landowner, BLM would then file an application with ADWR for a surface water right for wildlife purposes to legally protect the water development.

LETTER #44

Jan 26 1999.

Dear Mrs. McFarlin,

I want to voice my concerns about the proposed access roads I would like a better description of the proposed roads as #1 will run just above my house. and its affects on our water well.

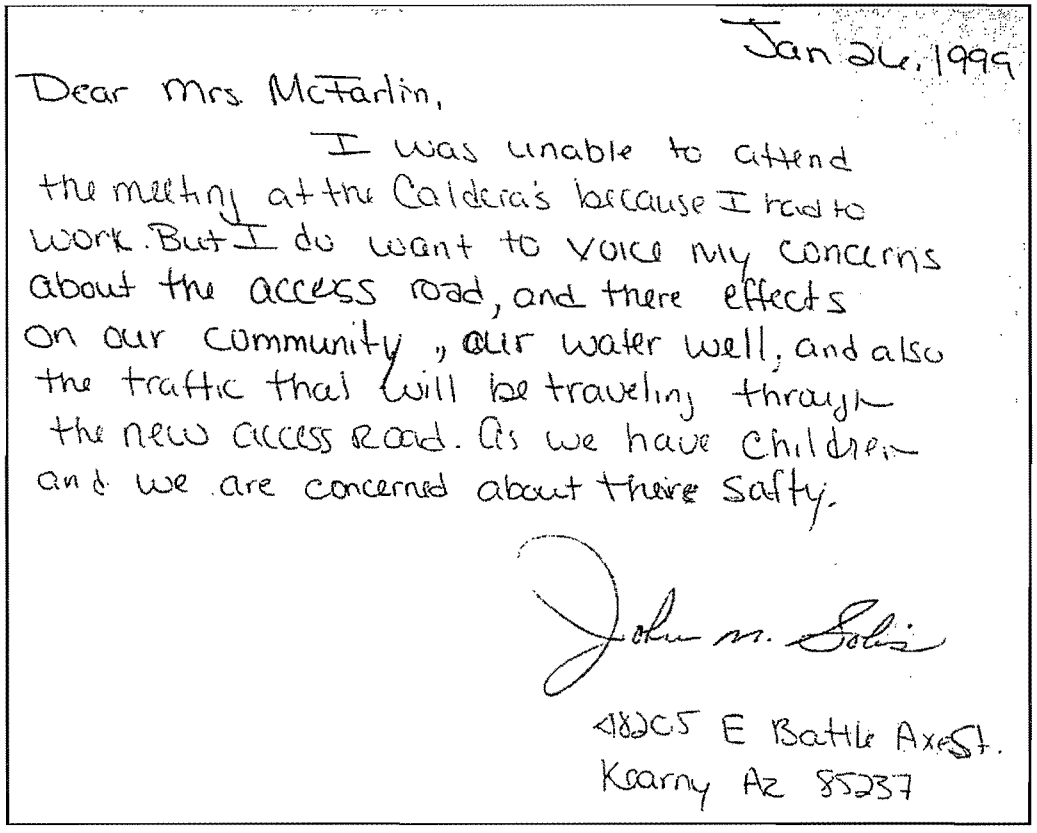
Thank you.

[signature]

48135 E Battle Ax St.
Kearny Az 85237

Two roads have been identified as possible alternatives to reach public lands. Route #1 is not a preferred alternative route and would require extensive mitigation by Asarco to address concerns of access and impacts to the water well in the Silver Creek community. Please see general response no.1, Access.

LETTER #45



Jan 26, 1999

Dear Mrs McFarlin,

I was unable to attend the meeting at the Caldera's because I had to work. But I do want to voice my concerns about the access road, and there effects on our community, our water well, and also the traffic that will be traveling thrugh the new access Road. As we have Children and we are concerned about theire safty.

John M. Solis

18205 E Battle Axe St.
Kearny Az 85237

▸ Two roads have been identified as possible alternatives to reach public lands. Route #1 is not a preferred alternative route and would require extensive mitigation by Asarco to address concerns of access and impacts to the water well in the Silver Creek community. Please see general response no. 1, Access.

LETTER #46

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Battle Axe Ranch, L.L.C.

JAN 29 9 46 PM '99

January 26, 1999

Ms. Shela McFarlin
Project Manager
Bureau of Land Management
Arizona State Office
222 North Central Avenue
Phoenix, Arizona 85004

Re: ASARCO Ray Draft EIS

Dear Ms. McFarlin:

This is to thank you for having delivered to us a copy of the above, and to comment on its contents.

I am writing on behalf of Battle Axe Ranch, L.L.C., which holds a BLM grazing permit known as the "Battle Axe", which permit will be affected by each of the proposed alternatives other than the "No Action" one.

I am personally very familiar with selected land parcels CB-1 through CB-5; only slightly familiar with other selected parcels at Ray and Hayden; not at all familiar with the Casa Grande selected parcels; and not familiar with the offered land. Therefore, my comments as to specifics will be directed only to selected land parcels CB-1 through CB-5. I ask that you entertain my general comments, below, as applying to the entire proposed exchangé.

GENERAL Comments

1 Battle Axe Ranch supports each of the 'action' alternatives, without an opinion as to one over the other, for the following reasons:

a) The selected land in general adjoins existing copper mining operations where the dominant land use for years to come (mining) is fairly obviously established.

LETTER #46 (continued)

b) The infrastructure necessary to conduct copper mining operations, on the selected land, including mills, roads, railroads, water supply, and a base of skilled employees, is already in place and in use, and won't have to be replicated.

c) The selected land is already encumbered by mining claims owned, in large part, and presumably exercisable by, the proponent with or without the exchange.

d) The selected land appears to have high resource value for copper mining. Such resource values are scarce, and as a matter of common sense, proper land use, and public policy, should, in our view, be developed.

2. The consequences to the natural environment of expanding an existing copper operation onto nearby land without having to replicate supporting infrastructure are much less than starting a mine de novo.

3 The rural economy of the areas in which the selected land is located will be positively affected, probably significantly so, by the 'action' alternatives. These effects are sometimes inadequately considered in an EIS which concentrates on natural consequences of an action. In areas such as Hayden, Ray, and Kearny, however, these economic consequences are very significant – and can mean the difference between a family being able to live and work in a more pleasant rural environment, or having to join the teeming hordes of us who crowd ever more tightly into the Salt River Valley and Tucson.

SPECIFIC Comments

1 If an 'action' alternative is chosen involving parcels CB-1 through CB-5, we ask that the BLM give more consideration to re-routing the Battle Axe Road along "Route 1" (see Figure 4-1, DEIS) instead of Route 2, for the following reasons:

a) The exchange of parcels CB-1 through 5 will, in time, terminate our use of and access to the corrals located on parcel CB-3. These corrals are central to our ability to get the numbers of cattle that we handle into and out of the Battle Axe. The next best alternative site for us, given the way the ranch works, is either at the headquarters in Section 8, T3S-R13E or the adjoining State section (Section 1). In either case, access for large

▸ Thank you for your comments.

▸ Lines 31-40. With the exchange, BLM would work with the grazing lessee on the relocation of any facilities and access routes necessary for the operation of the ranch that may be displaced by the mining operation facilitated by this land exchange. The loss of existing improvements will be compensated bu Asarco in accordance with the Bureau's grazing regulations..

LETTER #46 (continued)

a) (Cont'd.) cattle trucks or heavily loaded gooseneck trailers to either location on existing roads is presently unworkable due to the terrain. This problem would be solved by Route 1, but not, we believe, by Route 2.

b) Access for any vehicle from Battle Axe Road onto Highway 177 at present (given existing line-of-sight at the intersection) is dangerous. It appears to us (from Figure 4-1) that access onto Highway 177 by means of Route 2 would have the same problem. Based on where it joins Highway 177 (again from Figure 4-1) Route 1 appears to be a safer alternative.

c) Use of Route 1 by recreationalists visting White Canyon seems to us to come less into contact (visually, from noise, or physically) with mine operations – a benefit, in our view, to both.

d) Parts of the old alignment of Highway 177 appear to follow the proposed Route 1.

Thank you for the opportunity to comment

Very truly yours,

SMB:gm

Stephen M. Brophy

▸ Lines 8-25. Your comments have been noted. Please see general response no.1, Access.

LETTER #47

NLY MEMORIES — HUACHUCA HIKING CLUB — LEAVE ONLY FOOT

PO Box 3555
Sierra Vista AZ 85636

January 27, 1999

533 Suffolk Drive
Sierra Vista, AZ 85635

Shela McFarlin
Project Manager
Bureau of Land Management
Arizona State Office (AZ-917
222 North Central Avenue
Phoeniz, AZ 85004

Dear Shela:

The Huachuca Hiking Club has reviewed the Draft Environmental Impact Statement (DEIS) for the Ray Land Exchange/Plan Amendment. We have been participating in the NEPA process for this action since early 1995 when the Plan Amendment was initially proposed. Throughout this process, our paramount concern has been to ensure the integrity and continuity of the Arizona Trail. The White Canyon Resource Conservation Area is a critically important public lands corridor that will link Arizona Trail segments already completed (Tonto National Forest segment on the north) or underway (Pinal County segment south of the Gila River). We have accomplished our review with full knowledge that copper mining in this area will continue for the foreseeable future and will narrow the range of viable trail alignments. However, we believe that Arizona Trail and recreation can co-exist with copper mining through careful planning and cooperation of all parties concerned. Thus, our intent is to support the BLM preferred alternative, with the caveat that certain conditions are agreed to that will support the Arizona Trail Association's (ATA) proposed Arizona Trail corridor through the area and thus ensure the integrity and continuity of the Arizona Trail.

Specific comments are as follows:

▸ Lines 22-38. Please see general response no.3, Arizona Trail.

LETTER #47 (continued)

1. On page 4-47, under paragraph "Foreseeable Uses Recreation:", the DEIS states the following: Foreseeable mining uses on the proposed exchange parcels will still allow for viable alternatives for routing the Arizona Trail through the area. Therefore, no cumulative impacts on these trails are anticipated." We are encouraged by the above statement, however, we believe the DEIS should specifically address and examine ATA's proposed corridor for the Arizona Trail through the exchange area and indicate that it is viable and has BLM and ASARCO concurrence (subject to future NEPA analysis for the White Canyon Wilderness Plan).

2. The ATA proposal will route the Arizona Trail from the Kelvin Bridge on the Gila River to connect to the existing trail segment in Tonto National Forest northwest of the White Canyon Wilderness (see attached map). In order to avoid the mining areas, the proposed Arizona Trail alignment would cross (south to northwest) Sections 20, 17, 18, 24, and 23 in an effort to follow Battle Axe Road to the Wilderness Area. Regardless of which alternative is chosen, the EIS and Plan Amendment must ensure recreational access and a continuous Arizona Trail route. To ensure safe passage through this area by hikers, equestrians, and mountain bikers, the Arizona Trail would require:

a) an easement from ASARCO through Section 17 to include an agreed upon crossing of the mining operations access road;

b) a separated pathway alongside the rerouted Battle Axe Road from Sections 17 or 18 to Section 23; and

c) a trailhead alongside Battle Axe Road (parking and horse trailer access in Sections 17/18 and/or Sections 23/24).

3. By specifically reviewing this proposal, we believe the Final EIS would allow BLM decision makers to make an informed decision on the Ray Land Exchange and Plan Amendment, while having performed adequate NEPA analysis of the impact on recreation and the Arizona Trail. A decision to change land status from retention to disposal by exchange must logically consider these impacts. This would also assure the general public that BLM and ASARCO have in fact accommodated a suitable alignment corridor for the Arizona Trail throughout the exchange area, subject to future NEPA analysis for the White Canyon Wilderness Plan.

▸ Lines 4-40. Your comments have been noted. Please see general response no. 3, Arizona Trail.

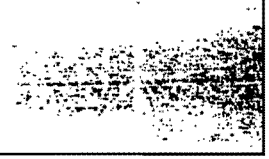
LETTER #47 (continued)

In summary, we offer our support of the BLM preferred alternative, but request the ATA proposed Arizona Trail corridor be included in the Final EIS to provide assurance that the Ray Land Exchange and Plan Amendment will not harm the integrity and continuity of the Arizona Trail.

Thank you for the opportunity to provide these comments. Please keep us informed as this action moves forward.

Sincerely,

Steve Saway
President
Huachuca Hiking Club



▸ Thank you for your comments. Figure 7-1 shows proposed Arizona Trail routes through the Copper Butte/Buckeye area and planning for a route through this area will continue with the Tucson BLM Field Office and trail groups.

LETTER #48

Arizona Trail ASSOCIATION

January 27, 1999

Shela McFarlin, Project Manager
Bureau of Land Management
Arizona State Office (AZ-917)
222 North Central Avenue
Phoenix, AZ 85004

RECEIVED
BUREAU OF
LAND MANAGEMENT
JAN 29 9 43 PM '99
ARIZONA
STATE OFFICE
PHOENIX, ARIZONA

Dear Shela:

The Arizona Trail Association (ATA) has reviewed the Draft Environmental Impact Statement (DEIS) for the Ray Land Exchange/Plan Amendment. We have been participating in the NEPA process for this action since early 1995 when the Plan Amendment was initially proposed. Throughout this process, our paramount concern has been to ensure the integrity and continuity of the Arizona Trail. The White Canyon Resource Conservation Area is a critically important public lands corridor that will link Arizona Trail segments already completed (Tonto National Forest segment on the north) or underway (Pinal County segment south of the Gila River). We have accomplished our review with full knowledge that copper mining in this area will continue for the foreseeable future and will narrow the range of viable trail alignments. However, we believe that the Arizona Trail and recreation can co-exist with copper mining through careful planning and cooperation of all parties concerned. Thus, our intent is to support the BLM preferred alternative, with the caveat that certain conditions are agreed to that will support our defined Arizona Trail corridor through the area and thus ensure the integrity and continuity of the Arizona Trail.

Specific comments are as follows:

1. On page 4-47, under paragraph "Foreseeable Uses Recreation:", the DEIS states the following: Foreseeable mining uses on the proposed exchange parcels will still allow for viable alternatives for routing the Arizona Trail through the area. Therefore, no cumulative impacts on these trails are anticipated." We are encouraged by the above statement, however, we believe the DEIS should specifically address and examine ATA's proposed corridor for the Arizona Trail through the exchange area and indicate that it is viable and has BLM and ASARCO concurrence (subject to future NEPA analysis for the White Canyon Wilderness Plan).

2. We plan to route the Arizona trail from the Kelvin Bridge on the Gila River to connect to the existing trail segment in Tonto National Forest northwest of the White Canyon Wilderness (see attached map). In order to avoid the mining areas, we propose that the Arizona Trail

▸ Your comments have been noted. Please see general response no.3, Arizona Trial.

LETTER #48 (continued)

cross (south to northwest) Sections 20, 17, 18, 24, and 23 in an effort to follow Battle Axe Road to the Wilderness Area. Regardless of which alternative is chosen, the EIS and Plan Amendment must ensure recreational access and a continuous Arizona Trail route. To ensure safe passage through this area by hikers, equestrians, and mountain bikers, the Arizona Trail would require:

a) an easement from ASARCO through Section 17 to include an agreed upon crossing of the mining operations access road;
b) a separated pathway alongside the rerouted Battle Axe Road from Sections 17 or 18 to Section 23; and
c) a trailhead alongside the Battle Axe Road (parking and horse trailer access in Sections 17/18 Sections 23/24).

3. By specifically reviewing this proposal, we believe the Final EIS would allow BLM decision makers to make an informed decision on the Ray Land Exchange and Plan Amendment, while having performed adequate NEPA analysis of the impact on recreation and the Arizona Trail. A decision to change land status from retention to disposal by exchange must logically consider these impacts. This would also assure the general public that BLM and ASARCO have, in fact, accommodated a suitable alignment corridor for the Arizona Trail throughout the exchange area, subject to future NEPA analysis for the White Canyon Wilderness Plan.

In summary, we offer our support of the BLM preferred alternative, but request our proposed Arizona Trail corridor be included in the Final EIS to provide assurance that the Ray Land Exchange and Plan Amendment will not harm the integrity and continuity of the Arizona Trail.

Thank you for the opportunity to provide these comments. Please keep us informed as this action moves forward.

Best regards,

Arizona Trail Association
Board of Directors

Jan Hancock
President

▸ Please see general response no.3, Arizona Trail

▸ Thank you for your comments. Figure 7-1 shows proposed Arizona Trail routes through the Copper Butte/Buckeye area and planning for these routes will continue with the Tucson BLM Field Office and trail groups.

LETTER #49

G.M. Fehr
8927 N. Veridian Dr.
Tucson, AZ 85743

January 28, 1999

Ms. Shela McFarlin, Project Manager
Arizona State Office
Bureau of Land Management
222 North Central Avenue
Phoenix, AZ 85004

Dear Ms. McFarlin:

I am writing to express my support for the agency preferred alternative concerning the Ray Land Exchange / Plan amendment.

While there seems to be a small discrepancy in the total acreage of lands being exchanged, I feel that the offered lands fit well into the BLM's acquisition plans. The offered lands will preserve habitat for several species native to the desert.

The selected lands provide a buffer and needed lands to preserve an operation that provides needed jobs and tax dollars to maintain the economy of the immediate and surrounding area.

It appears to me that this is a win win situation for both the people of Arizona and the local community for which this operation provide economic wealth.

Sincerely,

G M Fehr

G. M. Fehr

JAN 29 9 57 PM '99

STATE OFFICE
PHOENIX, ARIZ.

▸ Thank you for your comments.

LETTER #50

Ms. Sheila McFarlin
Arizona State Office (AZ-917)
Bureau of Land Management
222 N. Central Avenue
Phoenix, AZ 85027

Dear Ms. McFarlin:

Ray Land Exchange
Support of Proposed Action

I am taking this opportunity to express my support of the Proposed Action as described in the October 1998 BLM "Draft Environmental Impact Statement Ray Land Exchange/Plan Amendment."

Federal ownership of the Offered Lands will protect important environmental habitat and help to consolidate Federal land holdings in environmentally sensitive areas. Private ownership of the Selected Lands will help ASARCO Incorporated's mining operation which benefits Asarco employees, the local communities, the Arizona economy, and consumers of copper.

Sincerely yours,

Hank Kreis

Henry G. Kreis

JAN 29 9 57 PM '99
ARIZONA STATE OFFICE PHOENIX, ARIZONA

▸ Thank you for your comments.

LETTER #51

Ms. Sheila McFarland
Native American Minerals/AZ Land Exchange Teams
AZ State Office
BLM
222 N. Central
Phoenix, AZ 85004

Dear Ms. McFarland:
I am in support of the Proposed Action Alternative in the Asarco/BLM Land Exchange. This exchange will allow for private lands obtained by BLM to be open for public use and I love to 4-wheel.

Thanks,

Larry Hagy

JAN 25 9 55 PM '99
ARIZONA
STATE OFFICE
PHOENIX, ARIZONA

- Thank you for your comment.

LETTER #52

ARIZONA DESERT BIGHORN SHEEP SOCIETY
P.O. Drawer 7545
Phoenix, Arizona 85011
(602) 854-8950 • (602) 854-8966-fax

January 28, 1999

Shela McFarlin, Project Manager
Bureau of Land Management, Arizona State Office
222 N. Central Ave.
Phoenix, AZ 85004

Re: Draft Ray land Exchange Environmental Impact Statement (BLM/AZ/PL98/0013)

Dear Ms. McFarlin

The Arizona Desert Bighorn Sheep Society, Inc. (ADBSS) has reviewed the above referenced document and would like to offer the following comments as part of the official public record.

The ADBSS is concerned about the loss of potential bighorn sheep habitat in portions of the selected lands. Picketpost Mountain, together with areas in and adjacent to Walnut Canyon, Copper Butte, White Canyon and Wood Canyon, comprises a large area that appears to offer great potential for future introductions of desert bighorn sheep. Our observations about the quality of this habitat have been confirmed by a recent habitat evaluation of the area by the Arizona Game and Fish Department, which rated the area as the best sheep habitat in all of the department's Region 5. There was a substantial sheep population in the area prior to their extirpation around the year 1900, and there have been some recent instances of sheep from the Superstition Mountains entering the area and taking up residence. The comment in the EIS that desert bighorns have not been observed on any of the selected lands, while probably true, is misleading.

One of our specific concerns is sheep access to water. There is an artesian well on state land in Walnut Canyon, and we are concerned that mining activity in the vicinity would deny future sheep populations in the area access to that water.

Another area of concern is public access to the Gila River, which will not be preserved by the proposed alternative.

In addition, we would like to point out that the Sacramento Valley parcel in the Black Mountains, which is one of the lands offered by Asarco, is approximately a mile from the nearest mountains. While it may be used occasionally by desert bighorns, it in no way compensates for the loss of potential high quality sheep habitat that is posed by the proposed exchange.

- Lines 21-27. Thank you for your comments. BLM has been coordinating with the Arizona Game and Fish Department (AGFD) regarding the issue of future introductions of bighorn sheep near the selected lands. Please see response to AGFD's Letter #43.
- Lines 28-29. The discussion of bighorn sheep has been clarified in the text, please see Section 3.2.1.3.
- Lines 32-33. Asarco has committed to BLM that if Asarco were to purchase Section 24(T3S, R12E) from the State of Arizona, they would donate approximately three-quarters (480 acres) to BLM. Please see Section 2.1.1.1 and 4.10 regarding the Proposed Action and Mitigation.
- Lines 35-36. Please see general response no.1, Access.

LETTER #52 (continued)

When the Morenci land exchange was made a few years ago, the BLM gave up about 900 acres of sheep habitat and received about 280 acres along Eagle Creek in return. In the Silverbell land exchange with Asarco, the BLM gave up about 3,135 acres of sheep habitat and received no sheep habitat in return. Furthermore, Asarco has not granted any significant conservation easements in the Silverbells despite the fact that a large portion of the lands it acquired were identified as important ram habitat by the Arizona Game and Fish Department. In the Ray land exchange, BLM proproses to give up about 2,500 acres of high quality sheep habitat, while receiving 120 acres of marginal sheep habitat in return. It appears that there has been a huge net loss for bighorn sheep in recent land exchanges, and this exchange will only make that loss even larger.

The ADBSS would like to see no land exchange occur, but we realize that if there were no exchange, Asarco would probably mine the selected lands under the auspices of the General Mining Act of 1872. For that reason, we support the Copper Butte Alternative, which minimizes the exchange's impacts on potentially high value desert bighorn sheep habitat and preserves access to the Gila River. Additionally, we encourage the Bureau to work closely with Asarco to discourage mining activities in parcels CB-1, CB-2, and CB-3, so they can be preserved as habitat for desert bighorn sheep.

Sincerely,

Ignacio Beltram

Ignacio Beltram
President

- Lines 3-12. Over the past decade through exchanges, BLM has acquired a total of approximately 13,640 acres of bighorn sheep habitat, mostly in the Black Mountains where the offered lands for this project are located.
- Lines 10-11. The AGFD bighorn sheep habitat assessment is incomplete but preliminary data supplied by Region V shows approximately 560 acres of "excellent" habitat on Parcel CB-1and approximately 453 acres of "good" habitat on Parcels CB-1 and CB-5.
- Lines 16-20. Your comment is noted, however BLM cannot discourage mining activities. Please see general response no.2, Alternatives.
- Lines 20-22. Please see revised impact analysis in Section 4.1.4.2.

LETTER #53
(Larry Sibala, BIA)

Surface water rights in the area of the Ray Mine are adjudicated and decreed under the Globe Equity Decree No. 59. These are appropriated rights for which the Gila River Indian Community has the earliest priority. The Gila River Water Commissioner, Mr. Don Weesner administers the distribution of water in the upper Gila, by priority using a Call system approved by the Federal Court.

Groundwater in Arizona is not owned by the State as stated in this paragraph. Drilling for wells to use groundwater requires a well-drilling permit issued by the Department of Water Resources.

- Lines 6-11. Your comment has been noted and the text has been modified in Section 3.2.2.3 to include reference to the Globe Equity Decree

- Lines 14-16. The text is correct as written. Please refer to Title 45, Section 45-401 of the Arizona Revised Statutes which states that groundwater is owned by the people of the State of Arizona and managed by ADWR.

LETTER #54

January 28, 1999

Ms. Sheila McFarland
Native American Minerals/AZ Land Exchange Teams
AZ State Office
BLM
222 N. Central
Phoenix, AZ 85004

Dear Ms. McFarland:
I am in support of the Proposed Action Alternative in the Asarco/BLM Land Exchange. This exchange will allow Asarco to acquire lands for continued environmental buffering while BLM will acquire high priority lands.

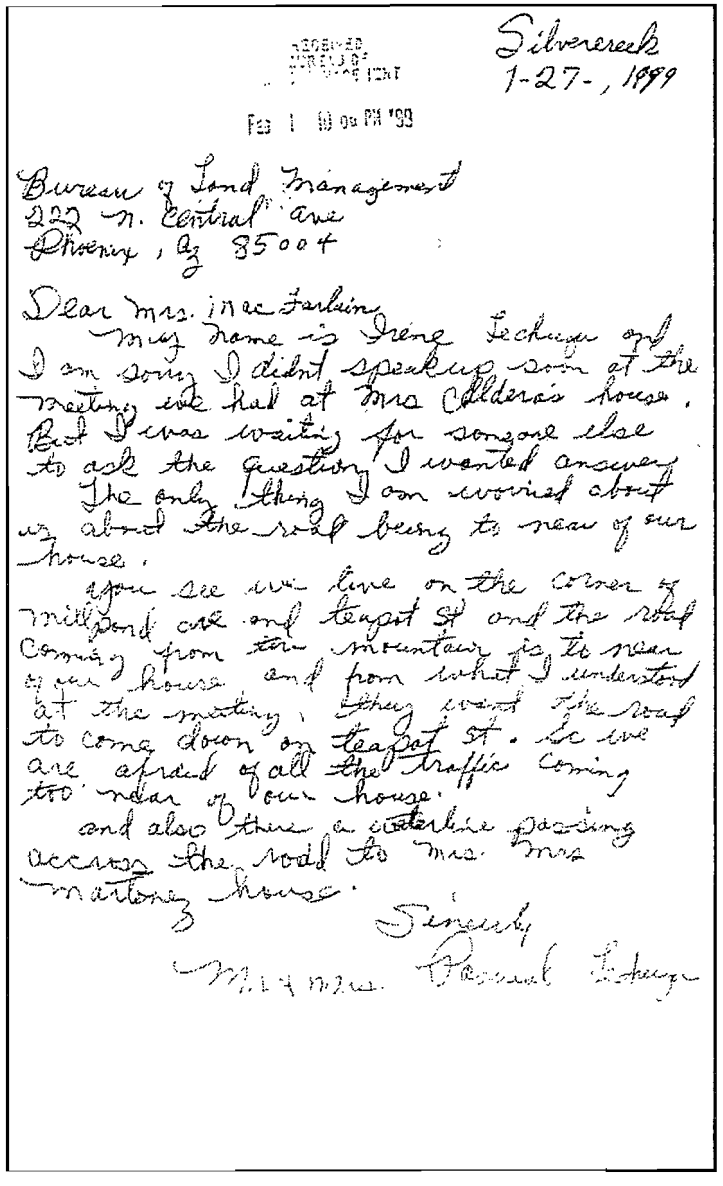
Sincerely,

Ed Riege

Feb 10 05 PM '99

▸ Thank you for your comment.

LETTER #55



Silvercreek
1-27-, 1999

RECEIVED
BUREAU OF
LAND MANAGEMENT

Feb 1 10 06 PM '99

Bureau of Land Management
222 N. Central Ave
Phoenix, Az 85004

Dear Mrs. Inez Farlin
My name is Irene Echaya and I am sorry I didn't speak up soon at the meeting we had at Mrs Calderas house. But I was waiting for someone else to ask the question I wanted answered. The only thing I am worried about is about the road being to near of our house.

You see we live on the corner of Millpond cut and Teapot St and the road coming from the mountain is to near of our house and from what I understood at the meeting, they want the road to come down on Teapot St. So we are afraid of all the traffic coming too near of our house.

and also there a waterline passing across the road to Mrs. Mrs Martinez house.

Sincerely
Mr. & Mrs. Pascual Echaya

▸ Thank you for your comments. Two roads have been identified as possible alternatives to reach public lands. Route #1 is not the preferred alternative route and will require extensive mitigation by Asarco to address concerns of access to the Silver Creek community. Please see general response no.1, Access.

LETTER #56

Ms. Shela McFarlin, Project Manager
Native American Minerals/Arizona Land Exchange Teams
Arizona State Office
Bureau of Land Management
222 North Central Avenue
Phoenix, Arizona 85004

RE: ASARCO - BLM LAND EXCHANGE

Dear Ms McFarlin:

I attended the Public Hearing on December 8, 1998, in Kearny, AZ, on the Draft Environmental Impact Statement for the Ray Land Exchange/Plan Amendment and take this opportunity to commend you, and other participants, on the presentation of the Plan.

Having received a copy of the EIS, I admit that the volume of information was a challenge to review. However, the Public Hearing on the Proposed Action Alternative clarified the important details, and I can honestly say that now I have a clear understanding, and I fully support the proposal. It is a responsible plan for all of the agencies, the riparian habitat and endangered species, Asarco and the Copper Basin existing communities.

Sincerely,

Marlene B. Plaster

Marlene B. Plaster
115 Johnston Drive, P.O. Box 517
Kearny, Arizona 85237-0517

▸ Thank you for your comments.

LETTER #57

Ms. Shela McFarlin, Project Manager
Arizona State Office
Bureau of Land Management
222 North Central Avenue
Phoenix, Arizona 85004

FEB 10 04 PM '99

Dear Ms. McFarlin:

I would like to take this opportunity to express support for the Ray Land Exchange / Plan Amendment.

The Exchange balances the involved parties interests. BLM's objective with respect to management, and public acquisition of T & E habitat for the bald eagle, American peregrine Falcon, and Southwest willow flycatcher. Private ownership of Category II and III desert tortoise habitat will be exchanged for Category I and II (public).

The exchange will allow an orderly progression of the present mining activities and continue the benefits to the rural economy of the area. Selected lands will enhance the environmental buffering.

Public access to the White Canyon Wilderness will continue to be available. When the Wilderness boundary was drawn the future mining potential at Copper Butte was considered.

Although the alternative access route in the proposed action is proposed route 2, route 1 might in the long term be the better route for all parties (access to the wilderness and other public land users).

The completed exchange will not in anyway compromise the permitting, oversite and area protection that will be necessary for the ultimate mining of the area. It will facilitate the overall objective in these areas.

Sincerely,

T. E. Scartaccini

T. E. Scartaccini

TES/mck

▸ Thank you for your comments.

LETTER #58

SIERRA CLUB

Grand Canyon Chapter · Arizona

812 N. 3rd St.
Phx., Az. 85004

Jan. 28, 1999

Shela McFarlin
Project Manager
BLM, Arizona State Office
222 N. Central Ave.
Phoenix, Az. 85004

Regarding: Ray Land Exchange

Dear Shela McFarlin,

Thanks for the opportunity to comment on your Draft Environmental Impact Statement for the proposed Ray Land Exchange/Plan Amendment. We appreciate the offer of land exchanges rather than mining BLM land as allowed under existing law without compensation to the public, and appreciate combining the Plan Amendment with the DEIS for the exchange. We continue to have many concerns regarding this exchange, however, especially lands selected by ASARCO in the Copper Butte/Buckeye area west of Highway 177 that would negatively impact the White Canyon Wilderness. Below are listed some of our concerns.

1. Consideration of a land exchange appears to be premature and ill-timed.

Despite over a decade of discussion regarding mining Copper Butte and the Buckeye area along Walnut Creek, no Mining Plan of Operations has as yet been submitted by the exchange proponent. Lack of a MPO makes adequate analysis of environmental impacts (water supply, water quality, air quality, storm water management, location of rock dumps, noise, night lighting, etc.) virtually impossible in the DEIS, and defers proper analysis until after the existing Management Plan is amended to change tenure of lands in question from retention to disposal when the Final EIS is approved. Reliance on limited NEPA analysis by other agencies should not justify going forward with BLM's EIS at this time without a detailed MPO that would enable the public to determine the extent to which ASARCO will protect natural resources on and near its selected lands. If a MPO is not made available for the Copper Butte/Buckeye area, the BLM should infer that the proponent is not in a position to mine this area in the near future, which makes validity of the proposed exchange questionable.

Additionally, the exchange seems particularly ill-timed. Demand for copper has dropped dramatically in the past year due

▸ Lines 27-40. Please see general response no.5, MPO.

LETTER #58 (continued)

to economic problems in other countries and over-production. The possibility exists that the current over-production of copper could become chronic as mining in South America is projected to increase, and several new mines and mine expansions are being proposed for Arizona. Over 50 years of ore is projected to remain at the existing Ray mine east of H177. The Final EIS should attempt to examine projected market conditions for copper and describe under Purpose and Need why an exchange and plan amendment are justified at this time.

2. The exchange does not appear to be in the public interest as mandated by Section 206(a) of the Federal Land Policy and Management Act.

ASARCO has selected 10,976 acres for acquisition to be used for mining, but offers only 7,300 acres in exchange. To be in the public interest, offered lands should at least match selected lands in size.

The proposed exchange will essentially gut the White Canyon Resource Conservation Area (RCA) that was established in BLM's Resource Management Plan of 1988 (Phoenix Resource Management Plan and Final EIS, p. 41). This, as well as other RCA's, were established to ensure retention of large, consolidated blocks of BLM land in federal ownership to protect the natural resources of these areas. Approximately 2,500 acres (23 perimeter miles) in the Copper Butte/Buckeye area, the heart of the RCA, is being considered for exchange, most of which would likely be barred from public access(3-40). The 2,500 acres border the 5,800 acre White Canyon Wilderness to the north, and the smaller Area of Critical Environmental Concern at the confluence of White Canyon and Walnut Creek. The selected lands are also in close proximity to Battle Axe Butte, the Spine and Granite Mountain, areas all popular with recreationists.

While BLM might argue that the offered lands are of equal value to the selected lands in terms of natural resources, the offered lands do not appear to be proper compensation for lands lost to the public in the exchange. The foreseeable uses of the Copper Butte/Buckeye area, according to BLM, is mining, and mining will cast a long shadow on the remaining RCA. According to the DEIS, over 8,000 acres within an area studied by BLM will be visually affected by mining activity, including almost half of the White Canyon Wilderness and most of the Spine and Granite Mountain area (4-32). The exchange does not take into account such visual degradation of remaining public lands.

The DEIS contains few descriptions of the natural resource attributes of the White Canyon RCA. No visual resource rating is included to convey to the reader the scenic beauty of the large, still intact landscape west of H177 that includes White Canyon, Battle Axe Butte, the Spine, Granite Mountain, etc. The FEIS

- Lines 3-5. It is not within the scope of this EIS to examine projected market conditions for copper.
- Lines 10-14. Please see general response no.4, Public Interest Determination. The RCA consist of approximately 132,400 acres; and less than 7% would be transferred under the exchange.
- Line 16-26. Your comments are noted, however BLM cannot prevent mining in the RCA. The Proposed Action would not impact the Wilderness, ACEC or public access on the remaining public lands. Please see general response no.1, Access.
- Lines 28-32. The BLM has not agreed that the lands are of equal value from a natural resource standpoint. Mining will have impacts on adjacent lands, with or without a land exchange. Therefore any visual degradation, if any, will occur anyway. Also see general response no. 5, MPO.
- Lines 33-36. Impacts to visual quality is discussed in Section 4.4.6 and on Figure 4-2. According to Figure 4-2, portions of the Copper Butte and Buckeye mines would be visible from different portions of surrounding areas including the Wilderness, Spine and Granite Mountain. BLM has determined that some degree of visual impact is likely and have discussed this issue in the EIS.
- Lines 37-40. The White Canyon RCA is described in the Phoenix RMP (1988) which has no visual quality classification. For the selected lands within the RCA that are proposed for this exchange, Chapter 3 provides details on a parcel by parcel basis. The land exchange does not impact visual resources but foreseeable uses could. Please see Figure 4-3 which shows the potential visual impacts of the foreseeable uses.

LETTER #58 (continued)

should include such a description so the reader more fully understands what is being traded away.

The selected lands also include some areas of sonoran riparian deciduous forest and are immediately adjacent to similar riparian areas; the offered lands appear to have no such riparian deciduous forests. Almost half of the riparian deciduous forest in Walnut Creek is expected to be impacted by mining (4-4).

The selected and immediately adjacent lands at the Copper Butte/Buckeye area are popular with recreationists, the offered lands located primarily in western Arizona are less frequented.

The exchange does not involve lands in the same Resource Conservation Area or BLM planning area as recommended in BLM handbooks and federal law.

The Copper Butte/Buckeye area is rich in cultural sites (3-59). It is not clear if the offered lands are equal in value in this respect.

The DEIS anticipates that 3,173 acres at the Copper Butte/Buckeye area would be impacted by future mining activities. The selected lands in the Copper Butte/Buckeye area make up less than 1/5 of ASARCO's total selected lands, yet the total offered lands are barely double the land impacted near the White Canyon Wilderness. The 7,300 acres of offered land seems small even when just compared to the amount of land that will be degraded in this one area.

Few special status or Threatened and Endangered wildlife species exist on the offered lands; no federally endangered plants exist and there is no critical habitat (3-70-74). BLM has emphasized the acquisition of Class 1 habitat for the desert tortoise which is commendable, but tortoise is also found in the White Canyon RCA and habitat could be protected if mining and livestock grazing were better controlled.

Grazing activity will continue on offered lands in the same manner as in the past if the exchange is completed. Some areas of offered lands are admittedly in overgrazed condition (3-81). The FEIS should explain why improved grazing management is not possible if these parcels are exchanged.

Offered lands will continue to be open to mining unless BLM successfully petitions the Secretary of Interior to segregate these lands from mineral entry. It does little good to exchange lands for their resource values if they remain open to mining. The FEIS should speculate on the likelihood of these lands being segregated.

The Cochran parcel on the Gila River is touted in the DEIS

Lines 5-8. As a result of recent field work, Figure 3-2 has been corrected to show there is no riparian vegetation occurring south of the White Canyon ACEC boundary along Walnut Canyon.

Lines 9-10. Levels of recreation use on the offered land parcels, or on public lands surrounding those parcels, has never been studied or documented. The Arizona Mohave Final Wilderness EIS (2/89) estimated visitor use to be between 400 and 800 visitor days per year in the area now known as the Mount Tipton Wilderness. Field observation, along with public inquiry and comments, bear witness to the popularity of the locations containing the Knisely Ranch parcels. The remainder of the offered lands in Mohave County are estimated to be only lightly used for dispersed recreation activities such as hiking, hunting and rockhounding.

Lines 12-13. In Arizona, BLM manages land exchanges on a statewide basis, but lands are identified for disposal or listed for acquisition in each of the resource management plans completed. As exchanges are proposed by the public or other agencies, the acquisition of high value resource lands is considered on a statewide basis rather than within individual units. As priority lands are acquired and as future exchanges are configured, BLM will look at county and community needs, specially designated areas and resource values in keeping with FLPMA and FLEFA.

Lines 15-16. Because the selected lands have been fully surveyed, and the offered lands have not, it is difficult to compare the cultural resource values of the two areas. In addition, there can be great variation in the quality of informational and cultural values associated with different sites. Therefore, a higher number of archaeological sites in one area does not necessarily indicate that the area has higher cultural resource values. Among the selected lands, the Copper Butte/Buckeye parcel does contain many archaeological sites, as described in Section 3.2.5. Among the offered lands, as described in Section 3.3.5, the Gila River parcel at Cochran contains many sites and is part of a rich archaeological zone along the river. In addition, the Tomlin #4 parcel and the Knisely Ranch parcels have high potential for the presence of cultural resources.

LETTER #58 (continued)

for its sonoran riparian values but could be turned into a reservoir if Twin Buttes dam immediately downstream is ever built. The FEIS should address the likelihood of such a scenario given the huge, unresolved water demand posed by the anticipated agricultural expansion on the nearby Gila Indian Reservation (Final: Programmatic Environmental Impact Statement - Pima/Maricopa Irrigation Project, 1997).

3. Land and mineral potential appraisals are not available in DEIS.

Although appraisal information is not included in the DEIS, one can surmise from previous exchanges that the value of the selected lands, including mineral potential on a few hundred acres, is probably two to three million dollars. Lands near existing mines like the Ray mine typically appraise very low as such lands are degraded from previous mining and not of interest to anyone but mining companies. Additionally, these areas are not subject to open bidding but are "claimed" as allowed under the 1872 mining law which chills any outside interest and devalues the land further. Offered lands, on the other hand, can be of interest to various parties, and hence valuation is often higher, often resulting in lopsided exchange ratios whereby the public loses overall acreage.

The FEIS should divulge basic appraisal information and in particular inform the public of the valuation assigned to the mineral potential of selected lands. The FEIS should explain how the mineral potential of the Buckeye area is not figured into the appraisal because of the speculative nature of that project, and the FEIS should speculate as to the inherent inequities of the strict valuation process now in use and possible solutions to the problem.

4. Alternatives

The Copper Butte Alternative is the least onerous of all the alternatives, but still allows 652 acres to be exchanged in the Copper Butte/Buckeye area. The alternative should be amended to allow no lands to be exchanged in this area. If this change is not made, the FEIS should explain why this land needs to remain in the exchange.

The DEIS repeatedly makes the assumption that the foreseeable uses of the selected lands is expected to be the same under all alternatives - mining. We do not necessarily agree. The only thing certain about the future is its uncertainty. Large scale mining on environmentally sensitive land has come under much attack in recent years, and several projects that seemed inevitable have been postponed or permanently withdrawn. A few examples are the New World and McDonald Mines in Montana and the Newsboy Gold Mine in Arizona. Mining at Copper Butte is

- Lines 18-23 (previous page). The acreages are not equal, but he appraisal values are.
- Lines 25-29 (previous page). Please see Sections 4.1.5.2 and 4.1.6, which identifies the Gila River Parcel at Cochran as proposed critical habitat for the cactus ferruginous pygmy-owl and occupied southwestern willow flycatcher habitat
- Lines 30-33 (previous page). If these areas come into public ownership, improved grazing management will be implemented if it is determined that due to current livestock grazing these allotments are not meeting or making significant progress towards meeting Arizona's Standards for Rangewide Health in accordance with 43 CFR 4180.
- Lines 35-38 (previous page). The Sacramento Valley Parcel has low potential for metallic mineral deposits. There is a moderate potential for salable minerals in the Sacramento parcel, although such sales are discretionary actions. Mineral development in the McCracken Mountains parcels are covered in ACEC guidance. The FEIS states that the BLM will petition to withdraw two parcels from mineral entry due to potential mineral development. It is up to the Secretary of the Interior to decide on closing public lands to mineral entry.
- Lines 3-6. The Twin Buttes Dam is considered unlikely at this time and is outside the scope of this EIS. Also, if future uses of the Gila River Parcel at Cochran are requested, they are subject to federal public land use stipulations and other environmental laws.
- Lines 11-24. Appraisals are available for public examination, and copying, once they are complete, reviewed and accepted by BLM. If the appraisal contains proprietary geologic or financial information protected under 43 CFR 2.13, only that information is not available for public inspection, in keeping with the legal rights of others under the Freedom of Information Act. Also, the appraisal disregards the mining claims and the considerable cost the holders incurred obtaining and holding these claims because claims are relinquished at the moment of transfer. The full title to the land is the estate appraised.
- Lines 27- 30. Your comment is noted. Please see general response no.2, Alternatives.

LETTER #58 (continued)

not projected for at least 6 to 8 years, and the Buckeye area for perhaps 20 years. Much can happen during that time, mining may well occur but it is not inevitable. The FEIS should amend statements such as at 4-1 in the DEIS to read: "Given existing laws, favorable public opinion, and demand for copper, the foreseeable uses of the selected lands are expected to be similar under all alternatives."

5. Access route to southern end of White Canyon Wilderness

The FEIS should admit that no suitable alternative exists for access from H177 to the confluence of Walnut Creek and White Canyon. The first alternative discussed in the DEIS uses Walnut Creek wash itself as a road which skirts the eastern boundary of the Wilderness. The second route would closely parallel Battle axe road which would probably provide recreationists with views of rock dumps and ore trucks. The FEIS should consider additional mitigation for degraded access to the Wilderness.

6. Arizona Trail and Great Western Trail

The FEIS should include all known information regarding proposed routes of these trails through the White Canyon RCA area and describe the impacts mining activity west of H177 would have on these proposed routes.

7. The FEIS should speculate on the effects the proposed exchange and/or future MPO could have on any future expansions of the White Canyon Wilderness.

8. The FEIS should explain that royalties, if ever initiated on hardrock mining on public lands, would never be collected if the exchange was finalized.

9. It is difficult to understand BLM's enthusiasm for acquisition of 480 remaining acres of Section 24 when the area will be surrounded by mining activity (3-40). The FEIS should speculate as to the long term ecological viability of this area after the surrounding lands are degraded by mining.

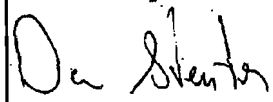
10. It is true that the Arizona Desert Wilderness Act did not provide for buffer zones around wilderness boundaries and other uses are allowed up to those boundaries (3-56). However, degrading the primeval character of a wilderness and loss of opportunity for solitude and quiet is a legitimate issue for discussion and should be treated as such in the EIS process. The FEIS should further analyze the anticipated impacts on the White Canyon Wilderness in terms of noise from blasting and machinery, night lighting, and air quality. The FEIS should also explain why ASARCO is operating at the Ray mine with so many unissued permits (3-32).

- Lines 3-7. The foreseeable use statement on page 4-1 is accurate as written. The foreseeable uses are not subject to public opinion (only the land exchange is) and BLM cannot predict the demand for copper nor changes in the Mining Law.
- Lines 10-15. Please see general response no. 1, Access.
- Lines 18-20. Please see general response no. 3, Arizona Trail.
- Lines 22-23. Speculating the effects of the proposed action to any future expansions of the White Canyon Wilderness is out of the scope of this EIS. Congress alone has the authority to establish or expand Wilderness areas and there are no known plans to expand the White Canyon Wilderness.
- Lines 25-27. This is correct. The lands, if exchanged, would not be subject to future changes in the mining law, including royalty collections.
- Lines 29-31. Acquiring Section 24 allows BLM to expand and manage the already designated White Canyon ACEC, which is discussed in more detail in Section 3.2.4.7. Further, it will allow BLM to establish legal access to the Wilderness where none exists now.
- Lines 31-33. Congress alone has the authority to establish or expand Wilderness areas. There are no known plans to expand White Canyon Wilderness.
- Lines 33-39. Please see response to comment letter #20. There will be no impacts from the land exchange/plan amendment on air quality, noise levels, or the wilderness. Impacts from the foreseeable uses (mining) are described to the level of current knowledge.
- Lines 39-40. Asarco's current operations are outside the scope of this EIS.

11. Cumulative effects.

The FEIS should further discuss cumulative effects of additional mining at the Ray Pit in the Mineral Creek watershed and projected mining in the Walnut Creek watershed and the effects on surface water quality in the Gila river, already in partial support of its designated uses and water quality limited for arsenic, copper and turbidity (3-21). The FEIS should conduct air modeling studies to determine effects on nearby Wilderness areas.

Thanks again for the opportunity to comment



Don Steuter
Conservation Chair
Palo Verde Group

Lines 4-9. The FEIS cumulative impacts section considers regional impacts with regard to the proposed actions: a plan amendment and a land exchange. Further, Section 4.7 also looks at mining activities within 50 miles in terms of the foreseeable uses for the selected lands. Surface water quality and air quality are discussed in this regional context only. The Mineral Creek Consent Decree/Section 404 permit has been added to the discussion in Section 4.9. Without an MPO for mining around Walnut Creek, insufficient information exist for detailed analysis. Please see general response no.5, MPO.

LETTER #59

ASARCO

Copper Operations
Tucson Office

January 28, 1999

Ms. Sheila McFarlin, Project Manager
Arizona State Office
Bureau of Land Management
222 North Central Avenue
Phoenix, Arizona 85004

Dear Ms. McFarlin:

The following listed comments reflect ASARCO Incorporated's reasoning and support for the proposed Asarco - BLM Land Exchange.

The proposed action alternative will have the following affects:

- The BLM acquires lands on its highest priority list
- This is almost an acre for acre exchange.
- Allows BLM to meet its management objectives
  - a) Protection of cultural resources.
  - b) Protection of riparian resources.
  - c) Protection of endangered species.
- Asarco gets mining lands for continued environmental buffering.
- This exchange allows the rural economy of Pinal County to be sustained and generates state revenues for schools, etc.
- Future land use is mining regardless of the exchange.
- Asarco has the right to mine with/or without the exchange.
- Land exchange would allow the orderly planning for future land uses.
- Private lands acquired by BLM would be open for public use and benefit
- This is a win-win situation.

The exchange will be a benefit to all parties involved.

Sincerely,

T. E. Scartaccini

TES/mck

▸ Thank you for your comments

LETTER #60

United States Department of the Interior
Fish and Wildlife Service
Arizona Ecological Services Field Office
2321 W. Royal Palm Road, Suite 103
Phoenix, Arizona 85021-4951
(602) 640-2720 Fax (602) 640-2730

In Reply Refer To:
AESO/FA

January 26, 1999

MEMORANDUM

TO: Project Manager, Bureau of Land Management, Arizona State Office, Phoenix, Arizona

FROM: Field Supervisor

SUBJECT: Draft Environmental Impact Statement for the Ray Land Exchange/Plan Amendment

The Fish and Wildlife Service has reviewed the Draft Environmental Impact Statement (DEIS) for the proposed Ray Land Exchange/Plan Amendment prepared by the Arizona State Office and Tucson Field Office of the Bureau of Land Management (BLM) to fulfill responsibilities under the National Environmental Policy Act (NEPA). ASARCO Inc. proposes to acquire approximately 10,976 acres of BLM administered lands in Pinal and Gila counties in exchange for 7,300 acres of privately owned lands located within Pinal and Mohave counties. The Service offers the following comments for your consideration.

General Comments

We believe the purpose and need for the proposed action has not been appropriately identified, the scope of analysis has been too narrowly defined, the alternatives analysis has dismissed reasonable alternatives that should receive more thorough consideration, potential impacts on biological resources including listed species have not been sufficiently analyzed, and the totality of project related impacts have not been adequately assessed.

We believe foreseeable management activities on selected lands, as well as indirect and cumulative effects, should be more thoroughly described and potential impacts to biological resources assessed. We believe the DEIS should identify mitigation measures that provide mitigation for impacts to vegetation communities, wildlife communities, and water resources.

Specific Comments

Section 1.3, Purpose Of And Need For Action: This section states the purpose of the Ray Land Exchange/Plan Amendment is to exchange ownership of federal lands for private lands. We believe the proposed land exchange is the subject federal action. We believe the purpose of this action is to allow ASARCO to consolidate its land holdings within and adjacent to areas of ongoing

▸ Lines 38-40. The purpose and need statement in Section 1.3 includes your statement and reflects both FLPMA and FLEFA.

LETTER 60 (continued)

mineral development and to use the selected lands to support and expand current and future mining related operations. We recommend the purpose and need statement be modified accordingly.

Section 1.8.2, Mining Issues: We disagree with the statement that current regulations applicable to the proposed project do not require analysis of less environmentally damaging alternatives to development of the Copper Butte/Buckeye ore body. We also disagree with the statement that development of a mining plan of operation (MPO) cannot be evaluated in this DEIS. One of the main purposes of NEPA is to provide an evaluation of all reasonable alternatives that could be implemented and still meet the underlying purpose and need for the proposed action, including those not within the jurisdiction of the lead agency. This section of the DEIS further states that BLM has determined that analysis of the impacts of the land exchange and the foreseeable land uses do not require analysis of effects on geochemistry, groundwater, and wetlands as requested by the Environmental Protection Agency (EPA). The NEPA directs federal agencies to consider the effects of proposed actions, including indirect impacts such as changes in foreseeable land uses and effects on biological resources. We believe the analyses requested by EPA are critical for determining the effect of the proposed action on biological resources. We recommend that BLM compile and assess this information prior to making a decision on the proposed action.

Section 1.8.4, Other Issues: We are concerned with the statement that current and past environmental practices of ASARCO are beyond the scope of this DEIS and will not be analyzed. This section also states that it is the responsibility of several other federal and state agencies to ensure compliance with environmental laws and regulations. We believe an uncoordinated regulatory approach unnecessarily burdens the regulatory agencies and ASARCO. The EPA and U.S. Army Corps of Engineers (Corps) have responsibility under Sections 402 and 404 of the Clean Water Act related to ASARCO's Ray Mine. As you are aware, ASARCO is required to implement a work plan at the Ray Mine in accordance with a consent decree entered into with the United States and the State of Arizona. Cumulatively, at least three federal agencies are currently involved in three separate but related actions at the Ray Mine. We believe a coordinated regulatory approach would be more appropriate and result in a more adequate analysis of project related impacts. We recommend that BLM contact the Corps and EPA to work cooperatively to assess the cumulative impact of federal involvement and mining activity at the Ray Mine. The feasibility of preparing a joint NEPA document should be evaluated.

Section 2.2, Actions Common To All Alternatives: This section states that mining on the selected lands would occur regardless of which action is approved because ASARCO has indicated that in the future it would submit a MPO if the no action alternative were chosen. However, in Section 1.8.2 the DEIS states that an MPO alternative does not exist and cannot be evaluated in the DEIS. We believe these two statements are inconsistent and recommend that BLM clarify whether the development of a MPO is a viable alternative or not. If an MPO is not an alternative, we believe that under the no action alternative the expansion of mining operations would not occur.

Section 2.3.4, Mining Plan of Operations Alternative: This section states that BLM rejected this alternative from further consideration because ASARCO has not submitted a MPO. We do not

- Lines 5-16. Please see general response no.5, MPO. Please see responses to Letter #40 concerning an alternatives analysis for a land exchange.

- Lines 19-20. Current and past environmental practices of Asarco are incorporated into Section 4.7 of this EIS. Current environmental practices including the Mineral Creek Project are discussed, as well as 1993 activities relating to pollution control along Mineral Creek. See general response no.6, MPO. BLM has requested cooperating agency status for the Mineral Creek Consent Decree/Work Plan Project and will process any requested uses of public lands related to this project.

- Lines 33-38. Please see general response no. 6, MPO. Please see Section 2.7.3 for the Solicitor's opinion on the likelihood of no mining.

LETTER #60 (continued)

believe the submittal of a MPO is necessary to analyze this alternative. We recommend that this alternative be more fully analyzed as it represents a reasonable alternative that would still meet the underlying purpose and need for the proposed action.

Section 4.1.5. Federally Threatened and Endangered Species: This section states that no federally listed species are known to occur on any of the selected lands and implementation of the exchange or the foreseeable mining uses are not expected to impact listed species. We believe the DEIS has not fully analyzed potential impacts to listed species, especially those resulting from indirect effects of the proposed action. BLM's analysis of effects should not be limited to direct impacts occurring on the selected lands. Effects on listed species resulting from future actions that would not be subject to a future section 7 consultation should be considered. Exchange lands, once in private ownership, may be used for a variety of purposes that under current BLM management may not occur. The BLM should evaluate the potential effects of these possible activities on listed and proposed species and critical habitat in all areas potentially affected by the proposed action. Of particular concern are possible effects to the southwestern willow flycatcher and cactus ferruginous pygmy owl. It may be prudent to coordinate with the Corps and EPA as they also have section 7 responsibilities related to the Ray Mine.

Section 4.2.2. Groundwater: This section states the foreseeable mining uses on the selected lands will likely affect groundwater but it is not possible to describe the impacts because ASARCO has not developed detailed mining plans that describe the type, location, and size of mining facilities. We believe this does not allow the assessment of potential project related impacts to water supplies and biological resources. We believe ASARCO should develop a mining plan that not only describes the type, location, and size of mining facilities, but also includes a hydrologic analysis of the impact of groundwater pumping on local water supplies, including springs and the Gila River. We recommend that BLM not approve a land exchange until this information has been provided and the necessary assessments have been performed.

Section 5.2.3. Coordination with State and Federal Agencies: This section states that BLM will continue to coordinate with the Service regarding potential impacts to threatened and endangered species. In June of 1997 our office received a letter from the BLM in which we were invited to attend public scoping meetings. We responded by providing BLM with a list of endangered, threatened, proposed, and candidate species. To date, we have not received a biological assessment or evaluation containing species analyzes nor BLM's determinations of effect.

The Service appreciates the opportunity to provide comments on the DEIS If you have any questions or concerns please contact Mike Martinez or Don Metz.

David L. Harlow

- Lines 6-17. Direct, indirect and cumulative effects on potential habitat for T& E species occurring on the selected and offered lands are discussed in the Biological Assessment, submitted June, 1999 to USFWS.

- Lines 19-27. Requiring ASARCO to produce a detailed mining plan with exact locations and specifications for each mining facility is beyond the scope of a land exchange (please see general response no. 5, MPO). In addition, an analysis of specific impacts to surface water sources based on initial proposed engineering designs of mining facilities would not be accurate. This is because the environmental permitting process for any new mining facilities, required by the Clean Water Act (CWA) and State of Arizona, will likely modify the initial proposed engineering designs of mining facilities so as to reduce impacts to surface water and groundwater. For these reasons, Section 4.2.1.1 of the EIS discusses general impacts to surface water sources after ASARCO obtains the required CWA and Aquifer Protection Permits.

- Lines 29-33. A Biological Assessment was submitted to USFWS in June, 1999 and BLM intends to continue coordination with USFWS regarding potential impacts to T&E species. Following our understanding of the USFWS's preference for Section 7 consultation, the BA was not submitted until the Preferred Agency alternative was fully identified. Please see BLM's determinations for the BA under Section 4.1.5.

LETTER #61

Western Land Exchange Project

SOUTHWEST CENTER
FOR
BIOLOGICAL DIVERSITY

January 28, 1999

Shela McFarlin
Bureau of Land Management
Arizona State Office
222 N. Central Avenue
Phoenix, AZ 85004

SUBJECT: Comments on Ray Land Exchange/Plan Amendment

Dear Ms. McFarlin:

The Southwest Center for Biological Diversity is a non-profit conservation organization with over 4,000 members dedicated to the protection and recovery of threatened and endangered species and their habitats within the American Southwest and northern Mexico. The Western Land Exchange Project (WLXP) is a non-profit, membership organization conducting research, outreach, and advocacy toward reform in federal land exchange policy. This letter comprises our joint comments on the Draft EIS for the Ray Land Exchange/Plan Amendment.

The Southwest Center and WLXP are opposed to all of the action alternatives for this project.

The Ray project is part of a larger phenomenon that threatens public lands throughout the West. Each year, more than 300 land exchanges take place between the federal government and private interests. The law requires that they be implemented only where they serve the public interest, but it is increasingly evident that many land swaps are of questionable benefit to the public and ultimately better serve the private entities involved.

In the Southwest, mining companies are pursuing land exchanges with alacrity, because outright acquisition of the public lands on which they wish to operate allows them to avoid federal mining regulations. Acquisition through land trades-where the companies exchange private inholdings to the public-creates the illusion that they are acting in partnership with the government toward a public good. These trades can be made to appear as much in the public interest as they are in the interest of mining company expansion and profit. In reality, they are most often initiated by the private parties and they are driven by corporate objectives.

Our comments address concerns we have regarding federal land exchange policy that are relevant to the Ray proposal.

▸ Lines 34-38. It is true that some mining companies are proposing land exchanges, and were successful, which does relieve them of one federal layer of management. However, numerous permitting actions apply regardless of land ownership (see Table 1-5).

LETTER #61 (continued)

In the Federal Land Policy and Management Act of 1976 (FLPMA), "Congress declares that it is the policy of the United States that...the public lands be retained in Federal ownership, unless...it is determined that disposal of a particular parcel will serve the national interest (43 USC 1701(a)." The public interest is the central issue in land swaps, yet this seemingly simple concept is easily lost in the complexities of land exchange proposals. It is very difficult for citizens to evaluate the public benefits of these actions. The tradeoffs and impacts associated with land trades can rarely be assessed with confidence, because agencies generally do an inadequate job of analyzing and disclosing ecological impacts.

Moreover, a large number of BLM land exchanges yield a net loss of public lands. Despite FLPMA's clear intent that decisions favor the retention of public lands, the BLM continues to dispose of public lands at an alarming rate. Trades such as the Ray proposal, in which the public receives considerably less acreage than the private party, are very common.[1]

Data recently obtained by the Western Land Exchange Project indicate that in fiscal years 1990 through 1997, BLM land exchanges with private parties resulted in a net loss of 37,721 acres of public land in all the states for which data were available. During that time period, Arizona had the third-highest gain in BLM acreage, but this trend may change if current exchange proposals are any indication. Three land swaps currently proposed in Arizona (Ray,Dos Pobres/San Juan, and Morenci) would yield a net loss of 19,376 acres of public land.

While land exchange regulations require that the public interest be "well-served," they also define land exchanges as "real estate transactions between the Federal and non-Federal parties." This business relationship between the two parties may inherently conflict with the public interest, because the conditions of an agreement beneficial to the public is unlikely to meet the economic demands of the non-federal party.

Regulations state that the agency "shall reserve such rights or retain such interests as are needed to protect the public interest or shall otherwise restrict the use of Federal lands to be exchanged, as appropriate (43 CFR Ch. II 2200.0-6 (i))." However, even where deed restrictions could greatly improve a land exchange and protect values on public land to be traded, the agency seldom attaches conditions to land swaps, usually protesting that this would alienate the interests of the private party. The bottom line as to what constitutes an acceptable proposal is almost always established by the private proponent.

FLMPA regulations also require the BLM to consider a number of specific factors in determining whether or not a proposed exchange is in the public interest. These factors include: the need to achieve better management of federal lands, the needs of state and local residents, protection of fish and wildlife habitats, cultural resources, watersheds, and wilderness and aesthetic values, enhancement of recreation opportunities and public access, consolidation of lands, and promotion of multiple use values. In addition, the intended use of the selected lands may not "significantly conflict with established

[1] Other land exchanges with mining companies in Arizona include:

(1 Dos Pobres Land Exchange (Phelps Dodge)-17,000 public/3,858 private (public net loss, 78 percent).

(2) Morenci Land Exchange (Phelps Dodge)- 3,758 public/960-1,200 private (public net loss, 69 percent)

2

- Lines 3-8. Please see general response no.4, Public Interest Determination.
- Lines 10-12. It is true that exchanges are rarely balanced for acreage. Nowhere in FLPMA is it stated that acres acquired through exchange must be greater than acres disposed.
- Lines 14-18. Please see Table 4-20.
- Lines 20-23. Please see general response no.4, public interest determination.
- Lines 25-29. Please see Table 4-21 in Section 4.10.

LETTER #61 (continued)

management objectives on adjacent Federal lands and Indian trust lands." Both of these requirements must be documented by written findings and supporting rationale.

The stated purpose and need for the proposed exchange is primarily for Asarco to consolidate its holdings around mineral development areas at the Ray Mine. The BLM would acquire some desirable lands that meet objectives in the Kingman and Phoenix RMPs. However, the lands to be traded to Asarco are not identified for disposal in the Safford and Phoenix RMPs. so the proposal actually requires an RMP amendment.

As is now typical of federal land exchanges. it was Asarco. not the BLM, that initiated this proposal. and Asarco will reap the benefits.

Asarco has already profited immensely under patenting and lax mining laws and regulations. While this land exchange may allow further and greater profits, such private profits do not necessarily translate into the benefit for the public interest required by FLPMA and its implementing regulations.

This land exchange will facilitate expansion of an open pit copper mine, which will have disastrous impacts on both people and wildlife.

Appraisal Process/Equal Value

The appraisal process is the most controversial aspect of the land exchange program. Under the Freedom of Information Act, the BLM shields private parties from releasing full appraisal information. Land values are not released to the public until a decision notice is issued for the exchange, leaving little time for citizens to evaluate the assumptions used in the appraisal, review the final values, or challenge a decision on that basis.

While we strongly believe that the agency's practice of withholding private land values should cease. the short-term solution is for private parties to land exchanges to open appraisal records to the public as soon as appraisals are complete. Any entity wishing to exchange property with the public should consider this part of the protocol, and should be willing to demonstrate to citizens that the appraisal is fair and accurate. The public should, and will, continue to demand that appraisal criteria and results be available for review throughout the planning process. In the case of mining-related exchanges, data released to the public must include mineral reports and valuation.

There is a solid basis for concern about the integrity of the appraisal process. Both the Department of Interior Inspector General's Office and the General Accounting Office have found faulty appraisals to be an ongoing problem in land exchanges. Agency appraisers often assign overly low values to public lands to be traded and inflated values to private lands, resulting in the loss of millions of dollars to the public. Other aspects of land exchange negotiation have given the non-federal parties various advantages that render the trades unequal.[2]

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2 These findings are documented in reports from the General Accounting Office (GAO), the Department of the Interior Office of Inspector General (OIG), and USDA OIG listed below.

(a) GAO Report # GAO/RCED-87-9, "Federal Land Acquisition: Land Exchange Process Working But Can Be Improved," February 1987.

- Lines 7-8. The EIS is a combined plan amendment and land exchange analysis per 43 CFR 1600 planning regulations.
- Lines 15-16. The land exchange does not approve mining which is the foreseeable use under all the alternatives.
- Lines 20-35. Appraisals are available for public examination, and copying, when they are complete, and reviewed and accepted by BLM. If the appraisal contains proprietary geologic or financial information protected under 43 CFR 2.13, only that information is not available for public inspection, in keeping with the legal rights of others under the Freedom of Information Act.

LETTER #61 (continued)

Due to BLM's policy of making exchange appraisals public knowledge only when a decision notice is issued, it very difficult for the public to cover all substantive issues on this or any other land exchange. However, based on the information contained in the DEIS, we are very concerned that the federal government is not entering into a fair and equal exchange as required by Federal Land Policy and Management Act regulations at 43 C.F.R. § 2200.6 (c).

While we understand that federal exchanges must obtain equal value rather than equal acreage, we are concerned about the fact that the public would acquire 2,876 fewer acres than Asarco. This obviously means that a lower per-acre value has been assigned to the land in the mining area. Land exchange regulations require that appraisals be based on the "highest and best use of the land." What has been determined to be the highest and best use of the selected land? Does this appraisal take into account the millions of dollars that Phelps Dodge will save by acquiring this land?

Conflict of Interest

Environmental analysis, surveys, appraisals, and other data collection may be tainted by undue influence on the part of the private proponent. It is standard practice for the non-federal party to pay at least half the cost of processing the exchange. The BLM Handbook actually advises staff to get "maximum funding from the proponent." Under these policies, the private traders assume a sort of "ownership" of the land exchange process. Any component of the project that they fund has the potential to be weighed in their favor.

Worse, the Western Land Exchange Project learned last year that the salaries of Arizona BLM land exchange staff (including those assigned to this project) are paid by Asarco and the other private parties working on land exchanges with the agency. At the very least, this creates the appearance of conflict of interest, as staff may have a built-in incentive to decide in the interest of the private party funding their positions.

Purchase Alternative

Purchase of lands through Land & Water Conservation Fund (LWCF) money is an alternative to be considered in any federal land exchange, yet in the rare environmental analysis that mentions an LWCF alternative, it is invariably dropped from thorough evaluation. The BLM has an LWCF "mantra" which says that funding is too uncertain for purchase to be seriously considered as an alternative to land exchange. This self-fulfilling prophecy prevents the public from being able to compare the benefits of purchase to the drawbacks of exchange.

(b) GAO Report # GAO/RCED-90-5, "Federal Land Management: Chandler Lake Land Exchange Not in the Government's Best Interest," October 1989.
(c) OIG Audit Report No. 91-I-968, "Land Exchange Activities, Bureau of Land Management," June 1991.
(d) OIG Audit Report No. 92-I-833, "Department of the Interior Land Acquisitions Conducted With the Assistance of Nonprofit Organizations," May 1992.
(e) USDA OIG Audit Report No. 08003-02-SF, "Forest Service, Humboldt-Toiyabe National Forest Land Adjustment Program, Fiscal Years 1990 to 1997, Sparks, Nevada." August 1998. (These Forest Service exchanges also involved the Bureau of Land Management).

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- Lines 7-11. The highest and best use of the selected lands is addressed extensively in the appraisals. It varies by parcel, but includes mine support property for the lands that are not mineralized or valuable for mineral extraction, and mineral development for the properties with economically viable mineral resources.
- Line 11. Phelps Dodge is not involved in the Ray Land Exchange.
- Lines 21-23. BLM has set up a contribution fund paid by Asarco for salaries and other costs related to the exchange under a Memorandum of Agreement. The ID Team independently reviews all baseline studies and draft EIS documents for acceptability.
- Lines 27-31. The ID Team considered whether offered lands could be acquired by LWCF funding given the availability of LWCF funds and the overall priority list for such funding. If the exchange is not approved, the offered lands may be re-considered for LWCF funding provided that parcels have not already been sold by Asarco.

LETTER #61 (continued)

We believe that if the BLM provided citizens with this clear choice, LWCF would have a growing constituency among Americans. Indeed, the 1998 congressional budget appropriated $699 million of the approximately $900 million LWCF, the highest appropriation since 1978.

Moreover, the Clinton Administration has recently announced a Lands Legacy initiative that would appropriate one billion dollars for land protection, including more than $413 million for fedeal land acquisition. Rather than treat the Fund as a lost cause, the BLM should actively promote LWCF purchase as an alternative to land swaps.

Regulatory Impacts of the Land Exchange

The DEIS operates under the false assumption that no environmental impacts will result from the proposed land exchange. Because Asarco has the right to mine this area under the 1872 mining law, the argument goes, the land exchange will not create any effects that wouldn't occur under the No Action alternative.

Table 1-5 on page 1-11 outlines permits and approvals that would be required once Asarco acquired the federal lands. However, the DEIS soft-pedals the removal of protection found in BLM's mining regulations at 43 CFR § 3809. Even a cursory comparison of these regulations with Arizona's state mining regulations demonstrates that the effect will be significant.

Following is a list of requirements and prohibitions found at 43 CFR § 3809 which would no longer apply to Asarco's mining operations if the land exchange were completed:

- The overriding purpose behind § 3809, "to prevent unnecessary or undue degradation of Federal lands."
- Plan of operations to ensure unnecessary or undue degradation does not occur, including reclamation requirements. This plan must be approved by a federal official before mining can commence.
- Amendments to the plan of operations which are required when a significant modification to the approved plan is necessary. NEPA public participation under required for plan amendments would also be lost.
- Reclamation requirements.
- Financial guarantees such as bonding, to ensure that proper reclamation occurs.
- Noncompliance penalties, including fines and jail time
- Periodic inspections to ensure compliance by federal officials.
- Maintenance of data on the mine, accessible to the public through the Freedom of Information Act (FOIA).

It is clear that the land exchange would fundamentally shift the legal framework surrounding mining

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Lines 11-37. In the absence of detailed mining plans and environmental permits, which are not required for a land exchange, the level of environmental protection that will occur in the Ray Mine area with and without BLM oversight is highly speculative. As a result, such a discussion is limited to Chapter 1.

Reclamation of private lands is regulated by the Arizona State Mine Inspector through the Mined Land Reclamation plan. Table E-1 in Appendix E, provides a comparison of federal and state standards including approval and compliance, site reclamation standards, acres, timing and bonding on financial assurance. In addition to state reclamation regulations, key federal laws will continue to apply to mining operations, permit processing and approvals under major environmental laws such as the CAA, CWA and will continue to be under the jurisdiction of these agencies. Additionally, under private land, local county and state regulations such as APP still apply as these do currently. The loss of BLM regulations does not reduce the other federal and state regulatory provisions to mining on private lands.

An example of how such differences will result in tangible, on-the-ground effects pertains to reclamation requirements. While federal regulations at 43 CFR § 3809 are fairly comprehensive, Arizona's reclamation laws have been largely written by the mining industry and are actually more of a "safety" than an "environmental" act. Acceptable post-mining land uses under state law include: grazing and other agricultural land use objectives, developed water resources and water management projects, fish and wildlife habitat, forestry, tourism, or mining or re-mining. In addition, mining operators are frequently granted variances from reclamation if they don't fall into any of the above categories.

Unreclaimed mining operations can have devastating effects upon wildlife: the number of birds alone that would be killed by acid generating pit lakes and cyanide heap leach piles is staggering. Yet none of the environmental effects of using state rather than federal mining regulations are discussed in the DEIS. This failure constitutes a serious violation of NEPA.

Conclusion

We do not believe that the Ray Land Exchange would serve the public interest. We are opposed to the net loss of public land that would result from this proposal. We do not believe bringing the "offered" lands into public ownership justifies relinquishing ownership and federal land management authority on the "selected" lands.

Federal mining laws are archaic and regulations are inadequate. However, outright acquisition of the public lands by Asarco would allow the company to operate under state mining regulations that are even less protective of the environment. The DEIS fails to address the significant impacts of reduced regulation on the lands proposed for trade and does not provide sufficient rationale for exchanging public lands to Asarco.

Yours truly

Janine Blaeloch
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Western Land Exchange Project
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cc Senator John McCain
Senator John Kyl
Secretary of Interior Bruce Babbitt
BLM Director Tom Fry
BLM Arizona State Director Denise Meredith

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GLOSSARY

Agreement to Initiate a Land Exchange (ATI). A legal document that outlines the agreement between the BLM and the proponent (for this project, the proponent is Asarco) regarding the initiation of a proposed land exchange.

Activity Plan. A more detailed plan of actions to implement planning decisions over a specified time period; e.g., allotment management plans; recreation area management plans; habitat management plans; or cultural resource project plans.

Adit. A nearly horizontal passage in an underground mine, driven from the surface, by which a mine may be entered, ventilated, and/or dewatered.

Allotment. A land area where one or more operators graze their livestock. The allotment generally consists of public land but may include parcels of private and state-owned lands. The number of livestock and season of use are stipulated for each allotment by the landowner.

Alluvial. Made of soil and sand left by rivers or floods.

Animal Unit Month (AUM). The amount of forage needed to sustain one cow or its equivalent for one month.

Annual (Ephemeral) Plant. A plant that completes its life cycle and dies in one year or less. (Range Term Glossary Committee 1974.)

Appraisal. Act of placing an estimated value on an asset or assets.

Aquifer. A body of rock that is sufficiently permeable to conduct groundwater and to yield economically significant quantities of water to wells and springs.

Artifact. Any object showing human workmanship of modification especially from a prehistoric or historic culture.

Class III Survey. An archaeological survey covering 100% of an area. Transects walked are no more than twenty meters apart.

Code of Federal Regulations (CFR). The compilation of federal regulations adopted by federal agencies though a rule-making process.

Critical Habitat. Defined in Section 3(5)(A) of the Endangered Species Act as: "(I) the specific areas within the geographic area occupied by a species...on which are found those physical or biological features (I) essential to the conservation of the species, and (II) that may require special management considerations or protection; and (ii) specific areas outside the geographical area occupied by the species at the time it is listed ... upon a determination by the Secretary that such areas are essential for the conservation of the species."

Cultural Resources. Those fragile and nonrenewable remains of human activity, occupation or endeavor, reflected in district, sites, structures, building, objects, artifacts, ruins, works of art, architecture and natural features that were of importance in past human events. These resources consist of: 1) physical remains, 2) areas where significant human events occurred, even though evidence of the event no longer remains, and 3) the environment immediately surrounding the actual resource.

Cumulative Impact. The impact on the environment which results from incremental impact of the action when added to other past, present, and reasonably foreseeable future actions; cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Development Rock. Also called overburden; rock of low economic value that is removed during mining operations. It is typically stockpiled and used to construct roads, yards, building pads, dams, and embankments.

Direct Impact. Effects that are caused by the action and that occur at the same time and place.

Dispersed Recreation. Recreation activities that do not require developed sites or facilities, e.g. hiking, birdwatching.

Disposal. Transferring of land out of federal ownership by various methods such as exchange, sale, Recreation and Public Purposes Act, and/or state indemnity selection.

District. A BLM-administrative area comprised of one or more resource areas.

Effects. "Effects" include a) Direct effects, which are caused by the action and occur at the same time and place. b) Indirect affects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems. Effects and impacts as used in these regulations are synonymous. Effects includes ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Effects may also include those resulting from actions which may have both beneficial and detrimental effects, even if on balance the agency believes that the effect will be beneficial.

Endangered or Threatened Species. Any species in danger of extinction throughout all or a significant portion of its range. This definition excludes species of insects that the Secretary of the Interior determines to be pests and whose protection under the Endangered Species Act would present an overwhelming and overriding human risk. A threatened species is any species likely to become endangered within the foreseeable future throughout all of a significant part of its range.

Environmental Impact Statement. A detailed statement required by the National Environmental Policy Act (NEPA) when an agency proposes a major federal action significantly affecting the quality of the human environment. There is usually a Draft EIS followed by a Final EIS.

Eoliansoil material. Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

Equal Monetary Value. The dollar value of the selected and offered lands must be within 25 percent of each other.

Full Estate. Includes the mineral and surface estate of a parcels of land.

ID Team. Interdisciplinary Team. A group of agency resource specialists with various backgrounds who are responsible for preparation and review of the NEPA document for a proposed action.

Impact. A modification in the status of the environment brought about by the action.

Indirect Impact. Effects caused by the action and are later in time or are farther removed in distance but are still reasonably foreseeable; indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density, or growth rate and related effects on air and water and other natural systems, including ecosystems.

LTMA. Long-Term Management Area. A designation used by the Safford District for geographic areas within the district as identified in the amended RMP in which the BLM seeks to retain or acquire lands in order to maintain its long-term management presence.

Leaching. Extracting a soluble metallic compound from an ore by selectively dissolving it in a suitable solvent, such as sulfuric acid.

Leasable Minerals. Those minerals or materials designated as leasable under the Minerals Leasing Act of 1920. They include coal, phosphate, asphalt, sulphur, potassium, sodium, oil, and gas. Geothermal resources are also leasable under the Geothermal Steam Act of 1970. Development of these minerals on public lands requires that a royalty be paid to the U.S. government.

Loam. A fertile soil that is made up of organic matter mixed with clay, sand, and silt. Loams differ in their ratios of clay, sand, and silt, which influences which types of plants they can support.

Locatable Minerals. Any mineral that can have a mining claim filed on it under the Mining Law of 1872 as amended, e.g. copper, gold, silver.

Mineral Entry. Authority to enter public lands for the purposes of exploring for and developing minerals in an orderly, organized manner.

Mineralized Area. An area that has exposures or sub-surface deposits of potentially valuable minerals.

Mining District. A section of country, usually designated by name, that has described or understood boundaries where minerals are found and mined under rules and regulations prescribed by the miners, consistent with the Mining Law of 1872.

Mining Notice of Intent (NOI). Similar to a Mining Plan of Operations but involves no more than five acres of surface disturbance.

Mining Plan of Operations (MPO). As required by 43 CFR 3809; Operators submit plans of operation to the BLM that outline the name and address of the operator; location of the proposed area of operation; and information sufficient to describe the type of operation proposed, the type and standards of roads, the means of transportation to be used, the period when the proposal will take place, and measures to be taken to meet the requirements for environmental protection.

Mitigate, Mitigation. Mitigation includes (a) avoiding the impact altogether by not taking a certain action or parts of an action, (b) minimizing impacts by limiting the degree or magnitude of the action and its implementation, (c) rectifying the impact by repairing, rehabilitating, or restoring the affected environment, (d) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action, (e) compensating for the impact by replacing or providing substitute resources or environments.

National Environmental Policy Act (NEPA). Legislative act passed in 1969 as the national charter for analysis of impacts of federal actions upon the quality of the human environment. NEPA establishes policy, sets goals, and provides means for carrying out the policy. Regulations from 40 CRF 1500-1508 implement the act.

National Register of Historic Places (NRHP). A list, kept by the Secretary of the Interior, of districts, sites, buildings, structures, and objects significant in American history, architecture, archaeology, and culture.

Notice of Decision. A formal notification of an agency decision published in the Federal Register; e.g., the agency decision in the realty process regarding the disposal or acquisition of lands. Notice of Exchange Proposal. Notification of a realty action, a proposed land exchange, that is published in the federal register per the requirements of FLEFA and FLPMA.

Notice of Intent. First formal step in the EIS process, consisting of a notice published in the Federal Register that an Environmental Impact Statement will be prepared and considered for a proposed action.

Offered Lands. The privately-owned lands that are being offered in exchange for public lands in a land exchange; cf. "selected lands."

Ore. A mineral deposit of high enough quality to be mined at a profit.

Patent. A document conveying title to land from the U.S. government to private ownership.

Patented Claims. Federal mineral claims that have become private lands secured from the U.S. government by a private entity through compliance with the Mining Law of 1872.

Ph. A measure of the acidity or alkalinity of a solution.

Priority Species. Animal and plant species and habitats having special significance for management. These include endangered, threatened, and special status species; species of high economic or recreational value; and aquatic, wetland, and riparian habitats. Also included are populations of animals or plants recognized as significant for one or more factors such as density, diversity, size, public interest, remnant character, or age.

Record of Decision. A public document that reflects the agency's final decision on a proposed project, rationale behind that decision, and commitments to monitoring and mitigation.

Resource Area. The smallest administrative subdivision of a BLM district.

Resource Conservation Area. A management designation that provides management consideration to areas with special resource values.

Resource Management Plan. A planning document developed by the BLM that provides guidelines and direction for making land tenure decisions for short-term and long-term management of public lands and resources within a district.

Right-of-way (ROW). A legal right to use, occupy or access land or water areas for specified purposes.

Riparian. Plant communities occurring in association with any spring, lake, river, stream, creek, wash, arroyo, or other body of water or channel having banks and bed through which waters flow at least periodically. These habitats are generally characterized or distinguished by a difference in plant species composition or an increase in the size and/or density of vegetation as compared to upland areas.

Saleable Minerals. Common variety minerals used mostly for construction projects (e.g. sand and gravel). These are disposed of by the government either through sales or special permits to local governments.

Saline. Containing salt or salts

Scope. Scope consists of the range of actions, alternatives, and impacts to be considered in the Environmental Impact Statement.

Scoping. The process of involving potentially interested and/or affected parties in identifying the issues of concern that will be addressed in the EIS.

Section. A 1-square mile area (640 acres) forming one of the 36 subdivisions of a township.

Section 7. The section of the Endangered Species Act of 1973, as amended, outlining procedures for interagency cooperation to conserve Federally listed species and designated critical habitats. Section 7 consultation refers to the various section 7 processes, including both consultation and conference if proposed species are involved [50 CFR §402].

Selected Lands. The publicly-owned lands that have been selected by the project proponent for acquisition in a land exchange; cf. "offered lands".

Sensitive species. Those species designated by a BLM State Director, in cooperation with a state agency responsible for managing the species, as sensitive. Sensitive species are those species (1) under status review by the Fish and Wildlife Service/National Marine Fisheries Service; (2) whose numbers are declining so rapidly that federal listing may become necessary; (3) with typically small and widely dispersed populations, or; (4) inhabiting ecological refugia or other specialized or unique habitats.

Shaft. A vertical opening to an underground mine.

Solution Extraction/Electrowinning. A process to extract practically pure copper from sulfuric acid solution that has been percolated through stockpiles of copper-bearing rock. The process consists of four steps: leaching stockpiles with acid, extracting copper from leaching solution to produce "loaded organic," mixing electrolyte with loaded organic to produce "rich electrolyte," and passing electric current through rich electrolyte to winnow out the pure copper. This process replaces the need for a smelter for oxidized ores.

Special status species. A grouping of wildlife species that includes proposed species, threatened and endangered species, candidate species, state listed species, and sensitive species.

Split Estate. Includes only the surface estate of a parcel of land.

Stockpile. An accumulation of ore, stone, or other mined or quarried material, which provides a steady source of supply for the processing plant.

Tailings. The remains of milled ore that are regarded as too poor to be treated further.

Upland Vegetation. Vegetation outside riparian zones.

Valid Existing Rights. Legal interests attached to land or mineral estate that cannot be divested from the estate until that interest expires or is relinquished.

Visual Resource Management (VRM) Classes. Classification containing specific objectives for maintaining or enhancing visual resources, including the kinds of structures and modifications acceptable to meet established visual goals.

Visual Resources. The visible physical features on the landscape (land, water, vegetation, and structures); scenery.

Water Table. The level in the saturated zone at which the pressure is equal to the atmospheric pressure.

Watershed. The geographic region from which water drains into a particular stream, river, or body of water. A watershed includes hills, lowlands, and the body of water into which the land drains. Watershed boundaries are defined by the ridges or divides separating them.

Wetlands. Areas that are inundated by surface or ground water with a frequency sufficient to support (and under normal circumstances do or would support) a prevalence of vegetation or aquatic life that required saturated or seasonally saturated soil conditions for growth and reproduction.

Wilderness. An area formally designated by Congress as part of the National Wilderness Preservation System. A wilderness, in contrast with those areas where people and their works dominate the landscape, is recognized as an area where the earth and its community of life are untrammeled, where people visit but do not remain. It is an area of undeveloped land retaining its primeval character and influence, without permanent improvements or human habitation, that is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by forces of nature, with the imprint of human's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least 5,000 acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired conditions; and (4) may also contain ecologic, geologic, or other features of scientific, education, scenic, or historic value.

Xeroriparian. Riparian habitats associated with an ephemeral water supply. These communities typically contain plant species also found in upland habitats, however, these plants are typically larger and/or occur at higher densities than in adjacent uplands.

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APPENDIX A

LEGAL DESCRIPTION OF SELECTED AND OFFERED LANDS

LEGAL DESCRIPTION OF SELECTED AND OFFERED LANDS

Mineral Estate Only. Surface estate owned by the State of Arizona.

PARCEL CB-5 Township 3 South, Range 12 East G&S.R.B.& M.

Section 24	Acres	Total Acres
SE¼	160.00	
		160.00

PARCEL RM-7 Township 2 South, Range 13 East G&S.R.B.&M.

Section 35	Acres	Total Acres
W½NW¼	80.00	
		80.00

PARCEL RM-8 Township 3 South, Range 13 East G&S.R.B.&M.

Section 9	Acres	Total Acres
lot 1	34.89	
lot 2	17.46	
E½NE¼	80.00	
SW¼NE¼	40.00	
W½SE¼	80.00	
		252.35

Section 10	Acres	Total Acres
lot 1	51.10	
lot 2	37.97	
lot 4	21.06	
N½NW¼	80.00	
SW¼NW¼	40.00	
		230.13

PARCEL RM-9 Township 3 South, Range 13 East G&S.R.B.&M.

Section 11	Acres	Total Acres
lot 3	29.97	
		29.97

PARCEL RM-11 Township 3 South, Range 14 East G&S.R.B.&M.

Section 6	Acres	Total Acres
lot 4	35.29	
lot 5	35.25	
lot 12	17.60	
		88.14

Township 2 South, Range 14 East G&S.R.B.&M.

Section 31	Acres	Total Acres
lot 3	35.42	
lot 4	35.34	
		70.76

PARCEL RM-14 Township 3 South, Range 13 East G&S.R.B.&M

Section 12		Acres	Total Acres
lot 1		21.11	
lot 2		26.63	
lot 5		39.31	
lot 6		39.93	
lot 7	excluding patent Nos. 02-62-0014, 02-64-0243 and 02-69-0016,	5.26	
SE ¼	excluding patent No. 02-64-0243	96.51	
			228.75

Township 3 South, Range 14 East G&S.R.B.&M.

Section 7	Acres	Total Acres
lot 2	22.73	
lot 3	35.19	
lot 4	35.21	
lot 8	28.28	
		121.41

PARCEL RM-15 Township 3 South, Range 14 East G&S.R.B.&M.

Section 17	Acres	Total Acres
lot 4	39.51	
SW¼SW¼	40.00	
		79.51

Section 18	Acres	Total Acres
lot 5	32.66	
lot 6	31.90	
lot 7	39.99	
lot 8	19.92	
lot 9	42.10	
SE¼SE¼	40.00	
		206.57

Mineral estate only. The surface estate owned by Asarco Inc.

PARCEL CB-4 Township 3 South, Range 13 East G&S.R.B.&M

Section 30	Acres	Total Acres
lot 1	28.32	
lot 2	25.36	
lot 3	29.32	
lot 4	37.41	

Section 30, continued	Acres	Total Acres
lot 5	37.49	
lot 6	37.56	
E½NE¼	80.00	
SW¼NE¼	40.00	
SE¼NW¼	40.00	
E½SW¼	80.00	
SE¼	160.00	
		595.46

Mineral estate only. The surface estate owned by Asarco Santa Cruz Inc., (ASCI) owned by ASARCO Incorporated (ASARCO) and Freeport-McMoRan Inc., doing business as the Santa Cruz Joint Venture (SCJV).

PARCEL CG-1 Township 6 South, Range 4 East G&S.R.B.&M

Section 12	Acres	Total Acres
lot 1	38.62	
lot 2	38.25	
W½NE¼	80.00	
		156.87

PARCEL CG-2 Township 6 South, Range 4 East G&S.R.B.&M

Section 23	Acres	Total Acres
NW¼	160.00	
		160.00

PARCEL CG-3 Township 6 South, Range 4 East G&S.R.B.&M

Section 24	Acres	Total Acres
W½	320.00	
		320.00

TOTAL ACREAGE FOR MINERAL ESTATE **2,779.92**

Surface and Mineral Estate

PARCEL CB-1 Township 3 South, Range 12 East, G&SRB&M

Section 25	Acres	Total Acres
SW¼	160.00	
E½	320.00	
		480.00

Section 26	Acres	Total Acres
ALL	640.00	
		640.00

PARCEL CB-2 Township 3 South, Range 13 East, G&SRB&M

Section 8	Acres	Total Acres
S½SE¼SE¼	20.00	
SE¼SW¼SE¼	10.00	
E½SW¼SW¼SE¼	5.00	
SE¼NW¼SW¼SE¼	2.50	
S½NE¼SW¼SE¼	5.00	
SW¼NW¼SE¼SE¼	2.50	
		45.00

Section 17	Acres	Total Acres
E½	320.00	
SW¼	160.00	
SE¼NW¼	40.00	
S½S½SW½NW¼	10.00	
N½SW¼SW¼NW¼	5.00	
E½NE¼NW¼	20.00	
SW¼NE¼NW¼	10.00	

Section 17, continued	Acres	Total Acres
N½SE¼SW¼NW¼	5.00	
		570.00

PARCEL CB-3 Township 3 South, Range 13 East, G.&S.R.B.&M

Section 19	Acres	Total Acres
lot 1	47.87	
lot 2	37.37	
lot 3	37.35	
lot 4	32.15	
lot 5	39.64	
lot 6	49.12	
lot 7	48.03	
lot 8	26.34	
lot 9	0.03	
lot 10	24.07	
NE¼NW¼	40.00	
NE¼NE¼	40.00	
E½SE¼	80.00	
		501.97

Section 20	Acres	Total Acres
W½NW¼	80.00	
W½E½NW¼	40.00	
NW¼SW¼	40.00	
W½NE¼SW¼	20.00	
W½W½SW¼SW¼	10.00	
		190.00

PARCEL CH-1 Township 4 South, Range 15 East, G&SRB&M

Section 22 & 27	Acres	Total Acres
Tract 37	262.72	
		262.72

PARCEL CH-2 Township 4 South, Range 15 East, G&SRB&M

Section 27	Acres	Total Acres
Tract 39	7.55	
		7.55

PARCEL CH-3 Township 4 South, Range 15 East, G&SRB&M

Section 27	Acres	Total Acres
Tract 38	1.91	
		1.91

PARCEL CH-4 Township 5 South, Range 15 East, G&SRB&M

Section 11	Acres	Total Acres
N½NE¼	80.00	
		80.00

PARCEL CH-5 Township 5 South, Range 15 East, G&SRB&M

Section 28	Acres	Total Acres
S½	320.00	
NW¼	160.00	
		480.00

PARCEL RM-1 Township 2 South, Range 13 East, G.& S.R.B.& M.

Section 34	Acres	Total Acres
W½NE¼	80.00	
NW¼	160.00	
N½SW¼	80.00	
SW¼SW¼	40.00	
lot 2	32.96	
lot 3	28.09	
lot 4	1.62	
lot 8	0.36	
		423.03

PARCEL RM-2 Township 2 South, Range 13 East, G&SRB&M

Section 34	Acres	Total Acres
Lot 9	5.23	
		5.23

PARCEL RM-3 Township 3 South, Range 13 East, G&SRB&M

Section 2	Acres	Total Acres
lot 12	5.15	
		5.15

PARCEL RM-4 Township 3 South, Range 13 East, G&SRB&M

Section 2	Acres	Total Acres
lot 13	2.06	
		2.06

PARCEL RM-5 Township 3 South, Range 13 East, G&SRB&M

Section 10	Acres	Total Acres
lot 5	0.02	
		0.02

PARCEL RM-6 Township 3 South, Range 13 East, G&SRB&M

Section 11	Acres	Total Acres
lot 11	0.08	
lot 12	0.49	
lot 13	0.39	
lot 14	0.02	
		0.98

PARCEL RM-10 Township 3 South, Range 13 East, G&SRB&M

Section 13	Acres	Total Acres
lot 4	24.62	
lot 8	38.81	
lot 8	21.58	
lot 10	6.04	
lot 11	11.62	
lot 12	8.50	
lot 13	35.69	
lot 14	20.57	
SE¼NE¼	40.00	
		207.43

Township 3 South, Range 14 East, G&SRB&M

Section 18	Acres	Total Acres
lot 1	35.20	
lot 2	35.10	
lot 10	33.38	
lot 11	34.84	
E½SW¼	80.00	
W½SE¼	80.00	
		378.52

Section 19	Acres	Total Acres
lot 1	34.86	
E½NW¼	80.00	
NE¼	160.00	
		274.86

PARCEL RM-12 Township 3 South, Range 13 East, G&SRB&M

Section 1	Acres	Total Acres
lot 3	39.73	
lot 4	39.61	
S½NW¼	80.00	
		159.34

PARCEL RM-13 Township 3 South, Range 13 East, G&SRB&M

Section 1	Acres	Total Acres
lot 5	34.59	
lot 6	37.87	
lot 7	6.50	
NW¼SE¼	40.00	
		118.90

PARCEL RM-14 Township 3 South, Range 14 East, G&SRB&M

Section 7	Acres	Total Acres
lot 11	0.21	
		0.21

PARCEL RM-16 Township 3 South, Range 14 East, G&SRB&M

Section 20	Acres	Total Acres
NW¼NW¼	40.00	
		40.00

PARCEL RM-17 Township 3 South, Range 13 East, G.&S.R.B.&M

Section 22	Acres	Total Acres
S½	320.00	
		320.00

Section 23	Acres	Total Acres
W½SW¼	80.00	
		80.00

Section 26	Acres	Total Acres
W½W½	160.00	
		160.00

Section 27	Acres	Total Acres
E½NW¼	80.00	
E½	320.00	
		400.00

Section 34	Acres	Total Acres
E½NE¼	80.00	
NW¼NE¼	40.00	
		120.00

Section 35	Acres	Total Acres
W½NW¼	80.00	
SW¼	160.00	
		240.00

PARCEL RM-18 Township 3 South, Range 14 East, G&SRB&M

Section 33	Acres	Total Acres
NW¼	160.00	
S½	320.00	
		480.00

Section 34	Acres	Total Acres
S½SW¼	80.00	
		80.00

Township 4 South., Range 14 East, G&SRB&M

Section 3	Acres	Total Acres
lot 3	30.74	
lot 4	30.51	
S½NW¼	80.00	
SW¼	160.00	
		301.25

Section 4	Acres	Total Acres
lot 1	35.04	
lot 2	35.13	
lot 3	35.23	
lot 4	26.94	
lot 5	30.73	
lot 6	30.95	
lot 7	31.17	
S½NE¼	80.00	
SE¼NW¼	40.00	
E½SW¼	80.00	
SE¼	160.00	
		585.19

Section 5	Acres	Total Acres
lot 1	36.12	
lot 2	41.52	
lot 3	38.51	
lot 4	39.94	
Section 5, continued	Acres	Total Acres
lot 5	38.52	
lot 6	38.52	
lot 7	43.44	
lot 8	40.00	
lot 9	39.67	
lot 10	40.12	
lot 11	39.13	
lot 12	39.67	
		475.16

Section 8	Acres	Total Acres
E½NE1/3	80.00	
		80.00
TOTAL ACREAGE		**8,196.48**

TOTAL SELECTED ACREAGE

MINERAL ESTATE ONLY	**2,779.92**
SURFACE & SUBSURFACE	**8,196.48**
TOTAL	**10,976.40**

LEGAL DESCRIPTION OF OFFERED (PRIVATE) LANDS

KNISELY RANCH

Township 25 North, Range 18 West, G&SRB&M

Section 4	Acres	Total Acres
SW¼NW¼	40.00	
		40.00

Section 17 (surface estate only)	Acres	Total Acres
E½NE¼	80.00	
		80.00

Section 20	Acres	Total Acres
SE¼SE¼	40.00	
		40.00

GILA RIVER PARCEL AT COCHRAN

Township 4 South, Range 12 East, G&SRB&M

Section 6	Acres	Total Acres
S½ SE¼		
N½ SE¼ (surface estate only)	160.00	
		160.00

Section 7	Acres	Total Acres
NE¼	160.00	
		160.00

SACRAMENTO VALLEY PARCEL

Township 19 North, Range 19 West, G&SRB&M

Section 23 (surface estate only)	Acres	Total Acres
W½SE¼	80.00	
NE¼SE¼	40.00	
		120.00

MCCRACKEN MOUNTAIN PARCELS

Township14 North, Range 14 West, G&SRB&M

Section 19	Acres	Total Acres
lot 1	37.93	
lot 2	38.05	
lot 3	38.15	
lot 4	38.27	
E½W½	160.00	
E½	320.00	
		632.40

Section 31	Acres	Total Acres
lot 1	38.27	
lot 2	38.43	
lot 3	38.57	
lot 4	38.73	
E½W½	160.00	
E½	320.00	
		634.00

Township 14 North, Range 15 West, G&SRB&M

Section 3	Acres	Total Acres
lot 1	39.35	
lot 2	39.40	
lot 3	39.46	
lot 4	39.51	
S½N½	160.00	
S½	320.00	
		637.72

Section 9	Acres	Total Acres
ALL	640.00	
		640.00

Section 11	Acres	Total Acres
ALL	640.00	
		640.00

Section 15	Acres	Total Acres
ALL	640.00	
		640.00

Section 23	Acres	Total Acres
ALL	640.00	
		640.00

Section 25	Acres	Total Acres
ALL	640.00	
		640.00

Section 27	Acres	Total Acres
ALL	640.00	
		640.00

Section 35	Acres	Total Acres
ALL	640.00	
		640.00

TOMLIN PARCELS

Township 15 North, Range 13 West, G&SRB&M

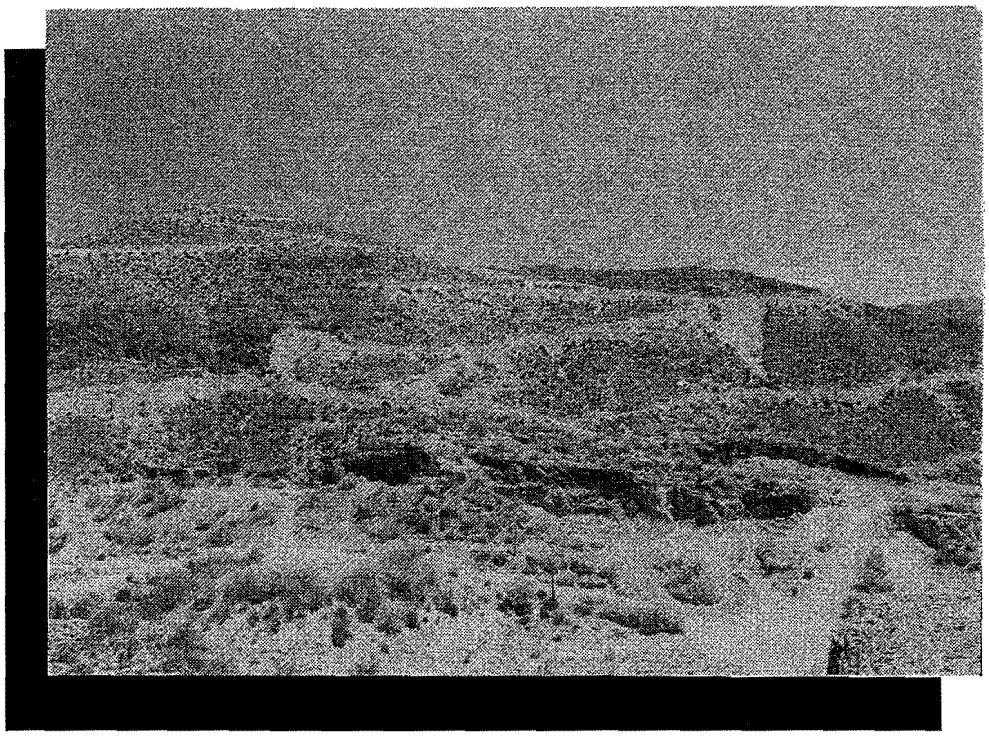
Section 19	Acres	Total Acres
lot 3	36.85	
lot 4	36.95	
E½SW¼	80.00	
		153.80

Section 35	Acres	Total Acres
SW¼SW¼	40.00	
N½SE¼	80.00	
SE¼SE¼	40.00	
		160.00

TOTAL OFFERED LANDS **7,297.92**

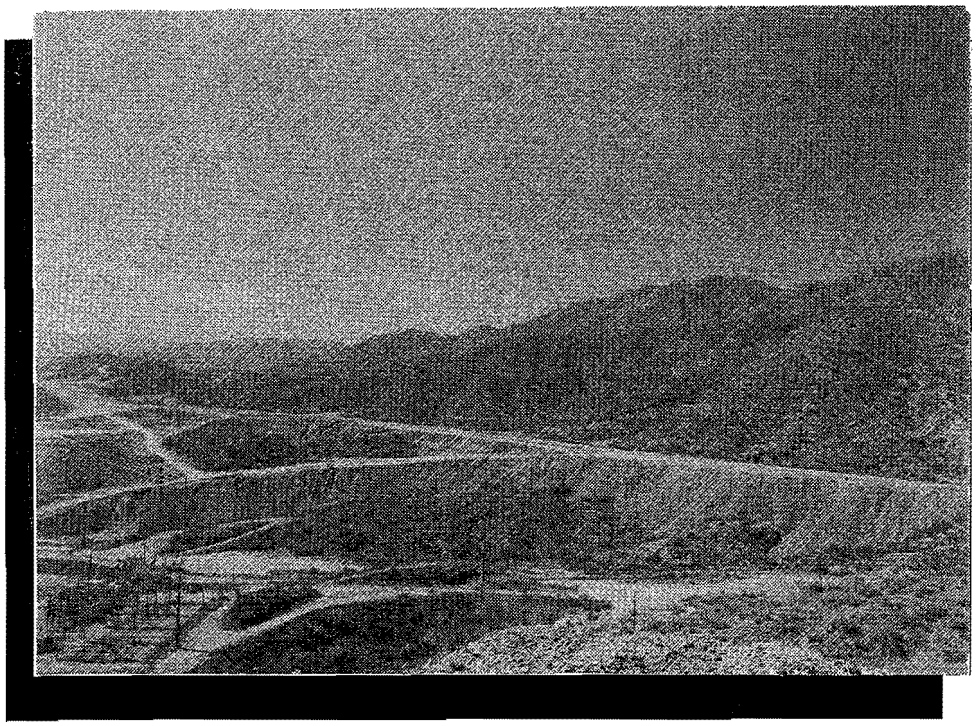
APPENDIX B

PHOTOGRAPHS FOR SELECTED AND OFFERED LANDS

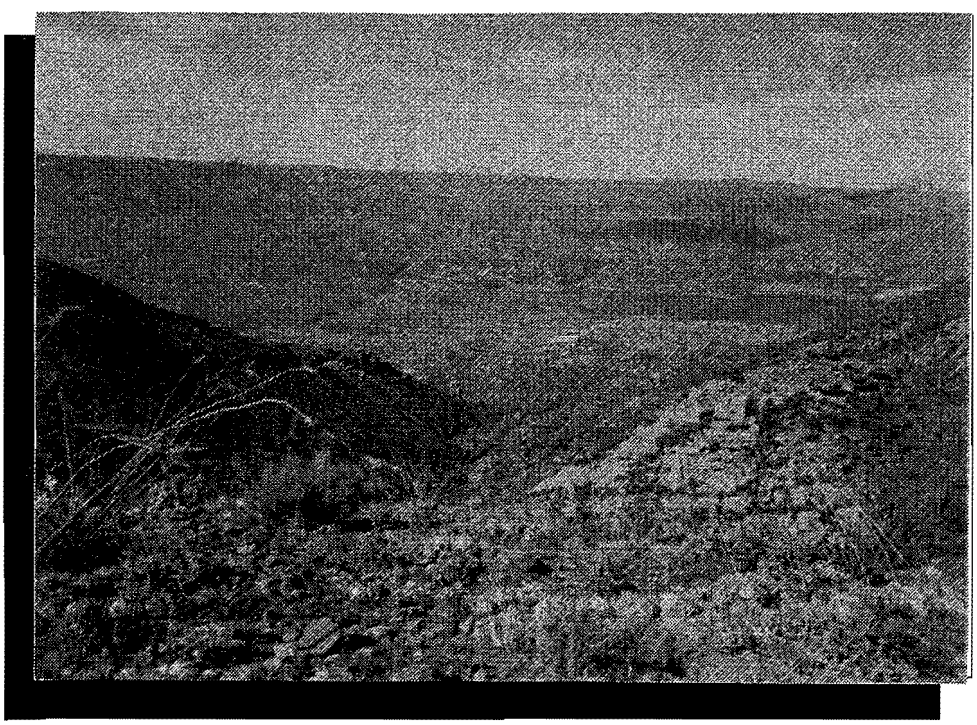


VIEW LOOKING TOWARD COPPER BUTTE

VIEW LOOKING SOUTHEAST TOWARD CHILITO/HAYDEN AREA



VIEW LOOKING SOUTHWEST OVERLOOKING HIGHWAY 177 AND PARCEL RM-17

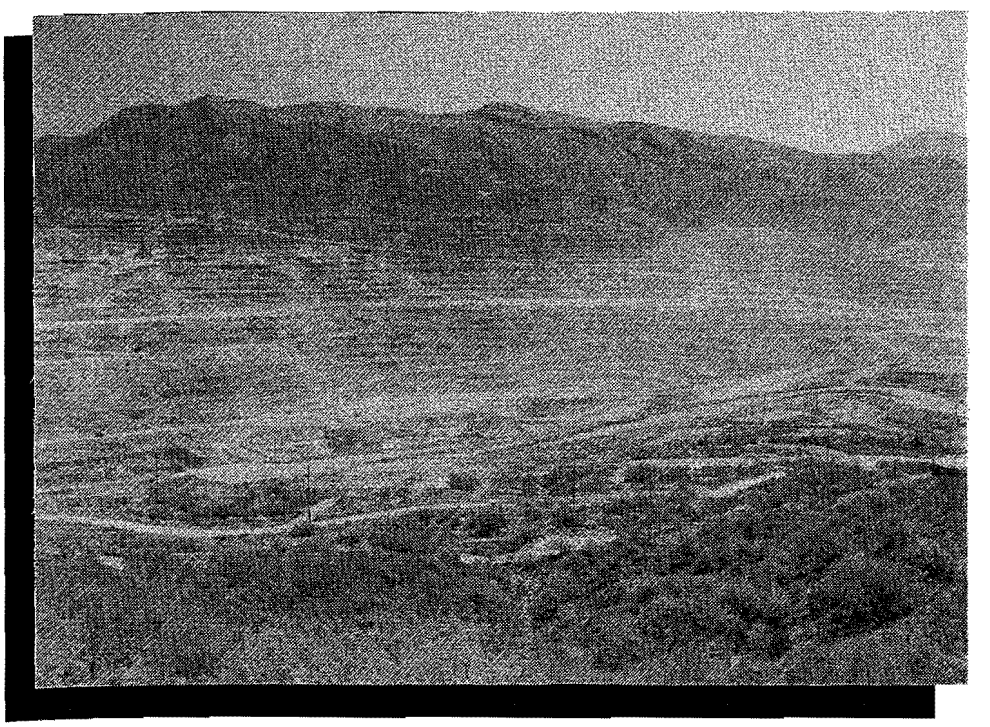


VIEW LOOKING SOUTHWEST TOWARD GILA RIVER ON PARCEL RM-18

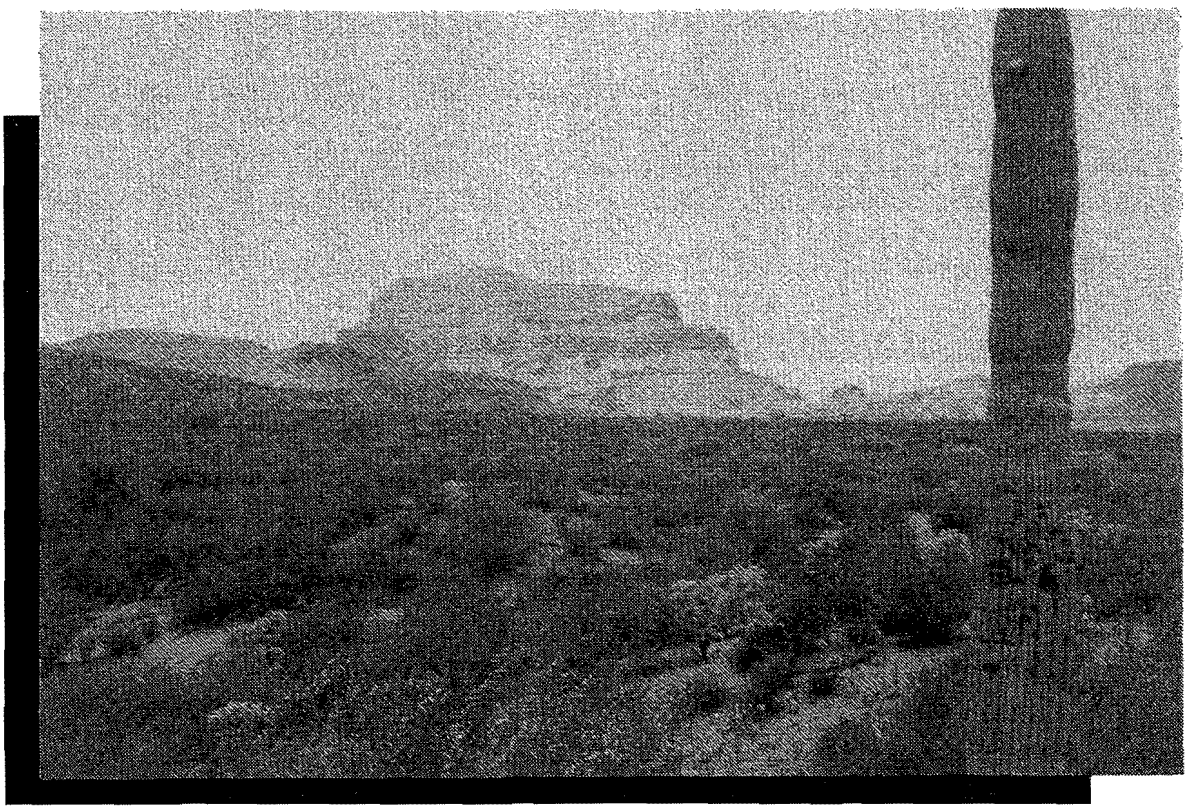
VIEW OF RAY MINE FROM PARCEL RM-13

VIEW TOWARD WEST ON PARCEL RM-15

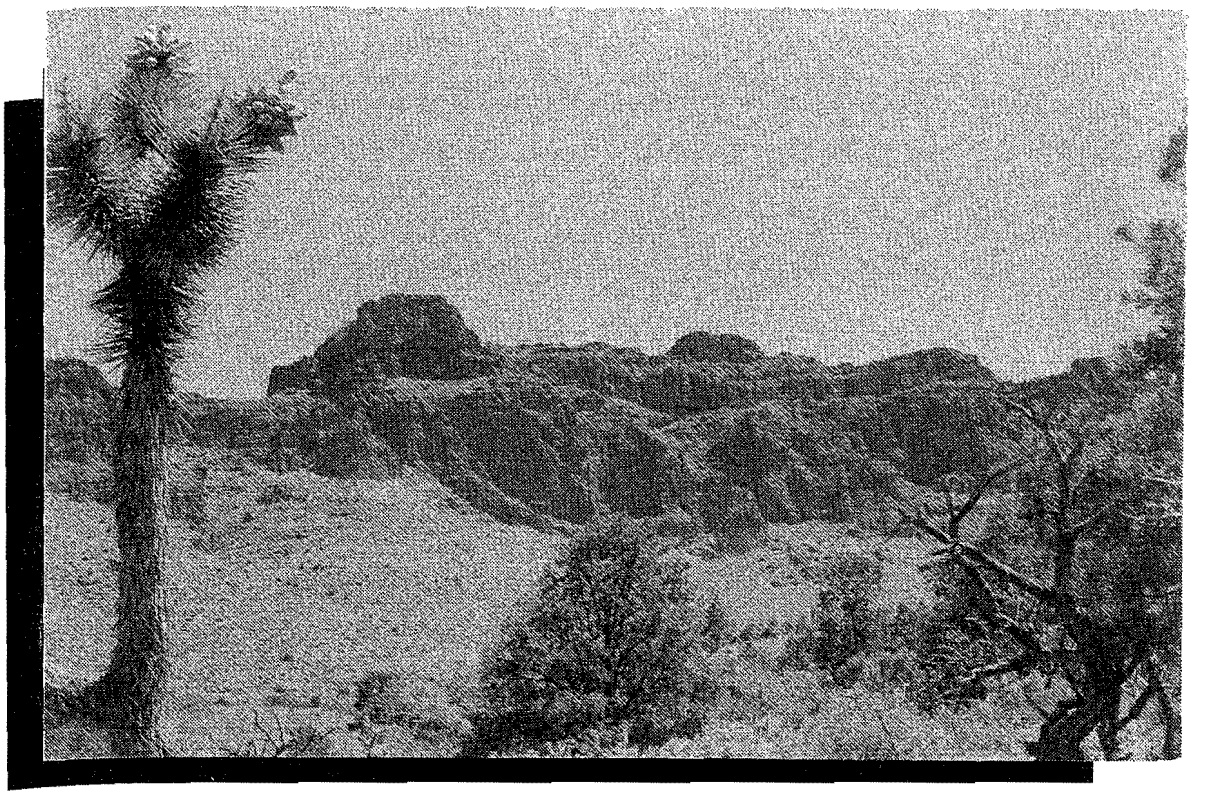
VIEW LOOKING TOWARD RAY MINE



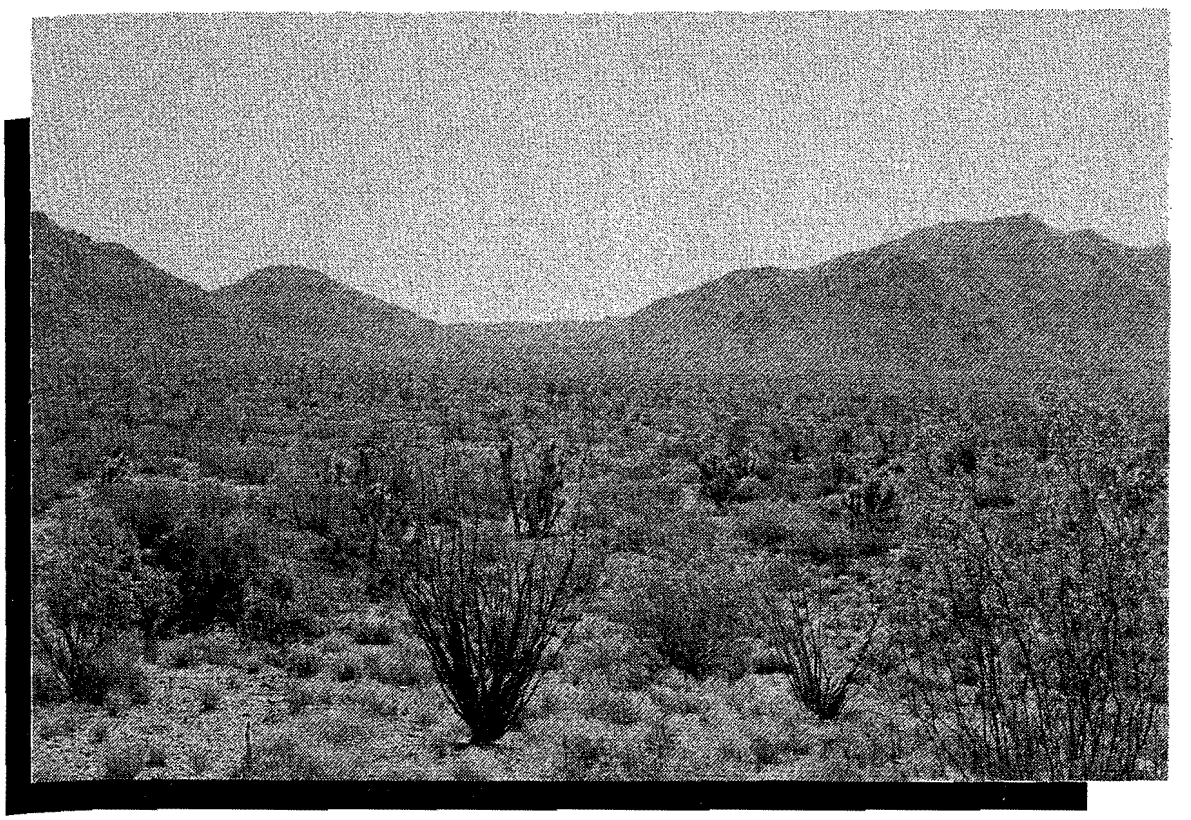
VIEW LOOKING TOWARD RAY MINE



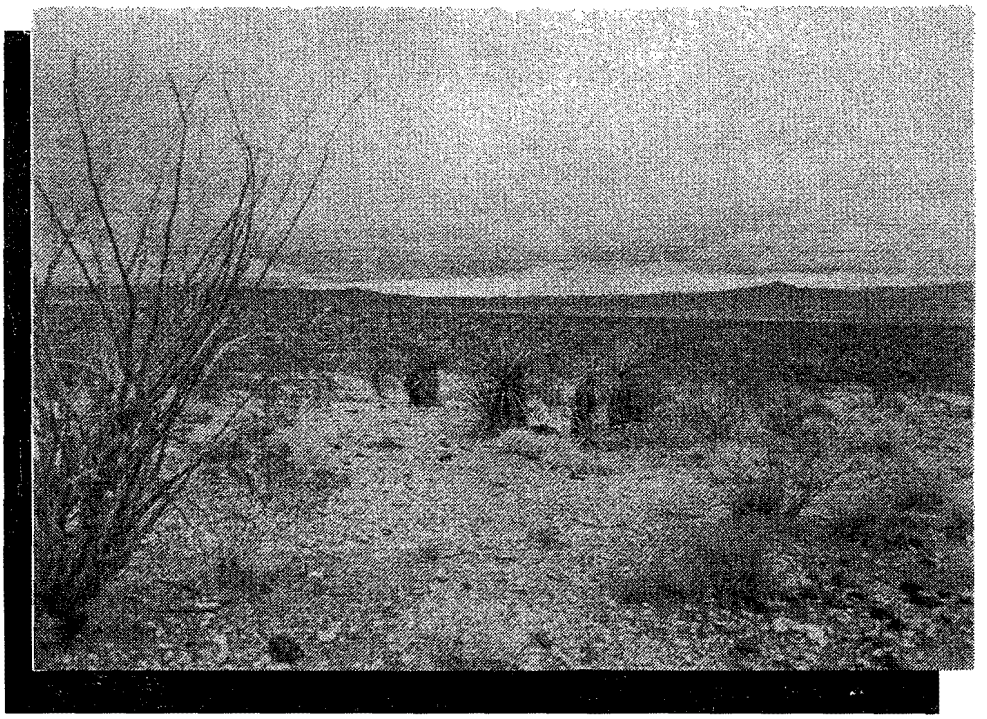
VIEW LOOKING OVER GILA RIVER PARCEL AT COCHRAN



VIEW OVERLOOKING KNISELY #3 TOWARD THE CERBAT MOUNTAINS



VIEW OVERLOOKING THE MCCRACKEN MOUNTAINS PARCELS



VIEW LOOKING OVER THE SACRAMENTO VALLEY PARCEL

VIEW OF BIG SANDY RIVER AND ADJACENT WETLANDS ON TOMLIN #4

APPENDIX C

DEIS MAILING LIST

RAY LAND EXCHANGE/PLAN AMENDMENT MAILING LIST

First	Last	Title	Organization Name
ELECTED OFFICIAL - FEDERAL			
J.D.	HAYWORTH		REPRESENTATIVE
JON	KYL		SENATOR
JOHN	MCCAIN		SENATOR
BOB	STUMP		REPRESENTATIVE
ELECTED OFFICIAL - LOCAL			
CAROL	ANDERSON		MOHAVE BOARD OF SPRVSRS
LES	BYRAM		CITY OF KINGMAN
WANDA	DALTON		CITY OF KEARNY
JIMMIE B.	KERR		PINAL CO. BOARD OF SPRVSRS
CRUZ	SALAS		GILA CO.
JIM	ZABORSKY		MOHAVE CO. BOARD OF SPRVSRS
ELECTED OFFICIAL - STATE			
KEN	BENNETT		REPRESENTATIVE
LINDA	BINDER		REPRESENTATIVE
BARBARA	BLEWSTER		REPRESENTATIVE
DEBRA	BRIMHALL		REPRESENTATIVE
JACK	BROWN		SENATOR
JIM	CARRUTHERS		REPRESENTATIVE
HARRY	CLARK		REPRESENTATIVE
FRANKLIN	FLAKE		REPRESENTATIVE
HERB	GUENTHER		SENATOR
JOE	HART		REPRESENTATIVE
JANE	HULL		GOVERNOR
BOB	MCLENDON		REPRESENTATIVE
REBECCA	RIOS		REPRESENTATIVE

RAY LAND EXCHANGE/PLAN AMENDMENT MAILING LIST

First	Last	Title	Organization Name
PETER	RIOS		SENATOR
JOHN	VERKAMP		REPRESENTATIVE
JOHN	WETTAW		SENATOR
ELECTED OFFICIAL- LOCAL			
RONALD	CHRISTENSEN		GILA CO. BOARD OF SUPERVISORS
BUSTER	JOHNSON		MOHAVE CO. BOARD OF SUPERVISORS
LIONEL	RUIZ		PINAL CO. BOARD OF SUPERVISORS
SANDIE	SMITH		PINAL CO. BOARD OF SUPERVISORS
ELEECTED OFFICIAL- LOCAL			
EDWARD	GUERRERO		GILA COUNTY BO. SUPERVISORS
GOVERNMENT - FEDERAL			
			PRESCOTT NAT'L FOREST
			DIV OF ENV. CONTAMINANTS
			U.S. FISH & WILDLIFE SERVICE (USFWS)
			MINERALS MANG. SERVICE
			U.S. DEPT. OF ENERGY
			DIRECTORATE OF ENV. QLTY
			U.S. ENV. PROTECTION AGENCY (EPA)
			U.S. BUREAU OF LAND MGMT (BLM)
			U.S. DEPT OF ARMY, CORPS OF ENG (COE)
			LAKE MEAD NAT'L RECREATION AREA
			TONTO NAT'L FOREST
			AIR FORCE PENTAGON
			NAT'L PARK SERVICE
			FEDERAL HIGHWAY ADMINISTRATION
			U.S. FOREST SERVICE (USFS)
			U.S. NATIONAL PARK SERVICE (NPS)
			MESA R.D. TONTO NAT'L FOREST

RAY LAND EXCHANGE/PLAN AMENDMENT MAILING LIST

First	Last	Title	Organization Name
			U.S. BUREAU OF INDIAN AFFAIRS (BIA)
			U.S. GEOLOGICAL SURVEY (USGS)
			U.S. DEPT. AGRICULTURE (USDA)
			KAIBAB NAT'L FOREST
			U.S. AIR FORCE 56 CES/CEVN
			U.S. BUREAU OF RECLAMATION (BOR)
GOVERNMENT - LOCAL			
			MARICOPA CO. SOLID WASTE MGMT
			MARICOPA CO.
			LA PAZ CO.
			YUCCA FIRE DEPT.
			PIMA NATURAL RES CONSERVATION DIST.
			GLOBE LIBRARY
			CITY OF PRESCOTT
			CITY OF BULLHEAD CITY
			PRESCOTT VALLEY CHAMBER OF COMMERCE
			PARKS RECREATION & LIBRARY DEPT.
			PINAL CO. DEVLP BRD & VISITOR CENTER
			CITY OF PEORIA
			CENTRAL AZ ASSOC OF GOV.
			MOHAVE CO.
			LAKE MOHAVE FIRE DIST.
			MARICOPA CO. PARKS & REC.
			EASTERN AZ COUNTIES ORG
			PIMA CO. WASTEWATER MANG.
			BLACK CANYON CITY LIBRARY
			MOHAVE CO. ECONOMIC DEV.
			LA PAZ CO DEPT OF COMMUNITY DEV

RAY LAND EXCHANGE/PLAN AMENDMENT MAILING LIST

First	Last	Title	Organization Name
			TOWN OF KEARNY
			CITY OF FLAGSTAFF
			CITY OF PHOENIX
			PINAL CO AIR QUALITY CONTROL
			BLACK CANYON FIRE DEPT.
			WESTERN LAND EXCHANGE PROJECT
			NAVAJO CO.
			MOHAVE CO. OFFICE/ UofA
			PINAL CO. DEPT OF CIVIL WORKS
			PIMA CO. PARKS & RECREATION
			MOHAVE CO. DISTRICT LIBRARY
			TUCSON LIBRARY
			MARICOPA CO. RECREATION SERVICES DEPT.
			PIMA CO. SHERIFF'S MOUNTED POSSE
			MARICOPA CO. DEPT. OF TRANSPTN.
			LEAGUE OF AZ CITIES & TOWNS
			MOHAVE CO. LAND USE COMMITEE
			SOUTHEASTERN AZ GOV. ORG.
			CHARLES ROYALL LIBRARY
			YAVAPAI CO. PLANNING & BLDG. DEPT.
			PINAL CO.
GOVERNMENT - STATE			
			SOIL & WATER CONSERVATION
			AZ STATE PARKS
			UofA, COLLEGE OF LAW
			ASU, CENTER FOR ENV. STUDIES
			ASU AZ MINERAL ASSN.
			ASU

RAY LAND EXCHANGE/PLAN AMENDMENT MAILING LIST

First	Last	Title	Organization Name
			NORTHWESTERN UNIVERSITY
			UofA ADMINISTRATION 412
			UC DAVIS
			ASU - DEPT. OF ANTHROPOLOGY
			AZ STATE PARKS BOARD
			AZ DEPT OF MINES & MINERAL RESOURCES
			ASU-AZ MINERAL ASSN.
			AZ GAME & FISH DEPT (AGFD)
			OFFICE OF ATTORNEY GENERAL
			AZ COMMISSION OF INDIAN AFFAIRS
			AZ DEPT OF WATER RESOURCES
			UNIVERSITY OF AZ (U of A)
			AZ GAME & FISH DEPT. WM-HB
			GR& CANYON UNIVERSITY
			AZ STATE CLEARINGHOUSE
			AZ GEOLOGICAL SURVEY
			AZ ASSN. OF COUNTIES
			AZ STATE LAND DEPT (ASLD)
			AZ STATE MINE INSPECTOR'S OFFICE
			ASU, OFFICE OF CULTURAL RESOURCE MGMT
			AZ DEPT OF ENV. QUALITY
			ASU CHAPTER OF THE WILDLIFE SOCIETY
			NATURAL RESOURCES
			CENTRAL AZ PROJECT
			ASU, DEPT. OF ZOOLOGY
			OLYMPIC STATE PARK
			NAU, SCHOOL OF FORESTRY
			NAU, CLINE LIBRARY

RAY LAND EXCHANGE/PLAN AMENDMENT MAILING LIST

First	Last	Title	Organization Name
			UofA SCHOOL OF RENEWABLE NAT. RES.
GOVERNMENT - TRIBAL			
			FT MCDOWELL MOHAVE-APACHE INDIAN COMM.
			BODAWAY/GAP CHARTER-WESTERN NAVAJO AGE
			OFFICE OF HOPI LANDS, THE HOPI TRIBE
			PASCUA YAQUI TRIBE
			KAIBAB-PAIUTE COUNCIL
			AK-CHIN INDIAN COMMUNITY ENV
			SALT RIVER PIMA-MCPA INDIAN COMM.
GOVERNMENT- STATE			
RUSSELL	HAUGHEY		AZ GAME & FISH DEPT
CAROL	HEATHINGTON		STATE HISTORIC PRESERVATION OFFICE
JONI	SAAD		AZ CLEARING HOUSE
MEDIA			
			BUMPY ROAD NEWS
			AZ DAILY SUN
			TUCSON CITIZEN
			LAKE POWELL CHRONICLE
			FREELANCE WRITER
			PHOENIX GAZETTE
			AZ DAILY STAR
			GREEN VALLEY NEWS & SUN
			MESA TRIBUNE
			COPPER BASIN NEWS
			ANRN
			DAILY DISPATCH
			ASSOCIATED PRESS
NON-GOVERNMENT ORGANIZATION			

RAY LAND EXCHANGE/PLAN AMENDMENT MAILING LIST

First	Last	Title	Organization Name
			ARI-VADA 4 WHEELERS
			HASSAYAMPA RIVER PRESERVE
			FOREST GAURDIANS
			ORACLE TRAILS COALITION
			AZ ASSOC OF 4 -WHEEL DR CLUBS
			MESA 4 WHEELERS
			AZ STATE RIFLE
			COCONINO SPORTSMEN
			GREATER AZ BICYCLING ASSN.
			NORTH AMERICAN BEAR SOCIETY
			HORSESHOE RANCH PARTNERSHIP
			DESERT CABALLEROS
			ASA4WDC
			AZ DESERT BIGHORN SHEEP SOCIETY
			RESOURCE ADVISORY COUNCIL
			MINERALS EXPLORATION COALITION
			HAUCHUCA HIKING CLUB
			WESTERN LAND GROUP
			COLORADO RIVER
			PLUMBERS LOCAL 469
			INTERNAT'L SONORAN DESERT ALLIANCE
			AZ TRAIL ASSOC
			TUCSON ROUGH RIDERS
			FRIENDS OF ANIMALS
			WALAPAI 4 WHEELERS
			AZ CATTLE GROWERS ASSN.
			CO LINE RIDERS
			THE FUND FOR ANIMALS

RAY LAND EXCHANGE/PLAN AMENDMENT MAILING LIST

First	Last	Title	Organization Name
			SOUTHWEST CENTER FOR BIOLOGICAL DIVERSITY
			HUACHUCA HIKING CLUB
			GARRETT 4 WDC/AWA4WDC
			MOHAVE SPORTSMAN CLUB
			AUDUBON SOCIETY
			CO. SPRVSRS ASSN.
			BOYCE THOMPSON ARBORETUM
			AZ WILDLIFE FEDERATION
			FRIEND OF AZ RIVERS
			CASA GR&E 4 WHEEL DRIVE CLUB
			DEFENDERS OF WILDLIFE
			YUMA VALLEY ROD & GUN CLUB
			AZ MINING ASSN.
			GLENDALE HIKING CLUB
			SIERRA CLUB
			AZ STATE ASSN. OF 4-WHEEL DRIVE USERS
			ROADRUNNER 4-WHEELERS
			BULLHEAD 4 WHEELERS
			PARKER 4-WHEELERS
			VERDE VALLEY 4 -WHEEL DRIVE CLUB
			CHAMBERS GROUP
			AZ WILDERNESS COALITION
			MOUNTAIN STATES LEGAL FOUNDATION
			ZENECA SPECIALTIES
			HUMANE SOCIETY OF THE US
			LIONS INTERNAT'L (AZ)
			CREEPY CRAWLERS 4 WHEELER DR
			LANDS FOUNDATION

RAY LAND EXCHANGE/PLAN AMENDMENT MAILING LIST

First	Last	Title	Organization Name
			SUPERSTITION AREA LAND TRUST
			PEOPLE FOR THE WEST
			INT'L SOC. OF PROTECTION OF MUSTANGS & BUR
			THE AZ TRAIL
			STATE LAND INTERFACE & UNITED DIR
			COUNCIL FOR SUSTAINABLE LIVING
			WILDERNESS LAND TRUST
			HAVASU 4-WHEELERS
			WILDERNESS SOCIETY
			AZ RURAL WATER ASSN.
			IMPRINTING FOUNDATION
			AZ SMALL MINE OPERATORS ASSN.
			SAHUARO 4 X 4'S
			HUALAPAI 4 WHEELERS
			COCHISE CO ROUGH RIDERS
			AZ ANTELOPE FOUNDATION
			SOUTHERN AZ GUIDES & OUTFITTERS ASSOC.
			AZ WOOL PRODUCERS ASSN.
			THE WILDLIFE SOCIETY - AZ CHAPTER
			NATURE CONSERVANCY
			PEBBLE PICKIN POSSE
			AZ ROUGH RIDERS
			MOHAVE CO. TRAILS ASSN., INC.
			MOHAVE PROSPECTORS ASSN.
			SO. AZ WILDLIFE CALLERS
			COPPERSTATE 4 WHEEL DR. CLUB
			YARNELL SENIOR CITIZENS CENTER
			SOUTHERN AZ HIKING CLUB

RAY LAND EXCHANGE/PLAN AMENDMENT MAILING LIST

First	Last	Title	Organization Name
			AMIGOS
			MOTOROLA DUST DEVILS 4 WHEEL DR.
PRIVATE			
			APACHE CO DEV. & COMM SVCS.
			ECOLOGY & ENVIRONMENT, INC.
			SMITH WALSH ALLOTMENT
			ESCUDILLA OUTFITTERS, LLC.
			WESTERN RESOURCE DEV.
			FLYING DIAMOND RANCH
			EL PASO NATURAL GAS CO.
			DAMES & MOORE, INC.
			AMERICAN WILDLANDS
			MANG. CONSULTANT- MINERAL RESOURCES
			CENTURY CABLE
			FLETCHER ASSOCIATES
			ASC HYDROLOGICAL & ENVIRON SERVICES
			POUDRE ENV. CONSULTANTS, INC.
			RAYCO ENTERPRISES
			CEDAR CREEK ASSOCIATES
			ANGELS RANCH
			MOTIVATED INVESTMENTS REALTY
			GREYSTONE
			ZENECA SPECIALTIES
			SANTE FE PACIFIC GOLD CORP.
			SOUTH BRANCH RESOURCES
			CYPRUS AMAX MINERALS CO.
			HCR-02
			BIO/WEST, INC

RAY LAND EXCHANGE/PLAN AMENDMENT MAILING LIST

First	Last	Title	Organization Name
			GALLAGHER & KENNEDY
			ENV. MANG. ASSOCIATES
			AQUATIC & WETLANDS CONSULTANTS
			TRANSWESTERN PIPELINE CO (ROW DEPT.)
			U.S. WEST COMMUNICATIONS
			CHEMEHUEVI
			LEVY TRUCKING
			AT & T
			WALNUT CREEK RANCH
			HORNER MOUNTAIN RANCH
			ASARCO
			HOLME, ROBERTS & OWEN
			PHOENIX AIRWAY FACILITIES SECTOR
			APS
			BERT SLATER AUTO PARTS
			MURPHY & POSNER
			HAROLD LINDNER ASSOC., INC.
			MONEY MOUNTAIN MINING
			J BAR J RANCH
			HEADWATERS WEST LTD.
			WF CATTLE CO.
			BLACK MOUNTAIN OUTFITTERS
			GROSS FAMILY PARTNERSHIP
			AZ TOXICS INFORMATION
			MCTA
			PARSENS, BEHLY & LATIMAR
			CONSTRUCTECH CONSULTING GROUP
			BELL, SELTZER, PARK, & GIBSON

RAY LAND EXCHANGE/PLAN AMENDMENT MAILING LIST

First	Last	Title	Organization Name
			KELLIS RANCH
			CENTURY 21 HEINEMAN REALTY
			WESTERN AREA POWER ADMIN.
			SUNBURST PROPERTIES
			PREFFERED AQUISISTIONS
			ARCHAEOLOGICAL CONSULTING SERVICES
			SIMPSON, THACHER & BARTLETT
			FLORENCE REMINDER
			UNITED METRO MATERIALS
			TERRAVEST, INC.
			A DIAMOND ALLOTMENT
			HOMESTAKE MINING CO.
			KERR MCGEE CORP.
			H & J SHUMWAY FARMS
			56 CES/CERR
			OLD PUEBLO ARCHAEOLOGY CENTER
			GIVENS PURSLEY & HUNTLEY
			R.E.I.
			WEST VALLEY VIEW
			WALD, INC.
			SUN STATE ROCK & MATERIALS, CORP.
			STANFIELD-RURAL LTD PARTNERSHIP
			RED CREEK RANCH PARTNERSHIP
			PARKER DAIRY FARMS
			JOHNSON CATTLE CO.
			WEAVER MINING DISTRICT ASSN.
			MARICOPA MINES
			GSA RESOURCES, INC

RAY LAND EXCHANGE/PLAN AMENDMENT MAILING LIST

First	Last	Title	Organization Name
			MOHAVE ELECTRIC COOPERATIVE
			BLUE SKY EXPEDITIONS INC.
			ENV. IMPACT SERVICES
			BRIMHALL RANCH
			DUGAS RANCH
			COMBINED METALS
			ARMSTRONG MINING
			BELL HENRY GROUP
			TUCSON ELECTRIC POWER CO.
			TULSA ROCK & MINERAL SOC. INC./TULSA, OK
			TODD 2Y RANCH
			HODGES REALTY & BUILDING
			MINERALS MANAGMENT SERVICE
			SUNWALKER DEV.
			CENTER FOR LAW IN THE INTEREST
			THE ONE LAW GOLD MINING CORP.
			SALT RIVER PROJECT
			NEW MEXICO & AZ LAND CO
			AGRA EARTH & ENV., INC.
			FARM CREDIT SERVICES SOUTHWEST
			BATTLE MOUNTAIN EXPLORATION CO.
			D.K. MARTIN & ASSOCIATES
			CASA GRANDE COTTON FINANCE CO
			C & L INVESTMENTS
			E & N MINING & CONSTRUCTION, INC.
			ERICKSON LAND & CATTLE CO.
			APKER, HAGGARD & KURTZ, P.C.
			MINERAL MGMT ASSOC.

RAY LAND EXCHANGE/PLAN AMENDMENT MAILING LIST

First	Last	Title	Organization Name
			WE HALL CO.
			WHICKER & ASSOCIATES
			SOUTHWESTERN MINERALS EXPLORATION ASSN.
			ANDERSON CLAYTON CORP.
			AZ ELECTRIC POWER COOPERATIVE, INC
			DESERT NURSERY
			OSDA
			SEC, INC
			MARCOE MINERALS CO
			BAR S RANCH
			LAND SERVICES
			MGT. CONSULTANT-MINERAL RESOURCES
			HIGH JINX RANCH
			NORANDA EXPLORATION, INC.
			BATEMAN ENGINEERING, INC.
			D4J CATTLE CO LLC
			THREE RIVERS AGRICULTURE INVESTMENTS
			DYNAMIC CORP.
			FARM CREDIT SERVICES
			RAFTER SIX ALLOTMENT
			AZ SERVICE
			PHELPS DODGE CORP.
			BENEDICT FEEDING CO.
			DE LILLO & SUTTON ENTERPRISES
			ENVIROTECH SOLUTION, INC.
PRIVATE- CITIZEN			
JOHN	AKERS		
GARY	ALBIN		

RAY LAND EXCHANGE/PLAN AMENDMENT MAILING LIST

First	Last	Title	Organization Name
GARY	ALLEN		
GARRY	ANDERSON		
CAROL	ANDERSON		
BERNARD	ANDERSON		
DAVID J	ANDERSON		
GUILLERMO	ARDON		
KATHY	ARNOLD		
TONY	ASTORGA		
DANIEL P.	AUX		
SANDY	BAHR		
MICHAEL	BAKER		
SUE	BAUGHMAN		
JOAN	BECK		
MARK	BELLES		
STU	BENGSON		
BETTY E.	BINGMAN		
WILLIAM S	BIRDSONG		
JANINE	BLAELOCH		
MARJORIE	BLAINE		
LEONARD E	BLAKESLEY		
NANCY	BLUMLEIR		
PATRICK H.	BOLES		
JOHN	BOWSHER		
BRIAN	BOYLAN		
ROSE E.	BRADFORD		
MARK	BREN		
STEVE	BROPHY		
GEORGE	BROWN		

RAY LAND EXCHANGE/PLAN AMENDMENT MAILING LIST

First	Last	Title	Organization Name
ALLISON	BROWNING		
GINA L.	BULLOCH		
JAMES P.	BURKE		
GLYNN	BURKHARDT		
GEORGE	BURNS		
WILLIAM	BURRELL		
RONDA	BURRELL		
LEONARD W	BYERLY		
LES	BYRAM		
RAY	CALDERA		
MARGARET	CALDERA		
ANNIE & RAMON	CAMPACHO		
TILFORD	CANTRELL		
ROBERT	CANTRELL		
REYNALDO	CANTU		
VICTORIA	CARELLA		
DWIGHT L	CAREY		
JACK	CARLSON		
N.T.	CARTER		
JUNE	CASTELHANO		
CYNTHIA M	CHANDELY		
ALAN & BARBARA	CHATFIELD		
JOE	CHOTT		
JUCK	CHRISTIANA		
CHRISTOPHER	CHRISTIE		
ANDY	CLARK		
MARK	CLEVELAND		
BENJAMIN	CLINGAN		

RAY LAND EXCHANGE/PLAN AMENDMENT MAILING LIST

First	Last	Title	Organization Name
ANNE	COE		
MASON	COGGIN		
GLEN E	COLLINS		
JEAN CARDWELL	COLLIS		
THOMAS F	COPE		
RUSSELL M.	CORN		
GENE	CORYELL		
DONALD E.	COX		
JOSEPH & PHYLLIS	COX		
RODNEY L	CRICK		
CHRISTINE & ED	CRUESS		
SALAS	CRUZ		
CHERIE	CRUZ		
MARY	DAHL		
GEORGE E	DANIELS		
JERRY W.	DANNI		
VIRGINIA	DAVILLA		
STEVEN D.	DAVIS		
RUSSELL	DAVIS		
STEVEN	DAY		
DAVID A	DE KOK		
TERRY C	DEARBORN		
TOMMY	DEEN		
LINDA	DEEN		
JERSY	DEPONTY		
PETER A	DOW		
GARRY	DUFFY		
JAMES W	DUGAN		

RAY LAND EXCHANGE/PLAN AMENDMENT MAILING LIST

First	Last	Title	Organization Name
GEORGE	EARLY		
GARY A.	EIDE		
T.E.E.	ERSKINE		
RAUL	ESTRADA		
ROBERT C	EULER		
MICHAEL	FAICCA		
DANIEL M.	FELIX		
LARRY D.	FELLOWS		
GEORGE	FERGUSON		
LANDI	FERNLEY		
GENE	FISHER		
DENNIS	FORMAN		
NOEL	FRANK		
GLENN	FREDRICK		
JOHN	FREEMAN		
PAUL	FRIESEMA		
STUART	FULLER		
MIKE	FUSON		
DONALD P	GABRIELSON		
AL JINKS	GAINER		
KIP	GAMBEE		
NEIL A.	GAMBEL		
CHRIS	GARCIA		
MARY	GARCIA		
JOSEPH L	GENDRON		
REX	GENNICKS		
HANK	GONZALES		
BILL	GOODALE		

RAY LAND EXCHANGE/PLAN AMENDMENT MAILING LIST

First	Last	Title	Organization Name
ALEX	GORT		
STEVE	GRAHAM		
TAMMIE	GREGORY		
GAIL	GRIFFIN		
DAVID	GRISEZ		
JOHN & PAULA	GRISWOLD		
ANDY	GROSETA		
JERRY L.	HAGGARD		
RICHARD C	HALL		
ROBERT	HANLEY		
WILLIAM	HATFIELD		
PHILIP	HECKER		
BARBARA	HESLIN		
TERRY K	HESLIN		
THOMAS	HEYN		
DON R	HICKS		
ROSS L	HOBOBY		
SYDNEY	HOFFHAY		
TIM	HOGAN		
DAVID	HOGAN		
KENNETH	HUNT		
WESLEY	HUNTER		
EDWARD J.	HUSKINSON		
BILL C	IFTIGER		
RICHARD A	ISAACSON		
JACK B	JACKS		
JANET L	JACOBSEN		
SCOTT	JARVIS		

RAY LAND EXCHANGE/PLAN AMENDMENT MAILING LIST

First	Last	Title	Organization Name
SENON	JAURIGUE		
BILL	JEWETT		
THOMAS	JOHN		
JAN	JOHNSON		
MARK S.	JOHNSON		
FRANKLIN R	JONES		
THOMAS R.	JONES		
BILL	JORDAN		
BRUCE	KABANA		
RICK	KANEEN		
WENDI	KAWA		
JAMES	KAWA		
ELLIOTT	KELLE		
GARY E.	KELLER		
JOHN	KENNEDY		
JIMMIE B.	KERR		
JOHN	KEVIN		
HENRY	KREIS		
RETA	LAFFORD		
NICHOLAS	LAFONZ		
DANIEL P	LAUX		
TOM H.	LAZZELLE		
BERNARD	LEMME		
LAINIE	LEVICK		
GAIL	LICHTENHAN		
PETE	LOMELI		
CONRAD	LOPEZ		
GARY	LUBERS		

RAY LAND EXCHANGE/PLAN AMENDMENT MAILING LIST

First	Last	Title	Organization Name
LINDA M.	LUIK		
CHARLES	MAES		
MIKE & MARY	MAJESKI		
BETH	MANN		
BRETT	MARSH		
JIM	MARTIN		
DOUGLAS K	MARTIN		
PAUL	MARTIN		
MIKE	MARTINER		
MOLLY	MAYER		
LARRY	MCBILES		
TRICIA	MCCRAW		
JOHN & SANDIE	MCCULLEN		
WALTER	MCCULLOCH		
STEVE	MCGHEE		
LARRY	MCKRACKEN		
ROBERT R.	MCNICHOLS		
MATHEW W.	MCWENIE		
P.K. RANA	MEDHI		
OLLIE	MILLER		
EDWIN W	MINCH		
DAVID	MINKE		
LARRY	MISSAL		
LEO	MOBLEY		
RICK	MOHR		
JANE ELLEN	MOODY		
MARTIN	MOORE		
ZAHE S	MORGAN		

RAY LAND EXCHANGE/PLAN AMENDMENT MAILING LIST

First	Last	Title	Organization Name
MICHAEL	MOSS		
JAMES	MURPHY		
ROBERT R	NICHOLS		
FRANK & JOAN	NOEL		
JAMES & SHEILA	NORINE		
DON	NORTON		
JAMES E	NOTESTINE		
KAY	NOWATZKI		
JAMES H	NYENHUIS		
MARLENE	O'HARA		
BILL	OPPENHEIMER		WINTERS GROUP
RICK	OVERSTREET		
FRANK	PACHACO		
ERIC	PARKER		
STEVE	PARKER		
DONALD J.	PINKAVA		
JAMES	PLASTER		
DONALD J.	POCK		
DANIE	PRANDSEN		
RAY	PRENDERGAST		
EDITH	PRICE		
DEAN	PRICHARD		
TRUMAN C	PUCHBAUER		
RICHARD	PUSCH		
PHYLLIS	RALLEY		
MELODEE	RAMEY		
RICHARD S	RHOADES		
MICHAEL J	RICE		

RAY LAND EXCHANGE/PLAN AMENDMENT MAILING LIST

First	Last	Title	Organization Name
BILL	RICHARDSON		
DAVID E.	RICHERT		
ROLLIN W.	ROBERTS		
JOHN G	ROSCOE		
CHARLES	ROSE		
PATRICK A.	RUINN		
FERNANDO	RUIZ		
EARL	RUNTE		
STEVE A	SAWAY		
TOM	SCARTACCINI		
LOIS	SCHERBER		
RANDY	SCHROEDER		
PAUL	SCHRUPP		
JOAN	SCOTT		
BRIAN	SEGER		
JAMES D	SELL		
RONALD	SERVANT		
LYNN	SHEPPARD		
CHUCK	SHIPLEY		
RAYMOND	SHOUGH		
DUANE L	SHROUPE		
PHIL	SIEGEL		
MICHAEL S.	SIEGEL		
ALBERT	SLATER		
PAUL	SMITH		
SAM	SPILLER		
LEONARD	STAFF		
LAWRENCE O.	STALLCUP		

RAY LAND EXCHANGE/PLAN AMENDMENT MAILING LIST

First	Last	Title	Organization Name
DON	STEUTER		
WILLIAM P.	STRITTMATTER		
SARAH A	STRUNK		
JAMES H.	SULLIVAN		
KAREN	SUSSMAN		
JODY	SWINGLE		
RHEAL D	TETRENAUTT		
RAY	THOMPSON		
RUTH M	THOMPSON		
ROBERT	THOMPSON		
JAMES	TOON		
KENNETH	TOWNSEND		
PATRICK	TRUSTY		
THOMAS	TWEDT		
JIM R.	VAALER		
THOMAS	VACHUDA		
CHARLES P	VAN EPPS		
GREGORY	VERNON		
DAVID L	WALKER		
BRUCE	WALKER		
WILLIAM	WELLS		
FRANCES W.	WERNER		
JOHN E.	WHICKER		
JOSEPH	WILHELM		
TIMMY	WILLIAMS		
RICHARD	WILLIAMSON		
CATHY	WILSON		
JACK	WILSON		

RAY LAND EXCHANGE/PLAN AMENDMENT MAILING LIST

First	Last	Title	Organization Name
ROBERT A.	WITZEMAN		
TERRY	WORMAN		
THOMAS E.	WRIGHT		
JIM	ZABORSKY		
GABRIEL P.	ZINSLI		

APPENDIX D

NATIONAL REGISTER OF HISTORIC PLACES (NRHP) ELIGIBILITY STATUS

Table D.1. NRHP Site Eligibility Status for Ray Land Exchange/Plan Amendment EIS

Site Number	NRHP Eligibility Status	Site Type	Surface Ownership	Temporal Affiliation
AZ U:16: (ASM) All sites except 254-258 are in the Copper Butte/Buckeye Area				
246	Data Recovery Completed*	Pictographs; Rockshelter	Private	Prehistoric
247	Data Recovery Completed	Pictographs; Rockshelter	Private	Prehistoric
275	Data Recovery Completed	Possible Habitation	State	Prehistoric
279	Data Recovery Completed	Limited Activity	State	Prehistoric
280	Data Recovery Completed	Limited Activity	State	Prehistoric
281	Data Recovery Completed	Rockshelter	State	Prehistoric
282	Data Recovery Completed	Rockshelter	State	Prehistoric
283	Data Recovery Completed	Rockshelter	State	Prehistoric
274	Not Eligible	Grinding Slick	BLM	Prehistoric
268	Not Eligible	Habitation? Camp?	BLM	Prehistoric
273	Not Eligible	Petroglyph	private	Prehistoric
264	Not Eligible	Limited Activity	BLM	Prehistoric
271	Not Eligible	Limited Activity	BLM	Prehistoric
36(BLM)	Not Eligible	Limited Activity	BLM	Prehistoric
239	Not Eligible	Petroglyph	Private	Prehistoric
236	Eligible	Habitation?	Private	Prehistoric
241	Eligible	Limited Activity	Private	Protohistoric?
256	Eligible	Rockshelter Cave	BLM	Prehistoric
257	Eligible	Rockshelter Cave	BLM	Prehistoric
254	Eligible	Rockshelter	BLM	Prehistoric
258	Eligible	Rockshelter	BLM	Prehistoric
255	Eligible	Rockshelter	BLM	Prehistoric
265	Eligible	Habitation?	BLM	Prehistoric
253	Eligible	Habitation/ Ag?	BLM	Prehistoric
260	Eligible	Habitation?	BLM	Prehistoric
233	Eligible	Limited Activity?	BLM	Prehistoric
259	Eligible	Limited Activity	BLM	Prehistoric
263	Eligible	Limited Activity	BLM	Prehistoric
262	Eligible	Habitation?	BLM	Prehistoric
261	Eligible	Habitation?	BLM	Prehistoric
269	Eligible	Limited Activity	BLM	Prehistoric
270	Eligible	Habitation?	BLM	Prehistoric
285	Eligible	Rockshelter	Private	Prehistoric
286	Not Eligible	Tent Pad?	Private	Historic
287	Eligible	Rockshelter	Private	Pre & Historic
240	Eligible	Limited Activity	Private	Prehistoric
242	Eligible	Mining Camp	Private	Pre & Historic
272	Not Eligible	Mine	BLM; private	Historic
5(ASU)/294	Eligible	Limited Activity	BLM	Pre & Historic
238	Eligible	Habitation/ Ag?	Private	Prehistoric

Table D.1, continued. NRHP Site Eligibility Status for Ray Land Exchange/Plan Amendment EIS

Site Number	NRHP Eligibility Status	Site Type	Surface Ownership	Temporal Affiliation
AZ V:13: (ASM) All sites are in the Ray Complex				
105	Not Eligible	Road	BLM	Historic
188	Not Eligible	Trail	State	Historic
106	Not Eligible	Limited Activity	BLM	Historic
108	Not Eligible	Limited Activity	BLM	Historic
110	Not Eligible	Temporary Habitation?	BLM	Historic
193	Not Eligible	Trail	BLM	Historic
182	Eligible	Habitation	State	Pre & Historic
107	Eligible	Limited Activity	BLM	Prehistoric
109	Eligible	Limited Activity	BLM	Prehistoric
115	Eligible	Temporary Habitation?	BLM	Prehistoric
195	Eligible	Mining Complex	BLM	Historic
102	Not Eligible	Camp	BLM	Historic
103	Eligible	Habitation	BLM	Historic
104	Not Eligible	Limited Activity	BLM	Prehistoric
111	Eligible	Limited Activity	BLM	Prehistoric
112	Not Eligible	Limited Activity	BLM	Prehistoric
113	Not Eligible	Limited Activity	BLM	Prehistoric
114	Not Eligible	Limited Activity	BLM	Prehistoric
116	Eligible	Limited Activity	BLM	Prehistoric
117	Not Eligible	Limited Activity	BLM	Prehistoric
118	Not Eligible	Limited Activity	BLM	Prehistoric
119	Eligible	Camp	BLM	Pre & Historic
120	Eligible	Limited Activity	BLM	Prehistoric
121	Not Eligible	Habitation	BLM	Historic
122	Not Eligible	Limited Activity	BLM	Prehistoric
123	Not Eligible	Limited Activity	BLM	Prehistoric
124	Eligible	Limited Activity	BLM	Prehistoric
125	Eligible	Trail	BLM	Pre & Historic
126	Not Eligible	Limited Activity	BLM	Prehistoric
183**	~~Eligible~~	~~Temporary Habitation?~~		~~Historic~~
184	Not Eligible	Limited Activity	State	Pre & Historic
185	Eligible	Limited Activity	State	Pre & Historic
186	Eligible	Limited Activity	State	Pre & Historic
187	Eligible	Mining Camp	BLM	Historic
189	Eligible	Limited Activity/Road	BLM	Pre & Historic
190	Eligible	Limited Activity	BLM	Prehistoric
191	Not Eligible	Limited Activity	BLM	Pre & Historic
192	Not Eligible	Mining Camp	BLM	Historic
194	Not Eligible	Limited Activity	BLM	Prehistoric

* No longer eligible for information potential
**Site outside project boundary

APPENDIX E

RELATED LAWS, RULES, REGULATIONS, AND EXECUTIVE ORDERS

RELATED LAWS, RULES, REGULATIONS, AND EXECUTIVE ORDERS

CEQ Regulations (40 CFR 1500.2 and 1502.25) require that related environmental laws, rules, regulations, and executive orders be integrated into an environmental impact statement. Although the CEQ regulations do not specifically indicate that the discussions of related laws are required in an EIS, the BLM has opted to include them in this document in an effort to fully disclose any and all potential impacts associated with the Proposed Action.

Aquifer Protection Program. In Arizona, groundwater quality is regulated by ADEQ under the Aquifer Protection Program (APP). For all new facilities that discharge or have the potential to discharge to an aquifer, discharge limitations are prescribed by APP permits on a site-by-site basis, based on Arizona Revised Statutes §49-243 (A), (B), (C), and (D). APP permits determine best available demonstrated control technology (BADCT) to achieve the greatest degree of discharge reduction. In addition, pursuant to Arizona Administrative Code R18-11-406, APP permits require that all groundwater discharges meet Aquifer Water Quality Standards at the boundary of the permit holder's land.

American Indian Religious Freedom Act (AIRFA). AIRFA establishes the protection of Indian tribes' inherent right to the free exercise of traditional religions. This right includes access to spiritual places, one kind of traditional cultural property. The courts have generally determined that while AIRFA does not require agencies to defer to the wishes of tribes regarding spiritual places and other aspects of religious practice, it does require that tribes be consulted, and that their concerns be given serious consideration. AIRFA thus requires agencies to consider the effects of their actions on Native American spiritual places and on access to such places by religious practitioners. It also requires consideration of effects on other aspects of religious practice–for example, the use of plants, animals, and other natural resources, and the practice of ceremonial activities.

Archaeological Resources Protection Act (ARPA). APRA requires notification of the appropriate Indian tribe before approving a cultural resource use permit for the excavation (testing and data recovery) of archaeological resources (more than 100 years old), if the responsible Federal land manger determines that a location having cultural or religious importance to the tribe may be harmed or destroyed.

Clean Air Act, Title V. Under the Clean Air Act amendments of 1990 and A.R.S. 49-401 et seq., ADEQ and Pinal County Air Quality Control Division (PCAQCD) are responsible for the Title V permit program, which covers virtually all significant sources of air emissions, regardless of land ownership within Pinal County, Arizona. The permit program sets standards for pollution control and monitoring requirements, source emission limits, and impacts to local and regional air quality.

Clean Water Act Permitting Programs. The U.S. Army Corps of Engineers (COE), the Environmental Protection Agency (EPA) and the Arizona Department of Environmental Quality (ADEQ) administers the compliance programs associated with Sections 401, 402, and 404 of the Clean Water Act (CWA). These provisions are designed to control impacts to surface waters.

- Section 401 requires project proponents to receive water quality certification from the appropriate state agency before they are granted any federal permits under CWA. In the State of Arizona, the responsible agency is the ADEQ.

- Section 402 prohibits discharge of pollutants into waters of the United States[56] without a permit issued through the National Pollutant Discharge Elimination System (NPDES). In developing NPDES permits for copper mines, EPA distinguishes between three types of discharges which must be regulated: process wastewaters such as heap leach pile runoff or seepage and pregnant leach solutions; mine drainage and stormwater. The discharge of process wastewaters is prohibited under the NPDES program. Mine drainage, which is defined as any water drained, pumped or siphoned from a mine, must

[56] Waters of the U.S. are defined at 33 CFR 323.2(a).

meet technology-based effluent limitations for specific pollutants which include suspended solids, copper, zinc, lead, mercury, cadmium, and pH. The effluent limitations apply on a nationwide basis and were developed for specific industries, such as the mining industry. Mine drainage includes among other things, pit drainage and runoff from areas used for storage of ore or tailings, as well as the active mining area in general. The only active mining area discharges exempted from the definition of mine drainage are runoff from certain kinds of access roads, runoff from tailings dams or dikes not constructed of waste rock or tailings, and runoff from certain ancillary structures or reclaimed areas. These discharges are subject to EPA's industrial stormwater regulations. These require monitoring of the runoff for certain pollutants and development, and implementation of a Storm Water Pollution Prevention Plan (SWPPP) containing Best Management Practices (BMPs) to achieve the highest practicable reduction in pollutant loading.

- Section 404 permits are required for all dredging activities and discharge of dredged or fill material to waters of the U.S. This program requires the project proponent to 1) obtain a permit from the COE for impacts to waters of the U.S, including wetlands, regardless of land ownership, and 2) avoid, minimize, and/or mitigate all such impacts.

Endangered Species Act. The Endangered Species Act (ESA) provides protection for animal and plant species in danger of extinction (endangered) and those that may become so in the foreseeable future (threatened). Section 7 of the ESA requires Federal agencies to ensure that all Federally associated activities in the United States do not have adverse impacts on the continued existence of threatened or endangered species or on designated areas that are important in conserving those species. Action agencies must consult with the U.S. Fish and Wildlife Service to determine the potential impacts that a project may have on protected species. This EIS (supported by BE studies) has disclosed all impacts related to biological resources in the project vicinity.

Farmland Protection Policy Act. Under the Farmland Protection Policy Act (PL 97-98; 7 U.S.C. 4201 et seq.), impacts to prime or unique farmlands must be assessed in implementing NEPA. If prime or unique farmland is identified in an area that may be affected by a proposed action, alternative actions must be considered and appropriate mitigation measures must be developed. The Natural Resources Conservation Service (NRCS), which is responsible for administering the Farmland Protection Policy Act, has not identified any prime or unique farmland in the project area.

Federal Land Exchange Facilitation Act of 1988 (FLEFA). This act facilitates and expedites land exchanges pursuant to the Federal Land Policy and Management Act of 1976 and other laws applicable to exchanges involving lands managed by the Departments of the Interior and Agriculture by: 1) providing more uniform rules and regulations pertaining to land appraisals which reflect nationally recognized appraisal standards; and 2) establishing procedures and guidelines for the resolution of appraisal disputes. FLEFA also provides sufficient resources to the Secretaries of the Interior and Agriculture to ensure that land exchange activities can proceed consistent with public interest. FLEFA requires a study and report concerning improvements in the handling of certain information related to Federal and other lands.

Federal Land Policy and Management Act (FLPMA). FLEFA includes thirteen points of policy declared by Congress which develop the concept of multiple land use. The first is that public lands be retained in Federal ownership unless it is determined that disposal of a particular parcel will serve the national interest. Following this is a call to inventory public lands and project their present and future use through land use planning. This is to be coordinated between Federal and state efforts. The Act provides for review of lands without designated uses to be considered. The lands designated as public must be managed in a manner that will protect various ecological and educational values. Further, the act addresses areas of critical environmental concern by requiring regulations and plans for such areas to be promptly developed.

Mining and Mineral Policy Act of 1970. This act declares that it is the continuing policy of the federal government to foster and encourage private enterprise in the development of a stable domestic minerals industry and the orderly and economic development of domestic mineral resources. This policy was reaffirmed by the National Materials and Minerals Policy, Research, and Development Act of 1980, which additionally required the Secretary of the Interior to improve the quality of minerals data in federal land use decision-making.

Mining Law of 1872, as amended. The Mining Law of 1872 is an act to promote the development of the mineral resources of the United States. Under this law individuals are permitted to enter open Federal public lands to explore for valuable mineral deposits such as gold, silver, copper, etc. Individuals can stake a claim on the land which is found to have any of these valuable minerals. These claims are to be physically located and the value of the mineral deposit has to be assessed. A title or patent to both surface and subsurface areas containing a valuable mineral deposit can be obtained for a set fee.

The Mining Law of 1872 has remained virtually unchanged since its approval date. However, there have been two acts that have significantly affected the 1872 law. These "amendments" are the Mineral Leasing Act of 1920, and the Materials Act of 1947 (3). These two amendments were enacted primarily to remove fuel minerals from the 1872 Mining Law's jurisdiction, and to apply some limited environmental provisions, but with no requirements to restore mined lands after mineral production has ceased (3).

Claimants can patent (buy) 20 acre plots (per claimant) of land for $5 per acre if it is a lode (vein) claim, and $2.50 per acre if the claim is a placer claim. Mill sites cannot be any larger than 5 acres and have to be purchased as well. Once the claim is patented, the actual ownership of the land changes from the Federal government to the buyer(s).

National Environmental Policy Act (NEPA). NEPA was one of the first laws ever written that establishes the broad national framework for protecting our environment. NEPA's basic policy is to assure that all branches of government give proper consideration to the environment prior to undertaking any major federal action that significantly affects the environment.

NEPA requirements are invoked when airports, buildings, military complexes, highways, parkland purchases, and other federal activities are proposed. Environmental Assessments (EA's) and Environmental Impact Statements (EIS's), which are assessments of the likelihood of impacts from alternative courses of action, are required from all Federal agencies and are the most visible NEPA requirements.

National Historic Preservation Act (NHPA). The NHPA establishes as Federal policy the protection of historic sites and values in cooperation with other nations, states, and local governments. The Act designates the SHPO as the individual responsible for administering programs in the states and creates the President's Advisory Council on Historic Preservation (ACHP). Federal agencies are required to consider the effects of their undertakings on historic resources and to give the ACHP a reasonable opportunity to comment on those undertakings. This EIS has disclosed all impacts related to historic resources in the project vicinity, including the protection of archaeological sites under the Proposed Action, Buckeye or Copper Butte Alternatives.

Native American Graves Protection and Repatriation Act (NAGPRA). NAGPRA contains two main provisions. The first requires federal agencies and museums receiving federal funds to inventory collections of human remains and associated funerary objects, and develop written summaries for unassociated funerary objects, sacred objects, and objects of cultural patrimony that are in the collections they own or control. The second provision involves the protection of Native American graves and associated cultural items. Avoidance of archaeological sites containing graves is encouraged, as are intensive surveys to identify such sites. Archaeological investigations for planning or research purposes on federal and tribal lands, or other land modifying activities on federal lands that inadvertently discover such items, require the federal agency or tribe to consult with affiliated Native Americans.

Resource Conservation and Recovery Act (RCRA). RCRA gave EPA the authority to control hazardous waste from the "cradle-to-grave". This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous waste.

The 1986 amendments to RCRA enabled EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances, focuses only on active and future facilities and does not address abandoned or historical sites

Safe Drinking Water Act (SDWA). The SDWA was established to protect the quality of drinking water in the U.S. This law focuses on all waters actually or potentially designated for drinking use, whether from above ground or underground sources.

The Act authorizes EPA to establish safe standards of purity and required all owners or operators of public water systems to comply with primary (health-related) standards. State governments, which assume this power from EPA, also encourage attainment of secondary standards (nuisance-related).

Superfund Amendment and Re-Authorization Act of 1986 (SARA), as amended. SARA reauthorized CERLA to continue cleanup activities around the country. Several site-specific amendments, definitions clarifications, and technical requirements were added to the legislation, including additional enforcement authorities.

Surface Mining Control and Reclamation Act (SMCRA) 30 USC 1201 et seq. Whether mining activities occur on public or private lands, Asarco must receive a number of federal and state authorizations to implement foreseeable mining uses. These authorizations are summarized in Table E-1. Furthermore, many of these permits (such as the Title V air quality permit and the Aquifer Protection Program permit) and the proposed Arizona state reclamation rules provide for public notification and review prior to issuance of the permits. They also require review and reauthorization for any proposed major modifications of the mine activities for which a permit has been issued. The following discussion clarifies the specific regulatory responsibilities of the BLM and other federal and state agencies in regard to mining and mine-related activities on public versus private lands.

With regard to reclamation requirements for mining on public versus private lands, there is no significant difference between state and federal mined land reclamation policies. The recently passed Arizona Mined Land Reclamation Rules on July 20, 1996, applies to the mining activities proposed by Asarco for the selected lands. Should the exchange be denied, federal reclamation policy that would apply has been established in several pieces of legislation, including the Mining and Minerals Policy Act, FLPMA, and 43 CFR Section 3809. The state policy tends to be more site-specific, for example, applying different reclamation standards to exploration activities than to mineral recovery activities, whereas the federal policy makes no such distinction. Table E-1 below briefly summarizes some of the similarities and differences between the requirements of state and federal reclamation policies.

It is important to note that under either federal or state jurisdiction, all mining operations must be conducted in compliance with the substantive laws that protect environmental quality, such as the Clean Water Act, Clean Air Act, Resource Conservation and Recovery Act, and the Aquifer Protection Program under Arizona Revised Statutes Title 49 and Arizona Administrative Code Title 18. These laws require a proponent to reclaim in some manner disturbances to the land and natural resources resulting from their activities. Thus, even prior to passage of the state's implementing regulations for reclamation, some form of reclamation, such as stabilization of slopes, was required for mining activities on private lands in Arizona.

Wild and Scenic Rivers Act (WSRA). This act selects certain rivers of the nation possessing remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values; preserves them in a free-flowing condition; and protects their local environments.

This act establishes three classes of river areas:

1. Wild river areas characterized as:
   - Being free from impoundments
   - Generally inaccessible except by trail
   - With essentially primitive watersheds or shorelines
   - Unpolluted waters

2. Scenic river areas characterized as:
   - Being free from impoundments
   - Accessible in places by road
   - Having shorelines or watersheds still largely undeveloped

Table E-1. Comparison of Federal and Arizona State Mine Land Reclamation Standards

	Federal Reclamation Standards	State Reclamation Standards
Applies to:	Federal lands	Private lands in Arizona
Compliance Officer:	Authorized Officer (AO) at BLM	Arizona State Mine Inspector
Acreage criterion:	Requires reclamation plan for disturbances over five acres	Requires reclamation plan for disturbances over five acres
Acreage exemptions:	Requires reclamation for disturbances under five acres, under FLPMA Section 302(b)	Does not apply to disturbances under five acres
Grandfather clause date:	Applies to mining operations constructed on or after January 1, 1981	Applies to mining operations constructed on or after January 1, 1986
Post-closure reclamation objective:	Requires reclamation plan to be suitable for conditions consistent with BLM land use plans and RMPs	Requires reclamation plan to meet post-mining land use objectives approved by State Mine Inspector
Applicable start-date for reclamation:	Requires reclamation to occur concurrently with mining activity when possible, or else to begin within one year from closure	Requires reclamation to occur concurrently with mining activity when possible, or else to begin within two years of cessation of mining activity
Bonding/ Insurance:	Requires a bond or cash in a Federal depository account to cover reclamation costs	Requires a financial assurance mechanism for reclamation costs (e.g., surety bond)
Reclamation standards:	Includes reclamation standards for waste management, subsurface stabilization, site stability, water management, soil management, erosion prevention, revegetation, visual resources, site protection, and site-specific standards	Includes reclamation standards for waste management, subsurface stabilization, site stability, soil management, erosion prevention, revegetation, site protection, and site-specific standards. Water management standards are covered under the state Aquifer Protection Program.
Compliance review:	Allows the AO to inspect operations periodically to determine compliance	Allows the State Mine Inspector to inspect operations periodically to determine compliance
Public review/ notification:	Provides for public disclosure of the plan through the NEPA analysis of the MPO	Requires public notification prior to approval or major modification of an approved plan

3. Recreational river areas are characterized as:
   Being readily accessible by road or railroad
   May have some development along their shoreline
   May have undergone some impoundment or diversion in the past.

Selected rivers and streams have been placed into the National Rivers Inventory by acts of Congress. Other rivers and streams have been proposed to be included into the system. Rivers and streams included or proposed for inclusion into the system must be considered during project planning and project impacts identified in and EA or EIS. If there are no impacts to wild and scenic rivers, this fact should be noted in the Wild and Scenic Rivers Act summary. There is no legal requirement to consider state-listed Wild and Scenic Rivers and streams or unique areas during project planning or in an EA or EIS. However, it is recommended that any impacts to state-listed, or proposed-for-listing, rivers and streams and unique areas be considered and addressed at levels comparable to consideration given to rivers and streams protected by the Wild and Scenic Rivers Act.

Wilderness Act (WA). Mindful of the increasing population's impact on the amount of remaining wilderness lands, the Wilderness Act was created to secure an enduring resource of wilderness America. The Act establishes a National Wilderness Preservation System. The system is meant to reserve wilderness areas for the use and enjoyment of the American people in such a manner as will leave them unimpaired for future use and enjoyment of wilderness,....the protection of these areas, the preservation of their wilderness character, and for the gathering and dissemination of information regarding their use and enjoyment as wilderness.

Executive Order 11593--Protection and Enhancement of the Cultural Environment. Executive Order 11593 mandates that all Executive Branch agencies, bureaus, and offices preserve and protect their cultural resources; and insure that agency activities contribute to the preservation and protection of non-federally owned cultural resources.

Executive Order 11988 -- Floodplain Management. Executive Order 11988 requires a construction agency to "avoid to the extent possible the long- and short-term impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative" within the 100-year floodplain. Under this directive, Federal agencies are required to reduce the risk of flood loss; minimize the impact of floods on human safety, health, and welfare; and restore and preserve the natural and beneficial values served by floodplains in carrying out agency responsibility.

Executive Order 11990 -- Wetlands. Executive Order 11990 requires a construction agency to "avoid to the extent possible the long-term and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative. . . ."

Executive agencies, in carrying out their land management responsibilities, are to take action that will minimize the destruction, loss, or degradation of wetlands and take action to preserve and enhance the natural and beneficial values of wetlands. Each agency shall avoid undertaking or assisting in wetland construction projects unless the head of the agency determines that there is no practicable alternative to such construction and that the proposed action includes measures to minimize harm.

Executive Order 12898 -- Environmental Justice. Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," was signed on February 11, 1994 and amended on January 30, 1995. In general, Federal agencies shall make achieving environmental justice part of their missions by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations in the United States and its territories and possessions.

In accordance with the Executive Order ~~and Reclamation policy (PEP-No. ECM 95-3)~~, all NEPA documents shall consider the effects of Federal actions on minority and low-income populations, as well as the equity of the distribution of benefits and risks of those actions. A minority population consists of individuals who are African American, Hispanic, Asian American, Pacific Islander, American Indian, or Alaskan Native. Low income populations may be identified by utilizing the Department of Health and Human Services poverty guidelines or other similar indices. In addition to considering these populations, female heads of households, disabled/mobility-impaired, and elderly (60 or more years of age) populations also are considered. These populations collectively are referred to as protected populations.

To comply with environmental justice policy, NEPA documents should identify and evaluate any anticipated effects, direct or indirect, from the proposed project, action, or decision. If any significant impacts to low-income and/or minority populations are identified, the environmental document should clearly evaluate and state the environmental consequences of the proposed project, action, or decision on the low-income and/or minority populations. If a project, action, or decision is expected to have either an insignificant impact or no impact on low-income and/or minority populations, the document should specifically state that the proposed project or action was considered and is expected to have either insignificant impact or no impact, direct or indirect, with reasons given under an appropriate section.

Executive Order 13007--Indian Sacred Sites. Executive Order 13007 requires agencies to accommodate access to sacred sites on Federal land by Indian tribes, and to try to avoid damaging the physical integrity of such sites, in consultation with the groups involved.

Secretary of the Interior Order 3175 -- Indian Trust Assets. U.S. Department of the Interior policy (Secretary of the Interior Order 3175) requires that actions under NEPA consider potential effects on Indian Trust Resources, or Indian Trust Assets (ITAs). ~~Under Reclamation's Indian Trust Asset Policy of 1993, ITA identification should involve consultation with potentially affected tribes, Indian organizations or individuals, BIA, Office of American Indian Trust, Solicitor's Office, Reclamation's Native American Affairs Office, or Regional Native American Affairs Coordinator. Reclamation's policy requires direct consultation with the potentially affected tribes to identify and analyze potential impacts. It also requires that this consultation be described in the NEPA compliance document along with a statement of potential impacts on ITAs. Furthermore, Reclamation's policy requires Reclamation to carry out its activities in a manner which protects ITAs and avoids adverse impacts when possible.~~

ITAs are "legal interests" in "assets" held in "trust" by the United States for Indian tribes or individual Indians. Assets are anything owned that has monetary value. The assets need not be owned outright, but could be some other type of property interest, such as a lease or a right of use. Assets can be real property, physical assets, or intangible property rights. Common examples of ITAs may include lands, minerals, hunting and fishing rights, water rights, other natural resources, money, or claims. The United States, with the Secretary of the Interior as the trustee, holds many assets in trust for Indian tribes or Indian individuals.

"Legal interest" means there is a primary interest for which a legal remedy, such as compensation or injunction, may be obtained if there is improper interference. ITAs do not include things in which a tribe or individual has no legal interest, such as off-reservation sacred lands in which a tribe has no legal property interest. ~~It should be noted, however, that other Federal laws pertaining to religious or cultural laws should be addressed if impacts to such lands were to occur from other Reclamation actions.~~

APPENDIX F

DESERT TORTOISE HABITAT MANAGEMENT ON THE PUBLIC LANDS: A RANGEWIDE PLAN

DESERT TORTOISE HABITAT MANAGEMENT ON THE PUBLIC LANDS: A RANGEWIDE PLAN

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DIRECTOR'S PREFACE

Because the desert tortoise occurs largely on lands administered by the U.S. Bureau of Land Management, Bureau managers and staff specialists have a unique opportunity to manage habitat so as to ensure that viable populations of this species exist in perpetuity. Building on past and ongoing accomplishments that benefit desert tortoises and their habitats, we intend to focus on this opportunity in a new and important Bureau initiative outlined in the following Desert Tortoise Rangewide Plan.

A year ago, through endorsement of the 1987 Desert Tortoise Habitat Team report, I issued a directive to BLM staff in Arizona, California, Nevada, and Utah to develop strategies to begin implementation of the recommendations in that report. The result of their effort is this Rangewide Plan which provides Goals, Objectives, and Management Actions to be used by Bureau managers to improve the status of the desert tortoise. The Plan also formalizes several coordination mechanisms to ensure effective planning and decisionmaking whenever and wherever the desert tortoise is involved.

In the BLM we are obligated to operate within the provisions of the Federal Land Policy and Management Act which mandates a multiple-use/sustained yield approach to managing and using renewable and nonrenewable public land resources. In this process there is ample opportunity to implement the Management Actions presented in the Rangewide Plan which collectively provide a measure of our resolve to improve the status of the desert tortoise and its habitat. Here are a few examples:

—Complete and maintain an inventory of tortoise populations and habitats;

—Develop a system to track desert tortoise habitat quantity and quality through time to allow analysis of cumulative impacts;

—Participate fully on a management oversight group and all technical committees and coordination groups actively considering tortoise issues;

—Implement research and studies to resolve tortoise management issues;

—Manage tortoise habitats using an ecosystem management approach with emphasis on maintaining or restoring natural biological diversity; and

—Where practicable, allow no net loss in quantity or quality of important desert tortoise habitats.

In translating these action statements into on-the-ground accomplishments, we in the Bureau solicit the help of all individuals, groups, and agencies. For the new initiative to work effectively, cooperative thought, work, and funding will be vital. Simply put, the initiative is the Bureau's but the responsibility is shared by all who wish to conserve the tortoise and all who wish to develop land and use resources within the range of the desert tortoise!

Director

November 14, 1988
Date

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EXECUTIVE SUMMARY

The purpose of this Rangewide Plan is to implement the recommendations contained in the BLM report entitled "Management of Desert Tortoise Habitat." The BLM Director approved that Habitat Team report and its overall tortoise management Goal on October 15, 1987. This Goal is: "...to manage habitat so as to ensure that viable desert tortoise populations exist on public lands. This will be accomplished through cooperative resource management aimed at protecting the species and its habitat."

Most tortoise habitat exists on the public lands. It is the Bureau's responsibility to manage this resource pursuant to the Federal Land Policy and Management Act, the Bureau's multiple-use/sustained-yield mandate. Established policies and procedures for wildlife inventory, planning, environmental assessment, monitoring, interagency coordination and cooperation, and research and studies allow appropriate consideration of desert tortoises and their habitats in the Bureau's land-use planning and decision-making processes. This Rangewide Plan also provides Objectives and Management Actions derived from these policies and procedures to be used by the Bureau to improve the status of the tortoise and its habitat.

Recent studies on the genetics and morphometrics of desert tortoises describe three main populations in the United States: Sonoran Desert, Western Mojave Desert, and Eastern Mojave Desert populations (Map 1). Each of these populations have different shell shapes, occur in different habitat types, have differing behavioral patterns, and are affected by particular surface disturbing activities to varying degrees. Management for viable populations of each of these genetic/morphometric types is necessary.

One management strategy for providing future protection and management of desert tortoise habitat will be to categorize tortoise Habitat Areas according to four criteria: (1) importance of the habitat to maintaining viable populations, (2) resolvability of conflicts, (3) tortoise density, and (4) population status (stable, increasing, decreasing). Differing levels of management, consistent with Category Goals, will be applied to Habitat Areas in each Category (Table 1). The Bureau is committed to maintaining viable tortoise populations in Category I and II habitats through implementation of specific Management Actions. The placing of an area of habitat in Category III means that these areas are of lower value in sustaining viable populations of tortoises on the public lands, and thus can be subjected to lower management intensity specifically for tortoises than habitats in the other Categories.

Management Actions are grouped under fourteen Management Objectives. These Management Objectives and accompanying Management Actions represent "where the Bureau intends to go" during the coming decade to meet the Bureau's overall Goal for preserving and managing tortoises and their habitats.

Objective 1. Develop increased awareness of tortoise resources on the public lands.

Objective 2. Complete and maintain on a continuing basis an inventory and monitoring program for tortoise populations and habitats to assist in making management decisions on the public lands.

Objective 3. Develop and maintain a monitoring program specifically for land-use activities that adversely affect tortoise habitats. This program will be used in the analysis of and response to the cumulative impacts of land-use decisions on tortoise habitats.

Objective 4. Comply fully with the Endangered Species Act of 1973, as amended, as it relates to tortoise population and habitat management on the public lands.

Objective 5. Develop and maintain effective coordination and cooperation with outside agencies and Bureau constituents concerning tortoise population and habitat management.

Objective 6. Conduct research and studies sufficient to develop and document the knowledge and techniques needed to ensure the viability of tortoise populations and habitats in perpetuity.

Objective 7. Manage the public lands, on a continuing basis, to protect the scientific, ecological, and environmental quality of tortoise habitats consistent with the Category Goals and other Objectives of this Rangewide Plan. This implies management for the existence of an adequate number of healthy and vigorous tortoise populations of sufficient size and resilience to withstand the most severe environmental impacts, and with appropriate sex and age ratios and recruitment rates to maintain viable populations in perpetuity.

Objective 8. When the need is identified through the Bureau planning system, acquire and/or consolidate, under Bureau administration, management units with high tortoise habitat values, and mitigate the effects of issuing rights-of-way across public lands.

Objective 9. Ensure that off-highway vehicle use in desert tortoise habitats is consistent with the Category Goals, Objectives, and Management Actions of this Rangewide Plan.

Objective 10. Ensure that livestock use is consistent with the Category Goals, Objectives, and Management Actions of this Rangewide Plan. This may include limiting, precluding, or deferring livestock use as documented in site-specific plans.

Objective 11. Provide for herd management for wild horses and burros which is consistent with the Category Goals, Objectives, and Management Actions of this Rangewide Plan. This may include limiting or precluding wild horse and/or burro use, as appropriate.

Objective 12. Provide for management of wildlife other than desert tortoises on the public lands consistent with the Category Goals, Objectives, and Management Actions of this Rangewide Plan.

Objective 13. Cooperate with state wildlife agencies and APHIS to effect appropriate types and levels of predator control to meet the Category Goals and Objectives of this Rangewide Plan. This will be considered only where predation is interfering with maintaining viable tortoise populations.

Objective 14. Manage the Bureau's energy and minerals program in a manner consistent with the Category Goals and Objectives of this Rangewide Plan.

INTRODUCTION AND PURPOSE

The desert tortoise (Xerobates agassizii) is one of the most politically sensitive animals with which Federal agencies must be concerned, because tortoises are particularly susceptible to surface-disturbing activities. Normal tortoise populations are characterized by a long period to reproductive maturity, low reproductive output, and low survival of young. These characteristics, which portend an inability to adapt to rapid environmental changes, have led to widespread Bureau of Land Management (BLM) and public recognition of the need to manage tortoise populations and habitats effectively.

Bureau authorities exist through which protection and conservation of tortoises and their habitats can be implemented, particularly if cooperation and assistance is provided by state, county, and other Federal agencies, as well as private landowners, where mixed ownership is a major problem. Many of these authorities have been applied by the Bureau to address tortoise habitat management issues with varying degrees of intensity and success. Other authorities and many important management opportunities remain to be implemented,

The popular appeal of tortoises and their susceptibility to urban encroachment, agricultural development, off-highway vehicle use, livestock grazing, and mining continue to place extreme demands on some wild populations. The results have been that many tortoise populations have declined; local extirpations have occurred; and other populations are no longer viable. Declining habitat quantity and quality are major causes of these conditions, and aggressive conservation and management programs are needed to counter the negative forces acting against tortoises and their habitats.

Recognizing these declines, the U.S. Fish and Wildlife Service (FWS) officially listed tortoises on the Beaver Dam slope of Utah as threatened and classified the desert tortoise elsewhere as a candidate for Federal listing. Bureau policy requires that habitats of Federal candidate species be managed and/or conserved to ensure that BLM actions do not contribute to the need to list the species. In 1985 the FWS determined that the desert tortoise warranted final Federal listing as a species, but the listing proposal was set aside because of other higher priorities in the FWS.

The purpose of this Rangewide Plan is to implement the recommendations contained in the BLM report entitled "Management of Desert Tortoise Habitat." That 1987 report was prepared by a Tortoise Habitat Team consisting of representatives of several BLM State, District, and Area Offices and the Nevada Department of Wildlife. The BLM Director approved the Habitat Team report and its overall tortoise management Goal on October 15, 1987. This Goal is: "...to manage habitat so as to ensure that viable desert tortoise populations exist on public lands. This will be accomplished through cooperative resource management aimed at protecting the species and its habitat."

Further, this Rangewide Plan was prepared to provide Objectives and Management Actions to be used by the Bureau to improve the status of the tortoise on the public lands, including efficient planning and research, cost effective on-the-ground implementation of plans and research recommendations, and appropriate awareness of the species in the land-use planning and decision-making processes relating to other public land resources. It is also the intent of the BLM to coordinate and cooperate with interested publics and constituents, state wildlife agencies, and other Federal agencies in implementing on-the-ground tortoise habitat Management Actions.

There are also a few things this Rangewide Plan is not intended to do. It does not address site-specific, population-specific, or individual on-the-ground management actions. These are being or will be developed in individual site-specific activity plans, such as Habitat Management Plans for wildlife, Allotment Management Plans for livestock, Area of Critical Environmental Concern Management Plans for special areas, etc. Development of proposals for budget and work effort required to implement this Rangewide Plan are on-going through the normal annual work planning process and will be developed further following completion of state-level desert tortoise habitat management implementation strategies/plans. National Environmental Policy Act compliance will occur when individual actions are proposed.

BACKGROUND

Inherent in the Bureau's authorities is a mandate to which the Bureau strives in its wildlife programs. The Federal Land Policy and Management Act of 1976 (FLPMA) formalizes the principles of multiple use and sustained yield as a Bureau mission. Wildlife is identified as one of the principal or major uses of the public lands. The management and preservation of wildlife as a principal multiple use results in a goal of maintenance of habitat diversity. In fact, the habitat diversity present on the public lands administered by the BLM exceeds that of any other landowner in the Nation--governmental or private. High diversity and low human disturbance within habitats generally yields healthy wildlife populations. Such populations offer more management options for maintenance or improvement of their well-being than do threatened or endangered species for which stringent management strategies necessary for recovery diminish available options. Thus, the identification and maintenance of management options for conservation of nonlisted species is of benefit not only to the Bureau, but also to wildlife in general, desert tortoises included.

Authority.

The past decade has seen great changes in the attitudes of the American public towards the lands the BLM administers under its multiple-use and sustained-yield mandate, FLPMA. These changes have resulted in improved management of the natural resources on the public lands, including the wildlife resources. The vast expanses of prairie, deserts, mountains, and forests, as well as special habitats (floodplains, islands, cliffs, and rock outcrops) provide shelter and food for both huntable and nongame wildlife, furnish reproductive sites and nourishment for hundreds of species of wildlife, and fascinate those people who enjoy open space and natural settings.

Indeed, most tortoise habitat exists on the public lands, and therein lies the essence of the Bureau's responsibility to this resource as set forth in FLPMA:

> The Congress declares that it is the policy of the United States that...management be on the basis of multiple use and sustained yield unless otherwise specified by law; the public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmosphere, water resource, and archaeological values; that, where appropriate, will preserve and protect certain public lands in their natural condition; that will provide food and habitat for fish and wildlife and domestic animals; and that will provide for outdoor recreation and human occupancy and use....
>
> The Secretary shall prepare and maintain on a continuing basis an inventory of all public lands and their resource and other values....
>
> In the development and revision of land use plans, the Secretary shall --
>
> > give priority to the designation and protection of areas of critical environmental concern;

> consider the relative scarcity of the values involved...; and
>
> coordinate the land use inventory, planning, and management activities of or for such lands with the land use planning and management programs of other Federal departments and agencies and of States and local governments within which the lands are located....

The principal wildlife management responsibility of the BLM is for habitat. State wildlife agencies and the FWS have responsibility for species management, though the two responsibilities cannot--and need not!--be separated completely, particularly in light of the Bureau's responsibility for recovery of species under the Endangered Species Act of 1973 and recent U.S. Supreme Court decisions regarding the authority of the Federal Government over wildlife on Federal lands.

BLM Procedures and Policies Relating to Wildlife Habitat.

The following is a discussion of how the Bureau manages wildlife in general, tortoise habitat included. The Bureau has not made full use of these processes to manage and protect tortoises and their habitats in the past, but the current high intensity desert tortoise initiative is a positive prospect for the future.

A. Inventory. It is Bureau policy that wildlife inventories be conducted to provide information needed for the management of BLM-administered lands. Inventories are done in response to Bureau planning efforts or as part of the environmental work (NEPA compliance) associated with specific projects. Through these means, and through monitoring and research, the Bureau has amassed large quantities of information on wildlife populations and habitats--and it will continue to do so.

B. Planning. The optimal long-term process for BLM consideration of tortoise populations and habitats is the Bureau Planning System. Bureau plans are prepared in direct compliance with FLPMA and are based in part on the continuing inventory mandated by that law. Land-use plans are developed to clearly identify means of protecting wildlife habitat and other resources. Appropriate considerations are made during development and analysis of alternatives. These analyses lead to formal Resource Management Plan recommendations. Older Management Framework Plans are currently being replaced by new generation Resource Management Plans.

Bureau planning policy includes application of the principle of multiple use/sustained yield; use of a systematic interdisciplinary approach to achieve integrated consideration of physical, biological, economic, social, and environmental aspects of public land management; giving priority to identification, designation, protection, and management of Areas of Critical Environmental Concern (ACECs); considering the relative scarcity of the values involved; weighing the long-term benefits and detriments against short-term benefits and detriments; and extensive coordination with other Federal departments and agencies, state and local governments, academia and special interest groups, and Indian tribes.

Site-specific activity plans, such as Habitat Management Plans for wild life, Allotment Management Plans for grazing practices, and Recreation Management Plans for recreation programs, are prepared to implement Resource Management Plans (land-use plans) in particular areas. It is important to note that in many cases wildlife needs can be considered and met as components of nonwildlife activity plans. Examples would include livestock management practices which can reduce competition for forage or decrease the occurrence of trampling of tortoises in certain areas; off-highway vehicle restrictions which might decrease the access to important tortoise habitats; and the design and siting of campgrounds away from vulnerable tortoise populations.

This Rangewide Plan will become part of the routine procedures for the multiple-use management of public lands by the BLM. As such it will be part of the guidance used to develop alternatives addressed in land-use plans and will be carried through the planning process and become a part of the selected alternatives.

C. Environmental Assessment. The Bureau Planning System requires continual updating to remain current and to gain greater specificity. Updating is accomplished at least in part through implementation of the Bureau policy to ensure that Bureau planning and National Environmental Policy Act (NEPA) compliance efforts are integrated. These processes provide a clear and logical progression from planning through accomplishment, thereby avoiding duplication of effort to the extent possible. It is through the development of NEPA documents and implementation of decisions resulting from them that the project-by-project efforts to manage and protect wildlife and wildlife habitats on the public lands are accomplished.

In the absence of complete planning system data and documents, the Bureau often has an immediate need for better information with which to make project-specific recommendations. Additional inventory is often needed to develop wildlife habitat stipulations included in environmental compliance documents (environmental assessments, impact statements, impact reports, etc.) required by the National Environmental Policy Act (NEPA), similar state laws, and the associated regulations (e.g., 40 CFR Parts 1500-1508). Gathering data for environmental documents does not, however, yield all necessary information, such as trend data.

D. Monitoring. It is Bureau policy to implement monitoring activities that reflect a long-term commitment to the management of renewable resources and that will assist in the evaluation of the cumulative impacts of implementing land-use plans and records of decision. BLM monitoring for the benefit of wildlife occurs in five forms: (1) monitoring to determine population trends; (2) monitoring to determine habitat trends; (3) monitoring of actions called for in Habitat Management Plans and other activity plans; (4) monitoring compliance with stipulations contained in Bureau decision documents; and (5) monitoring to determine if mitigation measures are effective.

Interagency Coordination and Cooperation.

Coordination and cooperation are very important attributes of the Bureau's program to manage and conserve wildlife and wildlife habitats. Such coordination and cooperation will be accomplished primarily through compliance with the Federal Land Policy and Management Act (see above); the Endangered Species Act of 1973, as amended; the Sikes Act; national level interagency cooperative agreements; BLM/state intergovernmental memoranda of understanding; Coordinated Resource Management Planning; various other Federal environmental and wildlife laws; where enacted, similar State legislation; etc. Several specifically focused management and technical committees will also be vital to coordination of and cooperation on tortoise issues.

A. Tortoise Management Committee Structure. As recommended in the 1987 Habitat Team report, a structure for desert tortoise committees has been established. The Desert Tortoise Management Oversight Group was established to include management level representatives from U.S. Fish and Wildlife Service Regions 1, 2, and 6; BLM offices from each of the four involved states; the four involved state wildlife agencies; and the BLM Washington Office. This Group is charged with providing a strong leadership role for implementation of this plan, as well as ensuring that data analysis procedures are standardized, considering funding and research priorities, ensuring that various reports are prepared, and reviewing existing and new laws and plans relating to tortoises.

A second group of autonomous state-level Desert Tortoise Technical Committees exists (or will be established) including representatives from agencies, organizations, and groups with special knowledge of tortoises and their habitats. One of the purposes of these Technical Committees should be to advise and put issues before BLM managers and/or the Management Oversight Group for their consideration. These Committees may also be asked to develop strategy documents for the consideration of BLM State Directors in each of the four states. Such documents should be designed to ensure that the overall Bureau desert tortoise management Goal is reached through the implementation of the Objectives of this Rangewide Plan.

Finally, as necessary, special work groups, coordination committees, advisory groups, or task forces will be established to deal with specific tortoise issues. These groups may be established by involved agencies, the Management Oversight Group, or the Technical Committees, as appropriate.

B. Implementation of the Sikes Act. Most of the Bureau's Habitat Management Plans are developed under the umbrella of the Sikes Act, Title 2--Conservation Programs on Certain Public Land. Strong BLM/state wildlife agency cooperation is mandatory for all Sikes Act Habitat Management Plans:

> The Secretary of the Interior...shall, in cooperation with the State agencies..., plan, develop, maintain, and coordinate programs for the conservation and rehabilitation of wildlife, fish, and game....

> Each State may enter into a cooperative agreement with...the Secretary of the Interior with respect to those conservation and rehabilitation programs to be implemented under this title within the State on public land which is under his jurisdiction....
>
> Each cooperative agreement entered into under this subsection shall...provide for fish and wildlife habitat improvements or modifications, or both; provide for range rehabilitation where necessary for support of wildlife; provide adequate protection for fish and wildlife officially classified as threatened or endangered pursuant to section 4 of the Endangered Species Act of 1973...or considered to be threatened, rare or endangered by the state agency; (and) require the control of off-highway vehicle traffic....

These statements from the Sikes Act have been incorporated as Bureau policy. All Habitat Management Plans are to be prepared under the Sikes Act authority unless the state wildlife agency chooses not to participate.

Research, Development, and Studies.

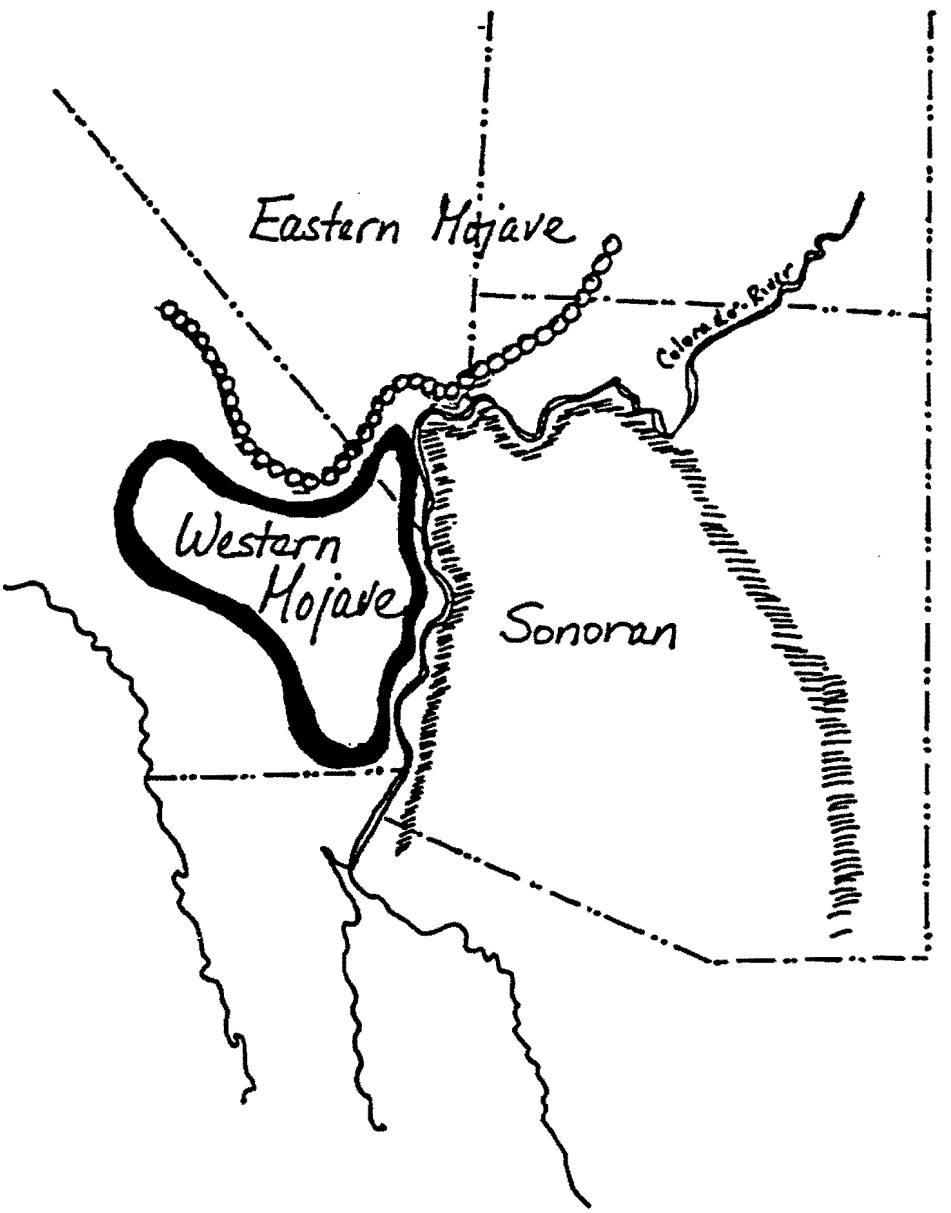
The Bureau has been a leader in tortoise population and habitat management research, study, and information transfer for over a decade. The BLM has conducted dozens of tortoise research projects, studies, and inventories spanning everything from the intensive research necessary to establish basic life history parameters for the species to very specialized studies of desert tortoise foraging habits and movement patterns. Much more needs to be done, however.

A. Research and Development. BLM research and development policy states that such projects shall be user-oriented (applied) and necessary to provide program (manage- ment) direction. Research needs of the Bureau are identified in Statements of Need prepared by field office staffs, primarily Resource Area and District Offices and the Denver Service Center. These statements are reviewed at higher levels, and authorizations to develop Project Prospectuses (proposals) are given, as appropriate. Approved research and development projects are conducted and evaluated, data are analyzed, and reports are written and distributed.

B. Studies. While not generally considered R&D by the Bureau, studies account for much of the Bureau's initial information gathering effort for the benefit of tortoises and their habitats. Studies are distinguished from research projects as being short-termed, small in scope, site specific, and directly applicable to immediate management needs.

Current Tortoise Population and Habitat Status

Recent studies on the genetics and morphometrics of desert tortoises provide important information for management of the species. Data from mtDNA research indicate that at least two major genetic assemblages exist in the United States, separated by the Grand Canyon-Colorado River system (Map 1). These two groups, separated for 3 to 5 million years, are substantially different from each other. Additional, minor genetic differences can be found in populations occurring north and west of the Grand Canyon-Colorado River. New data on shell shapes closely parallel



MAP 1. The three Desert Tortoise genetic/morphometric assemblages discussed in this Rangewide Plan.

findings of the genetic studies. Three distinct shell shapes have been identified: a California type, a Beaver Dam Slope type, and a Sonoran Desert type. The following descriptions of tortoise populations and habitats incorporate the new information.

A. Sonoran Desert Populations. Sonoran Desert tortoises are very different genetically and morphologically from those to the north and west of the Colorado River. The Sonoran tortoise is generally larger, flatter, and more pear-shaped than its relatives. Populations are very limited in size, distribution, and in selection of habitats. They are found on some steep, rocky slopes of mountain ranges, primarily in Arizona Uplands vegetation dominated by palo verde and saguaro cactus. Populations are island-like and are separated from each other by valleys. The Black and Cerbat mountains of northwest Arizona are more like mountains in the Mojave Desert (creosote/bursage), with tortoises in less steep areas.

Because of the limited nature of the populations and habitat, Sonoran Desert tortoises are particularly vulnerable to human activities. Populations and habitat have been lost to expansion of urban areas and to encroachment of uses such as recreation, roads, and energy related rights-of-way. Grazing, mining, and fire also adversely affect some areas.

B. Western Mojave Desert Populations. The West Mojave Desert as defined here includes parts of the West Mojave, East Mojave, and Colorado Deserts in California and extreme southern Nevada (Map 1). Western Mojave Desert populations have high domed shells, are box-like in shape, and have plastrons of normal length.

The vast majority of all extant tortoise populations are in this unit. Within the typical geographic boundaries of the West Mojave, tortoises occur in creosote bush, alkali sink, and tree yucca habitats in valleys, on fans, and in low rolling hills at elevations ranging from 2,000 to 3,700 feet. In the Fenner and Piute valleys of eastern California and southern Nevada, creosote bush and tree yucca habitats at elevations of 2,200 to 3,500 feet are also preferred.

Tortoises living in the Colorado Desert utilize habitats of (a) creosote bush scrub with ocotillo and cactus, (b) creosote bush scrub and tree yuccas, and (c) microphyll woodland washes or wash stringers at elevations ranging from about 500 to 2,700 feet.

Status and habitat condition vary substantially from one area to another. Populations and habitat in the west Mojave area are characterized by severe and rapid rates of decline. Study plot data from eight sites indicate that populations have declined at rates of 10 percent or more per year for the last six to eight years. Vandalism, collections, raven predation, and disease are a few of the many causes for population declines. Habitat is deteriorating and being lost from urban, energy, and mineral development, vehicle-oriented recreation, grazing, and other uses.

The population in Fenner Valley was relatively stable a few years ago but is now under pressure from raven predation and continuing livestock grazing, recreational use, and yucca harvest on private lands. In Piute Valley in Nevada, the population is in a severe state of decline. Issues there include cattle grazing, urban encroachment, recreational use, and mineral development.

In the Colorado Desert, tortoise populations were believed to be the most stable and of the highest densities in the geographic range until 1987. Since that time, study plot data from the Ward and Chemehuevi valleys indicate declines in recruitment of juveniles caused by raven predation. The Chuckwalla Valley populations are experiencing increased pressures from vandalism, and in the Chuckwalla Bench Area of Critical Environmental Concern prime populations have declined 60 percent since 1982, probably due to disease.

Problems with habitat deterioration in the Colorado Desert vary considerably from the Ward and Chemehuevi valleys to the Chuckwalla Valley and Bench. Losses are relatively minor in the Ward and Chemehuevi valleys compared with the West Mojave area, but pressure is increasing for development of more power line corridors, agricultural development, and urban development. Habitat is under greater threat of encroachment in the Chuckwalla area from agricultural and associated urban development, mining, and increased recreational use. The Chuckwalla area is particularly vulnerable because it is relatively small and the tortoise habitat within it is fragmented.

C. Eastern Mojave Desert Populations. For management purposes, the East Mojave tortoise populations are best treated by genetic rather than by the typical geographical subdivisions. The western-most boundary of the East Mojave genetic unit occurs in the vicinity of the East Mojave Scenic Area in eastern California (Shadow Valley, Ivanpah Valley, and Kelso regions). From the California border, East Mojave populations extend northeast and north into Nevada to the Las Vegas Valley and Coyote Spring Valley, and eastward to the Beaver Dam Slope and Paradise Valley of southwestern Utah and extreme northwestern Arizona.

Shell shapes of tortoises in this unit vary from a high-domed, box-like form in the Ivanpah Valley to a substantially flatter form on the Beaver Dam Slope. Beaver Dam Slope tortoises also have a very short plastron compared with other tortoises in the geographic range and are a very distinct type.

East Mojave tortoise populations typically occur in creosote bush-burro bush or creosote bush-tree yucca vegetation types. The forage base consists of native winter and summer annuals, perennial grasses, cacti, a few half-shrubs, and some exotic introduced species.

In general, East Mojave tortoise populations and habitats are experiencing downward trends from urban development, long-term livestock grazing, mining, large-scale water development, off-highway vehicle use, collecting, and many other human-related uses. Populations have been fragmented and are in the process of becoming increasingly isolated by urban development, highway construction, and development within power line corridors.

CATEGORIZATION OF TORTOISE HABITAT AREAS

Desert Tortoise Habitat Areas will be delineated by BLM District Managers (with appropriate public review) to meet the three Category Goals described in Table 1. Such categorization of habitats will assist the BLM in attaining the overall tortoise habitat management Goal established by the Director (see Introduction). That Goal is translated into more specific Goals for each of the three habitat Categories. These Category Goals will, in turn, be reached by implementing the Objectives and related Management Actions in the next section of this Rangewide Plan.

The purpose of the categorization of habitats is to provide for future protection and management of these areas and their associated desert tortoise populations. Differing levels of management, consistent with Category Goals, will be applied to Habitat Areas in each Category. The Bureau is committed to maintaining viable tortoise populations in Category I and II habitats through implementation of the Management Actions in the next section. The placing of an area of habitat in Category III means that these areas are of lower value in sustaining viable populations of tortoises on the public lands, and thus can be subjected to lower management intensity specifically for tortoises than habitats in the other Categories.

The criteria in Table 1 provide guidelines for categorization by decision makers. They are not intended to be used as a cookbook formula. For example, some modification of the conflict resolvability criterion may be required in checkerboard or braided land ownership patterns. All conflicts may not be resolvable, but the significance of the other three criteria may clearly place the Habitat Area into Category I.

The criteria used to categorize tortoise habitats include the following: (1) importance of the habitat to maintaining viable populations, (2) resolvability of conflicts, (3) tortoise density, and (4) population status (stable, increasing, decreasing). Information concerning all of these criteria may not be available or relevant for all categorizations.

Note that tortoise density and population trends will often be more useful in evaluating management progress within Categories than for actual categorization of Habitat Areas. Usually, the overriding criteria for categorization will be viable population considerations and conflict resolvability. The concept of resolvability includes mitigation; thus, conflicts will be judged resolvable whenever the actions required to resolve the conflicts are within the Bureau's discretion.

Where schedules permit, areas will be categorized through resource management planning. Where schedules do not permit, categorizations will be completed using existing data and will be reconsidered whenever a Resource Management Plan is prepared or revised. The results will be documented as a part of the approved plan.

Table 1. Goals and criteria for three Categories of desert tortoise Habitat Areas. The criteria are ranked by importance to the categorization process, with Criterion 1 being the most important.

Items	Category I Habitat Areas	Category II Habitat Areas	Category III Habitat Areas
Category Goals	Maintain stable, viable populations and protect existing tortoise habitat values; increase populations, where possible.	Maintain stable, viable populations and halt further declines in tortoise habitat values.	Limit tortoise habitat and population declines to the extent possible by mitigating impacts.
Criterion 1	Habitat Area considered essential to maintenance of large, viable populations.	Habitat Area may be essential to maintenance of viable populations.	Habitat Area not considered essential to maintenance of viable populations.
Criterion 2	Conflicts resolvable.	Most conflicts resolvable.	Most conflicts not resolvable.
Criterion 3	Medium to high density or low density contiguous with medium or high density.	Medium to high density or low density contiguous with medium or high density.	Low to medium density not contiguous with medium or high density.
Criterion 4	Increasing, stable, or decreasing population.	Stable or decreasing population.	Stable or decreasing population.

TORTOISE MANAGEMENT OBJECTIVES AND ACTIONS

Thus far this Rangewide Plan has dealt with (1) the overall Goal for tortoise habitat management on BLM-administered lands; (2) the Bureau's general strategy for implementing its tortoise program; (3) the Bureau's authorities, procedures, and policies relating to tortoise population and habitat management; and categorization of tortoise Habitat Areas. This information, along with what is in the 1987 Habitat Team report (see above), represents "where the Bureau is" with tortoise management on the public lands. The following list of Management Objectives and Actions represents "where the Bureau intends to go" during the coming decade to meet the Bureau's overall Goal for preserving and managing tortoises and their habitats.

The overall Goal is "...to manage habitat so as to ensure that viable desert tortoise populations exist on public lands. This will be accomplished through cooperative resource management aimed at protecting the species and its habitat."

Management Actions are grouped under fourteen Management Objectives. These Objectives are not listed in priority order because many things may well proceed concurrently, and the relative importance of each Objective may be different between states or between areas.

Objective 1. Increased Awareness;
Objective 2. Inventory and Monitoring;
Objective 3. Cumulative Impacts;
Objective 4. Endangered Populations;
Objective 5. Coordination and Cooperation;
Objective 6. Research and Studies;
Objective 7. Management of Tortoise Habitat;
Objective 8. Lands and Realty Actions;
Objective 9. Off-highway Vehicles;
Objective 10. Livestock Use;
Objective 11. Wild Horses and Burros;
Objective 12. Wildlife Habitat Management;
Objective 13. Predator Control; and
Objective 14. Energy and Mineral Development.

This Rangewide Plan represents an element of BLM's Planning System. Final categorizations will be accomplished through the resource management planning process. Specific project proposals and other proposed uses will be subject to environmental analysis as necessary to comply with NEPA and to reach informed decisions. Because environmental analysis within the planning process will bring about full consideration of the effects of actions resulting from this Rangewide Plan, an environmental assessment of this plan is not considered to be necessary.

Each Management Action relates directly to the Objective above it and should not be used inconsistent with the intent of that Objective. Most Management Actions also relate to Category Goals listed in Table 1. Ultimately, each Management Action and Objective relates directly to the overall Goal for tortoise management stated above. Keeping these relationships in mind will allow use of the following statements in their full, correct contexts.

The definition of the term "mitigation" as used in this document is found in the Council for Environmental Quality (CEQ) guidelines (40 CFR 1508.20):

> (a) avoiding the impact altogether by not taking a certain action on parts of an action;
>
> (b) minimizing impacts by limiting the degree or magnitude of the action and its implementation;
>
> (c) rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
>
> (d) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and
>
> (e) compensating for the impact by replacing or providing substitute resources or environments.

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Objective 1. Develop increased awareness of tortoise resources on the public lands.

Management Action 1A. Develop an overall public education program concerning tortoise populations and habitats.

(1) Develop a desert tortoise public affairs plan in each state by the end of FY 1989 that includes time frames and funding strategies for things such as items 2-4 immediately following.

(2) Prepare educational packets for distribution at agency offices and by rangers, wardens, deputy sheriffs, etc.

(3) Prepare and distribute radio and television announcements, videos, slide programs, brochures, posters, decals, stickers, etc.

(4) Change and update existing visitor use maps and brochures to include information to protect and conserve tortoises (see Management Action 1B for examples). Exclude density information and categorizations.

Management Action 1B. Increase public awareness of important tortoise issues wherever the public might congregate in the field. Signs, brochures, and other information media should deal with issues such as proper treatment of tortoises found on roads, the dangers of releasing diseased captive tortoises into the wild, the senselessness and impacts of vandalism and shooting, and the legalities of collecting tortoises for pets.

Management Action 1C. Share tortoise management expertise and data by holding workshops, developing short-term assignments for key personnel, conducting training, and providing formal information storage and transfer.

Management Action 1D. Develop an awareness in other Bureau disciplines of tortoises and their habitats, and capitalize on this increased awareness through a strong day-to-day advocacy for tortoise habitat protection and management, particularly in the BLM planning, environmental assessment, and budget processes.

Management Action 1E. Develop an interagency, intergovernmental, and public awareness of Bureau tortoise habitat Management Actions and related accomplishments through an active information and education program, a timely technical information transfer process, and other means.

Management Action 1F. Distribute this Rangewide Plan for desert tortoise management to other tortoise habitat managers/owners within 90 days of signing, and encourage their adoption of similar Goals, Objectives, and Management Actions for the lands they administer.

Objective 2. Complete and maintain on a continuing basis an inventory and monitoring program for tortoise populations and habitats to assist in making management decisions on the public lands.

Management Action 2A. Complete and maintain an inventory of tortoise populations and habitats occurring on public lands. Assign Habitat Areas to Categories according to criteria set forth elsewhere in this Rangewide Plan as soon as adequate information is available (i.e., many Habitat Areas can be categorized soon after this Rangewide Plan is approved). The target dates for completion of inventory and categorization are as follows:

California	March 1989;
Utah	March 1989;
Nevada	September 1989; and
Arizona	September 1992.

Management Action 2B. Monitor study plots to ensure acquisition of adequate information to reach the Category Goal for each Habitat Area according to prescribed schedules developed in each state during FY 1989. This should be done in each study plot at least every four or five years based on the needs and characteristics of the area being monitored.

Management Action 2C. Ensure that tortoise population and habitat monitoring and inventory are coordinated as needed among all entities gathering such information in order to avoid duplication of effort and undue disturbance to the tortoises involved.

Management Action 2D. Use tortoise population and habitat monitoring techniques and terminology (where appropriate) that will give standard data elements for input into the Bureau's land-use planning and environmental assessment processes.

(1) Develop a draft tortoise inventory and monitoring handbook by the end of FY 1988. No matter what technique is used, data must be of sufficient quality to permit state-to-state, population-to-population, and year-to-year comparisons.

(2) Conduct a workshop in November 1988 to finalize the draft inventory and monitoring handbook for Washington Office and State Director approvals. The relationship between inventory, monitoring, and categorization of Habitat Areas should also be clarified at this workshop.

Management Action 2E. Provide training to appropriate BLM personnel on a continuing basis on available inventory and monitoring techniques for tortoise populations and habitats.

Management Action 2F. Ensure that all types of monitoring are conducted. These types include monitoring of tortoise populations, tortoise habitats, and pertinent management decisions in land-use plans, as well as compliance with relevant stipulations in records of decision and monitoring to determine the effectiveness of mitigations.

Objective 3. Develop and maintain a monitoring program specifically for land-use activities that adversely affect tortoise habitats. This program will be used in the analysis of and response to the cumulative impacts of land-use decisions on tortoise habitats.

Management Action 3A. Develop a system by the end of FY 1989 to track desert tortoise habitat quality and quantity through time, and report biennially (1990, 1992, 1994, etc.) on the cumulative impacts of land-use actions on desert tortoise Habitat Areas.

Management Action 3B. Determine by the end of FY 1989 the feasibility of using Geographic Information System technology as part of the Bureau's Land Information System to document the progress of land use as it affects tortoise habitat quantity and quality. This analysis should consider the costs of documenting the land uses existing as of January 1, 1990, and the possibility of reconstructing the conditions existing in 1980 and 1985.

Objective 4. Comply fully with the Endangered Species Act of 1973, as amended, as it relates to tortoise population and habitat management on the public lands.

Management Action 4A. Comply with section 2 of the Endangered Species Act which concerns management of populations and habitats of unlisted species (populations) in a manner to ensure that species do not become threatened or endangered through man's actions.

Management Action 4B. Take a leadership role in the management of officially listed populations of desert tortoises by developing and carrying out programs for their recovery.

Management Action 4C. Assign officially determined (pursuant to section 4 of the Endangered Species Act) desert tortoise Critical Habitats to Category I. Categorization of the non-Critical Habitat of listed populations will depend on application of the criteria set forth in Table 1 of this Rangewide Plan.

Objective 5. Develop and maintain effective coordination and cooperation with outside agencies and Bureau constituents concerning tortoise population and habitat management.

Management Action 5A. Document in administrative reports and published papers the results of all tortoise management research/studies/monitoring and individual tortoise Management Actions to facilitate information transfer and to minimize duplication of research efforts. This should be done through annual progress reports and final reports within one year of completion of the projects.

Management Action 5B. Coordinate and provide BLM assistance (logistical, financial, volunteer manpower, etc., as appropriate) to those conducting non-Bureau studies and research involving tortoises and their habitats on the public lands. Assisted projects must contribute to reaching the Bureau's tortoise management Goals, Objectives, and/or Management Actions.

Management Action 5C. Pursuant to Title 2 of the Sikes Act, coordinate the Bureau's tortoise population and habitat inventory, planning, management, and monitoring activities with similar activities and programs of other Federal departments and agencies and/or appropriate state and local governments.

Management Action 5D. Coordinate tortoise management efforts with county and other local planning and zoning restrictions as appropriate and to the extent allowed by Federal laws and regulations.

Management Action 5E. Participate fully on special oversight groups, technical committees, and coordination groups that deal with tortoise population and habitat issues and management opportunities.

(1) Provide for the functioning of a Desert Tortoise Management Oversight Group consisting of management-level representatives from FWS Regions 1, 2, and 6; BLM offices from each of the four involved states; the four involved state wildlife agencies; and the BLM's Washington Office. The responsibilities of this group are listed in the 1987 Habitat Team report.

(2) Assist in establishing (if necessary) and help provide for the functioning of four autonomous state-level Desert Tortoise Technical Committees. Representation should include people with special knowledge of tortoises and their habitats. One of the purposes of these Technical Committees should be to advise and put issues before BLM managers and/or the Management Oversight Group for their consideration. All such Committees should be formalized by March of 1989.

(3) Establish coordination groups to deal with specific desert tortoise issues and the overall program, with emphasis on coordination with user groups. BLM District Advisory Councils can be used to serve this purpose, if appropriate.

Objective 6. Conduct research and studies sufficient to develop and document the knowledge and techniques needed to ensure the viability of tortoise populations and habitats in perpetuity.

Management Action 6A. Conduct a workshop during FY 1989 to clarify the concept of "viable population" as it relates to the desert tortoise in each of the genetically isolated populations.

Management Action 6B. Implement research and studies to answer the questions raised in Appendix 2 of the 1987 Habitat Team Report. For example, data gaps include the effects of grazing on tortoise populations and habitats, tortoise nutritional needs, acceptable levels of off-highway vehicle activity in tortoise habitat, the effects of habitat fragmentation and disturbance in general, the estimation of viable population levels, the effects of predation (ravens, coyotes, etc.) on tortoise populations, the effects of tortoise collection and subsequent release on wild populations, the long-term effects of wildfires on tortoise populations, the genetics of tortoise populations, and survivorship of relocated tortoises.

Management Action 6C. Develop a tortoise research and studies plan by the end of FY 1989. This should be done within the framework of the Management Oversight Group.

Objective 7. Manage the public lands, on a continuing basis, to protect the scientific, ecological, and environmental quality of tortoise habitats consistent with the Category Goals and other Objectives of this Rangewide Plan. This implies management for the existence of an adequate number of healthy and vigorous tortoise populations of sufficient size and resilience to withstand the most severe environmental impacts, and with appropriate sex and age ratios and recruitment rates to maintain viable populations in perpetuity.

Management Action 7A. Develop a strategy document in each involved BLM state to ensure that the overall Bureau Goal for tortoise habitat management is reached through implementation of the Objectives in this Rangewide Plan. These documents shall be completed during FY 1989.

Management Action 7B. Manage tortoise habitats using an ecosystem management approach with emphasis on maintaining or restoring natural biological diversity. Document in a biennial report (1990, 1992, 1994, etc.) how this Management Action has been implemented.

Management Action 7C. Ensure adequate consideration of tortoise populations and habitats in the Bureau's land-use planning and decision-making processes, and mitigate for impacts to the extent mandated by law or appropriate under existing policy.

(1) Incorporate the Category Goals, Objectives, and Management Actions of this Rangewide Plan in new Resource Management Plans as they are developed.

(2) Where appropriate, update completed land-use plans through the amendment process to include the Category Goals, Objectives, and Management Actions of this Rangewide Plan.

Management Action 7D. Manage all desert tortoise Habitat Areas consistent with the appropriate Category Goals. This should be accomplished through the development and implementation of formal land-use plans that result in on-the-ground management actions.

Management Action 7E. Where practicable, allow no net loss in quantity or quality (vegetation composition and structure, levels of human disturbance) of Category I and II Habitat Areas. Where no reasonable alternatives to proposed actions affecting such tortoise habitats exist, losses may occur only if mitigation is not practicable. Document this through a biennial analysis of cumulative impacts (see Objective 3).

Management Action 7F. In placing tortoise Habitat Areas into Categories, consider historically used, high potential tortoise habitats, the protection of which will assist in meeting the Objectives and Category Goals of this Rangewide Plan. Categorize such areas appropriately, and protect them, where warranted.

Management Action 7G. Identify specific and quantifiable tortoise management objectives within each categorized Habitat Area.

(1) Begin habitat planning efforts with a knowledge of existing conditions of vegetation and tortoise populations throughout the land area.

(2) Evaluate the potential of the land area to respond to management. Explore the range of habitat conditions for which it may be possible to manage. Relate these potential conditions to the habitat requirements of the tortoise.

(3) Set the tortoise management objectives for the land area. Specify the features of habitat composition and structure desired to meet the habitat requirements of the tortoise.

(4) Communicate the desired tortoise population and habitat conditions in specific and quantitative terms. Reach a decision on the specific management prescription to be used in the area.

(5) Implement the management prescription in the field.

Management Action 7H. Provide appropriate input into fire management plans to minimize the effects of wildfires on tortoise habitats.

Objective 8. When the need is identified through the Bureau planning system, acquire and/or consolidate, under Bureau administration, management units with high tortoise habitat values, and mitigate the effects of issuing rights-of-way across public lands.

Retention and Acquisition of Lands

Management Action 8A. Use the Bureau's land exchange authorities as opportunities arise to consolidate tortoise habitats on the public lands, with emphasis on Category I and II tortoise Habitat Areas.

Management Action 8B. Purchase Category I and II tortoise Habitat Areas consistent with the scope and intent of Bureau planning documents.

Management Action 8C. Encourage private donations of land, funds, and services to facilitate acquisition of land with high tortoise habitat values.

Management Action 8D. Retain Category I and II tortoise Habitat Areas unless (a) it clearly is in the National public interest to dispose of them and (b) losses can be mitigated.

Rights-of-Way

Management Action 8E. Manage the issuance of rights-of-way in a manner that will minimize their effects on tortoise populations and habitats.

(1) Grant new rights-of-way through Category I and II tortoise Habitat Areas only if no reasonable alternative exists. Mitigation for habitat losses is required.

(2) Mitigate along rights-of-way to minimize direct losses of tortoises, fragmentation or reduction of habitat, and the effects of construction.

Objective 9. Ensure that off-highway vehicle use in desert tortoise habitats is consistent with the Category Goals, Objectives, and Management Actions of this Rangewide Plan.

Management Action 9A. Where necessary to achieve Category Goals, close Category I and II tortoise Habitat Areas to off-highway vehicle use. Use outside of closed areas can be allowed provided it is not inconsistent with the Category Goals and Objectives of this Rangewide Plan.

Management Action 9B. Where information is inadequate, evaluate the impacts of both existing and new off-highway vehicle uses to determine if such uses are consistent with the Goals and Objectives of this Rangewide Plan.

Management Action 9C. Minimize off-highway vehicle use in Category I and II tortoise Habitat Areas whenever information for decision making is adequate. This may include restriction of organized and casual off-highway vehicle use to designated roads and trails, restriction of such use to existing roads and trails, placing limits and conditions on the authorization of commercial and competitive events, etc.

Objective 10. Ensure that livestock use is consistent with the Category Goals, Objectives, and Management Actions of this Rangewide Plan. This may include limiting, precluding, or deferring livestock use as documented in site-specific plans.

Management Action 10A. In every grazing allotment which includes tortoise habitat, manage livestock to allow adequate and suitable native forage, space, and cover to be available to tortoises throughout the year.

Management Action 10B. Where site potential permits, manage livestock grazing to increase native perennial grasses, forbs, and shrubs that are required by tortoises.

Management Action 10C. Allow utilization of tortoise forage and cover plants by livestock only to levels which allow for long-term plant vigor and adequate standing vegetation for late summer-fall tortoise use.

Management Action 10D. Allow only those new range improvements for livestock in Category I and II Habitat Areas which will not create conflicts with tortoise populations. Mitigation for such conflicts is permissible to make the net effect of the improvements positive or neutral to desert tortoise populations. Conflicting existing improvements should be eliminated as opportunities arise.

Objective 11. Provide for herd management for wild horses and burros which is consistent with the Category Goals, Objectives, and Management Actions of this Rangewide Plan. This may include limiting or precluding wild horse and/or burro use, as appropriate.

Management Action 11A. Continue to maintain appropriate management levels of wild horses and burros consistent with existing land-use plans and/or activity plans.

Management Action 11B. Ensure that appropriate monitoring of wild horse and burro herds occurs, and use such monitoring data to help develop management prescriptions for desert tortoise habitats.

Management Action 11C. Where site potential permits, manage grazing by wild horses and burros to increase native perennial grasses, forbs, and shrubs required by tortoises as food and cover.

Management Action 11D. Allow only those new range improvements for wild horses and burros in Category I and II Habitat Areas which will not create conflicts with tortoise populations. Mitigation for such conflicts is permissible to make the net effect of the improvements positive or neutral to desert tortoise populations. Conflicting existing improvements should be eliminated as opportunities arise.

Objective 12. Provide for management of wildlife other than desert tortoises on the public lands consistent with the Category Goals, Objectives, and Management Actions of this Rangewide Plan.

Management Action 12A. Manage wildlife habitat to allow adequate and suitable native forage, space, and cover to be available for desert tortoises throughout the year.

Management Action 12B. Allow the introduction or reintroduction of wildlife species into Category I and II Habitat Areas only if such actions will not create conflicts with tortoise populations.

Management Action 12C. Allow only those new range improvements for wildlife that will not create conflicts with tortoise populations. Mitigation for such conflicts is permissible to make the net effect of the improvements positive or neutral to desert tortoise populations. Conflicting existing improvements should be eliminated as opportunities arise.

Objective 13. Cooperate with state wildlife agencies and APHIS to effect appropriate types and levels of predator control to meet the Category Goals and Objectives of this Rangewide Plan. This will be considered only where predation is interfering with maintaining viable tortoise populations.

Management Action 13A. Where predation problems are suspected, inventory predator populations and study their food habits and behaviors to determine which categorized tortoise Habitat Areas require predator control to meet the Category Goals and Objectives of this Rangewide Plan.

Management Action 13B. Evaluate Bureau actions to determine whether or not they encourage the proliferation or range expansion of predator populations. Seek alternatives which minimize the increase and/or spread of predator populations.

Objective 14. Manage the Bureau's energy and minerals program in a manner consistent with the Category Goals and Objectives of this Rangewide Plan.

Management Action 14A. Consider withdrawal from mineral entry for Category I tortoise Habitat Areas.

Management Action 14B. Mitigate the impacts to desert tortoise Habitat Areas from locatable mineral exploration and development to the extent possible through judicious implementation of the Bureau's 3802 and 3809 surface management regulations.

Management Action 14C. Use the Bureau's discretionary authorities relating to leasable and salable minerals to meet the Category Goals and Objectives of this Rangewide Plan.

Management Action 14D. Mitigate the impacts of energy and mineral development in tortoise habitat to the extent possible under existing laws and regulations.

APPENDIX G

PAST, FUTURE AND PRESENT PROJECTS

Arizona Wilderness Inholding Acquisition Project. In cooperation with the non-profit group, Wilderness Land Trust, BLM seeks to acquire, through purchase, lands that are inholdings within Arizona wilderness. Within the portion of Mohave County administered by the Kingman Field Office, 3,400 acres of private land are being considered for acquisition into public ownership, mostly in the Mount Tipton and Wabayuma Peak wildernesses. The Final EA which analyzes this acquisition was signed in May, 1995.

BHP Copper Pinto Valley Operations. The Pinto Valley Mining Company acquired patented claims in 1907 at a site located approximately 5 miles west of the town of Miami. Copper and Molybdenum are produced at the Pinto Valley Mine with an estimated reserve of 624 million tons (USDA 1997). Pinto Valley Mine is expanding its mine rock disposal areas, tailings dams and miscellaneous facilities over approximately 1,200 additional acres. Currently, BHP has submitted a Plan of Operations for pit expansion, which environmental assessments are currently being conducted. Based on an application submitted to ADEQ, BHP Copper plans to close the mine in 2007.

Carlota Copper Project. The Final EIS and ROD for the Carlota Copper Project was published in July, 1997, to approve the Carlota open-pit copper mining and processing facility located approximately six miles west of Miami, Arizona in the Tonto National Forest. Of the approximately 3,050 acres of unpatented and patented lands in the project area, the Proposed Action would disturb approximately 1,428 acres using conventional mining techniques (USDA 1997).

Cerbat Mountains Land Exchange. On April 23, 1998, a decision was made by the Kingman Field Office Manager to exchange approximately 5,144 acres of selected/public lands in the Hualapai Valley north of Kingman, Arizona for 5,661 acres of offered/private lands located mostly in the Cerbat Mountains and northern Hualapai Valley.

Cyprus Miami Mine Expansion. The Cyprus Miami Mine began operations in 1912 northwest of the town of Miami, near Globe, Arizona. The production rate at the open-pit mine is approximately 127.3 million pounds of copper per year, with 213 million tons of ore reserves (USDA 1997). Cyprus Miami Mining Corporation has recently upgraded its smelter facility and plans to expand leaching facilities at the Cyprus Miami Mine on its patented mining claims and public lands administered by the BLM and the Tonto National Forest Service. A Plan of Operations was submitted to the Forest Service and the BLM in 1994, and an EIS is currently being prepared. Approval of the proposed expansion would result in continued operations for the next 17 years beginning in 1997.

Cyprus State-Wide Land Exchange. Cyprus is currently in negotiations with the BLM to obtain ownership of several parcels throughout Arizona that are already being mined through an MPO. Lands included in this exchange are in Sierrita, Bagdad and Miami with a total acreage of approximately 9,657 acres. The offered lands for this land exchange have not be finalized; however, the Sierrita exchange is scheduled for 1998-2000 and the Bagdad/Miami exchange is scheduled for 1999-2001.

Empire-Cienega Resource Management EIS/Plan Amendment. BLM is currently preparing a plan amendment/EIS to the Phoenix RMP which would prescribe management direction for approximately 45,000 acres of public land in the Empire-Cienega RCA. The BLM is using a collaborative public process to obtain input for this planning effort. Major issues include recreation, livestock grazing, wildlife management, mining and ACECs.

Hualapai Mountains Exchange. The Draft EIS for this land exchange/plan amendment was published in April 1998 and involves approximately 70,000 acres of offered/private lands for approximately ~~70,000~~60,000 selected/public lands in Mohave County. BLM exchanged lands in the Dutch Flat and Antares areas for portions of the Dutch Flat area and the Hualapai and McCracken Mountains (BLM 1998b).

Kingman Resource Area Management Plan (RMP). The Kingman Resource Area Proposed Resource Management Plan and Final EIS was published in September, 1993, by the BLM Kingman Resource Area. The EIS analyzes the impacts expected from implementing the Proposed Kingman RMP and guides the BLM in the management of the Kingman Resource Area, covering parts of Mohave, Yavapai and Coconino counties. Portions of this RMP can be found in Appendix H.

Mineral Creek Consent Decree/404 Permit Expansion. This project involves the isolation of Mineral Creek from Ray Mine's Operations to ensure that water quality standards are met in Mineral Creek under the scheme established by the Clean Water Act (CWA) and pursuant to provisions stated in the Consent Decree entered into between Asarco Incorporated, the United States and the State of Arizona. Asarco intends to satisfy the requirements of the CWA and comply with the Consent Decree in stages throughout the next six years.

Morenci Land Exchange. This land exchange involves approximately 3,758 acres of selected lands for approximately 1,040 acres of offered lands in Graham County, Arizona. The Final EIS was published in October 1996, the Record of Decision was signed and it is currently under protest.

Phoenix Resource Management Plan (RMP). The Phoenix Resource Management Plan and Final EIS was published in December, 1988, by the BLM Phoenix District. The EIS analyzes the impacts expected from implementing the Proposed Phoenix RMP and guides the BLM in the management of the Phoenix Resource Area, covering all parts of eight Arizona counties. Portions of this RMP can be found in Appendix H.

Safford District Resource Management Plan (RMP). The Safford District RMP and Final EIS was published in August, 1991, by the BLM Safford District. The EIS describes and analyzes alternatives for management of approximately 1,400,000 acres of public land in southeastern Arizona and addresses certain public issues such as access, areas of critical environmental concern and other special management types, off-highway vehicles, and riparian areas. The RMP determines management objectives and identifies actions that will be taken to implement the objectives.

Safford Dos Pobres/San Juan MPO. Phelps Dodge submitted an MPO in 1996 to BLM for the Dos Pobres and San Juan ore bodies located in Safford, Arizona. The BLM's preferred alternatives to the MPO includes a land exchange alternative that involves approximately 17,000 acres of selected lands in Graham and Greenlee counties for approximately 3,858 acres of offered lands in La Paz, Greenlee and Graham counties. The Draft EIS is scheduled for publication in summer of 1998.

Saguaro National Park Land Exchange. The Saguaro National Park Exchange involved the exchange of approximately 4,322 acres of BLM-administered selected lands within Maricopa and Pima Counties and approximately 711 acres of offered lands within the congressionally designated Saguaro National Park in Pima County. The Finding of No Significant Impact (FONSI) and Final EA were completed in June, 1997.

Silver Bell-Cienega. This land exchange occurred in 1992 and involved approximately 4,953 acres of federal lands in Pima and Pinal Counties for approximately 1600 acres of private lands within Pinal and Pima Counties.

Superior Underground Mine. The Superior Mine was the original mine of Magma Copper Company that operated from 1912 to 1982 when it closed because of low copper prices. It reopened in 1990 under new ownership and has a production rate of 1,000 tons of ore per day. In 1996, the mine closed when proven ore reserves were exhausted, however exploration for additional underground ore reserves is continuing.

Tusayan Land Exchange. The Draft EIS for the Tusayan Growth Project in the Kaibab National Forest was published in June, 1997, and consists of a Proposed Action and a variety of alternatives for providing improvements to transportation, housing, community facilities, and visitor services outside of Grand Canyon National Park boundaries on private or National Forest System lands in the Grand Canyon/Tusayan area. A supplement to the draft EIS with additional alternatives is expected to be published summer 1998.

White Canyon RCA Coordinated Management Plan. BLM Tucson Field Office (TFO) is considering preparation of an interdisciplinary activity plan (IAP) for the White Canyon Area including the White Canyon Wilderness. If the IAP is not feasible, a separate Wilderness Plan will be prepared.

Winkelman Community Expansion. The BLM TFO is considering a proposal by the community of Winkelman for sale of approximately 80 acres of public land for community expansion. The proposal would necessitate an amendment to the Safford District RMP.

APPENDIX H

SELECTED TEXT FROM THE PHOENIX AND KINGMAN RESOURCE MANAGEMENT PLANS (RMP)

PROPOSED
PHOENIX
RESOURCE MANAGEMENT PLAN AND FINAL ENVIRONMENTAL IMPACT STATEMENT

DECEMBER 1988

U.S. Department of the Interior
Bureau of Land Management
Phoenix District · Arizona

TABLE 2-4

Areas Proposed for Special Management
Bureau of Land Management, Phoenix District, Arizona

Special Management Area (SMA)	Federal, State, and Private Acres	Current Designation	Management Goals	Planned Actions
Coyote Mountains Recreation Management Area	F 5,080 S 320 P 320 5,720	acres BLM WSA; recommended for wilderness designation in 1987 Final Phoenix Wilderness EIS	Manage to enhance recreation values; increase public ownership of state and private holdings	Obtain legal access; develop an activity plan; prohibit land use authorizations; limit vehicular travel to designated roads and trails; prohibit surface occupancy for oil/gas development; acquire land.
Agua Blanco Ranch Multiple Resource Management Area	F 14,419 S&P 2,280 16,699	None	Improve watershed condition to satisfactory; increase soil cover; reduce sediment yield; improve ecological site condition to good; promote recovery of an endangered plant	Develop an activity plan; limit motorized vehicles to existing roads and trails; acquire land.
Cocoraque Butte-Waterman Mtns Multiple Resource Management Area	F 34,749 S&P 13,227 47,976	None	Improve watershed condition to satisfactory; increase soil cover; reduce sediment yield; improve ecological site condition to good; promote recovery of endangered plant	Develop an activity plan; limit motorized vehicles to existing roads and trails; acquire land.
Silver Bell Desert Bighorn Sheep Management Area	F 39,170 S 11,450 P 6,180 56,800	4,460 acres includes Ragged Top WSA, recommended not suitable for wilderness in the Arizona-Mohave Wilderness FEIS	Improve habitat condition for desert bighorn sheep	Develop an activity plan; prohibit surface occupancy for oil/gas development on 800 acres of Ragged Top; limit motorized vehicles to existing roads and trails except close 800 acres on Ragged Top; acquire land.
Avra Valley Cultural Resource Management Area	F 2,720	Contains Cocoraque Butte National Register Historic District	Manage 14 properties for information potential and 1 for conservation values	Develop an activity plan; limit motorized vehicles to existing roads and trails.
Santa Ana del Chiquiburitac	F 20	National Register Historic Places	Manage for public education/interpretative values	Develop an activity plan; close to motorized vehicles. Prohibit surface occupancy for oil/gas development.
Picacho Mountains Desert Tortoise Management Area	F 6,400 S 7,980 14,380	6,400 acres a WSA recommended not suitable for wilderness in Phoenix Wilderness FEIS	Maintain existing desert tortoise populations; obtain population data for high and low elevation	Develop a management plan; acquire land; prohibit surface occupancy of oil/gas leases; close 6,400 ac. to motorized vehicles; limit travel on 7,980 ac. to designated roads.
Grayback Mountain-Box O Wash Multiple Resource Management Area	F 24,045 S&P 16,581 40,626	None	Improve watershed condition to satisfactory; increase soil cover; reduce sediment yield and salinity discharge; improve ecological site condition to good; enhance stream flow and water quality	Develop an activity plan; acquire land; limit motorized vehicles to existing roads and trails.
Reymert Townsite Cultural Resource Management Area	F 20	None	Manage for public education/interpretative values	Develop an activity plan; close to motorized vehicles.
Middle Gila Cultural Resource Management Area	F 21,940 S 7,240 P 1,520 30,700	Under withdrawal for federal water projects	Manage for information, public and conservation values	Develop an activity plan; limit motorized vehicles to existing roads and trails; acquire land.

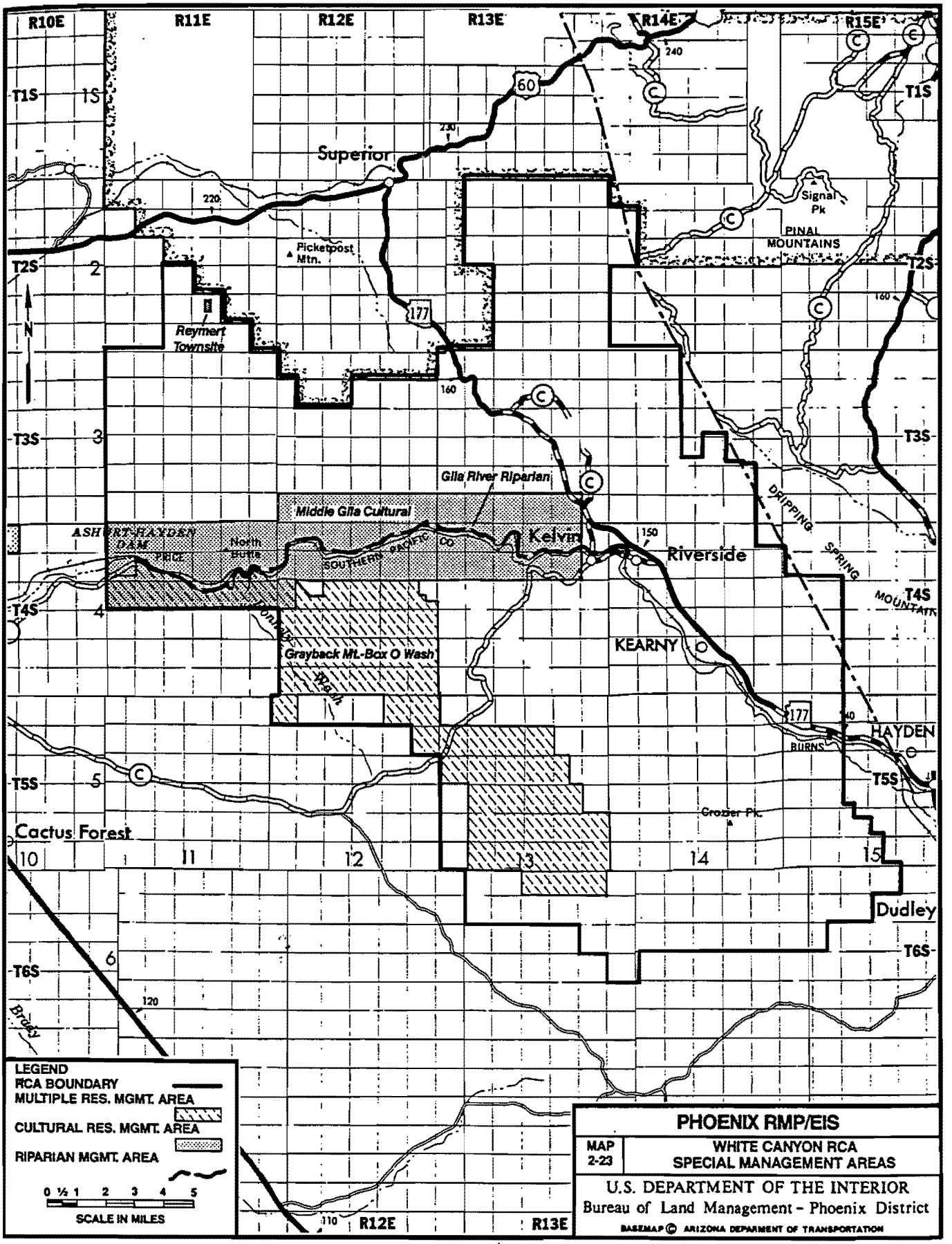
(continued on next page)

TABLE 2-4 (continued)

Areas Proposed for Special Management
Bureau of Land Management, Phoenix District, Arizona

Special Management Area (SMA)	Federal, State, and Private Acres	Current Designation	Management Goals	Planned Actions
Gila River Riparian Management Area	F 15 miles	Under withdrawal for federal water projects	Improve condition of riparian vegetation and aquatic habitat for native fish; enhance water quality; limit salinity discharges	Develop an activity plan; limit motorized vehicles to existing roads and trails; prohibit surface occupancy for oil/gas development in riparian zone.
Black Canyon Granite Sales Management Area	F 160	None	Manage as a granite extraction area	Develop an activity plan.
Cordes Junction Multiple Resource Management Area	F 8,763 S&P 5,846 14,609	None	Improve watershed condition to satisfactory; improve condition of riparian vegetation; improve native fish habitat; enhance water quality and stream flow; increase soil cover; reduce sediment yield: improve ecologicial site condition to good	Develop an activity plan; prohibit surface occupancy of oil/gas leases in riparian zones; prohibit land use authorizations in riparian areas; limit motorized vehicles to existing roads and trails; acquire land.
Sycamore Creek Multiple Resource Management Area	F 2,423 S&P 1,396 3,819	None	Improve condition of riparian vegetation; improve native fish habitat; enhance stream flow and water quality; increase soil cover and reduce sediment yield; improve pronghorn habitat and facilitate their movement	Develop an activity plan; prohibit surface occupancy for oil/gas development in riparian zones; prohibit land use authorizations in riparian areas; limit motorized vehicles to existing roads and trails; acquire land.
Bumble Bee Multiple Resource Management Area	F 12,832 S&P 39,433 52,265	None	Improve watershed condition to satisfactory; improve condition of riparian vegetation; improve native fish habitat; enhance water quality and stream flow; increase soil cover; reduce sediment yield; improve ecological site condition to good; reintroduce native fish, if feasible	Develop an activity plan; prohibit surface occupancy for oil/gas development in riparian areas; prohibit land use authorizations in riparian areas; limit motorized vehicles to designated roads and trails; acquire land.
Villiams Mesa Multiple Resource Management Area	F 27,384 S&P 23,346 59,735	None	Improve watershed condition to satisfactory; improve riparian vegetation condition; improve native fish habitat and reintroduce native fish, if feasible; enhance stream flow and water quality; increase soil cover; reduce sediment yield; improve ecological site condition to good	Develop an activity plan; prohibit surface occupancy for oil/gas development in riparian areas; prohibit land use authorizations in riparian areas; close 3.5 miles of Tule Creek to motorized vehicles, elsewhere limited to existing roads and trails; acquire land.
assayampa River iparian lanagement Area	F 12 miles S 4 miles 16 miles	Part of Hassayampa River WSA; recommended not suitable for wilderness designation in 1987 Final Phoenix Wilderness EIS	Improve condition of riparian habitat; improve condition of native fish habitat and reintroduce native fish, if feasible; enhance water quality	Develop an activity plan; limit motorized vehicles to existing roads and trails; prohibit surface occupancy for oil/gas leases in riparian areas; prohibit land use authorizations in riparian areas; acquire land.
ells Canyon ecreation anagement Area	F 9,379 S 640 P 720 10,739	9,379 acres WSA; recommended not suitable for wilderness designation in Phoenix Wilderness FEIS	Manage to maintain primitive recreation values	Develop an activity plan; limit motorized vehicles to designated roads and trails; acquire land.
ike Pleasant urro Herd anagement Area	F 57,412 S 13,795 P 9,593 80,800	None	Maintain habitat for burros; maintain an 80-animal herd	Develop a herd management plan; acquire land.

urce: Phoenix District files.


R10E
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R14E
R15E
T1S
T2S
T3S
T4S
T5S
T6S
Superior
Picketpost Mtn.
Reymert Townsite
Signal Pk
PINAL MOUNTAINS
Gila River Riparian
Middle Gila Cultural
ASHURST-HAYDEN DAM
PRICE
North Butte
SOUTHERN PACIFIC CO.
Kelvin
Riverside
DRIPPING SPRING MOUNTAINS
KEARNY
Grayback Mt.-Box O Wash
HAYDEN
BURNS
Grozier Pk.
Cactus Forest
Dudley
Bradley
60
177
240
230
220
160
150
120
110
LEGEND
RCA BOUNDARY
MULTIPLE RES. MGMT. AREA
CULTURAL RES. MGMT. AREA
RIPARIAN MGMT. AREA
0 ½ 1 2 3 4 5
SCALE IN MILES
PHOENIX RMP/EIS
MAP 2-23
WHITE CANYON RCA
SPECIAL MANAGEMENT AREAS
U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management - Phoenix District
BASEMAP © ARIZONA DEPARTMENT OF TRANSPORTATION

H-6

KINGMAN RESOURCE AREA

PROPOSED RESOURCE MANAGEMENT PLAN AND FINAL ENVIRONMENTAL IMPACT STATEMENT

September 1993

U.S. Department of the Interior
Bureau of Land Management
Kingman Resource Area

Maintenance Plans:
- Burro Creek Recreation Site
- Wild Cow Springs Recreation Site
- Packsaddle Recreation Site
- Windy Point Recreation Site

National Back Country Byways:
- Historic Route 66
- Hualapai Mountains (proposed)

WILDERNESS MANAGEMENT

The Arizona Desert Wilderness Act (Public Law 101-628) was signed into law on November 28, 1990, creating nine wilderness areas covering 392,844 acres of public surface estate in the Kingman Resource Area, including 386,532 acres of federal mineral estate (see Map 2). Table 1 shows the acres of federal minerals withdrawn from mineral entry and mineral leasing and closed to mineral material disposals.

Table 1
Acres of Federal Mineral Estate in Wilderness Areas Withdrawn From Mineral Entry and Mineral Leasing and Closed to Mineral Material Disposals

Wilderness Area	Acres
Mount Wilson	24,233
Mount Nutt	27,115
Warm Springs	112,153
Mount Tipton	30,208
Wabayuma Peak	38,716
Aubrey Peak	15,306
Upper Burro Creek	24,401
Arrastra Mountains	98,697
Rawhide Mountains	15,703
Total Withdrawn	386,532

The wilderness areas will be managed according to the provisions of law, BLM wilderness management regulations found at 43 CFR 8560 and subsequent wilderness management plans. A wilderness management plan will be prepared for each wilderness area. Implementing these plans will begin immediately and will be ongoing throughout the life of this Resource Management Plan regardless of the alternative selected. Wilderness study areas not designated by the 1990 Act were released from further consideration for wilderness. Any future activity in these areas will be managed in accordance with specific provisions of the Resource Management Plan and record of decision signed by the BLM Arizona State Director.

WILDLIFE HABITAT MANAGEMENT

Wildlife

Legislation, including the Federal Land Policy and Management Act, the Endangered Species Act, the Public Rangelands Improvement Act and the Sikes Act, directs the BLM to manage habitat to meet wildlife needs, along with increasing demands for basic energy supplies, building materials, food products and recreational opportunities. The BLM's responsibility is to recognize opportunities to maintain, improve and expand wildlife habitat for both consumptive and nonconsumptive uses and identify critical wildlife resources deserving special attention. The BLM is also directed to assist state agencies in completing fish and wildlife resource plans.

Recently developed documents also provide program guidance to the BLM's wildlife habitat management program. These documents include Fish and Wildlife 2000, Desert Tortoise Management on the Public Lands: A Rangewide Plan, the Rangewide Plan for Managing Habitat of Desert Bighorn Sheep on Public Lands, Waterfowl Habitat Management on Public Lands: A Strategy for the Future and the Raptor Habitat Management Plan.

All land use actions occurring on public lands in the resource area are reviewed and given site-specific analysis during the environmental review process. Impacts to special status and sensitive wildlife species, riparian habitat and wildlife habitat improvement projects are assessed and measures are developed to lessen impacts. The environmental review process also assesses compatibility with cooperatively developed wildlife habitat management plans. All rangeland and watershed improvements will continue to be designed to achieve range, water quality and wildlife objectives.

Animal Damage Control

A new Animal Damage Control Program Environmental Impact Statement is currently being developed by the Animal Plant Health Inspection Service, U.S. Department of Agriculture. The BLM is a formal cooperator in this process. Following completion of the final environmental impact statement, the BLM will prepare a district-wide animal damage control plan commensurate with the Record of Decision and tiered to the final environmental impact statement.

Habitat Management

Habitat management plans are developed in an effort to improve wildlife habitat. Existing habitat management plans (Hualapai, Aquarius, Cerbat-Music, Black Mountains, Bill Williams-Crossman Peak) will continue to be implemented as funding allows. Existing habitat management plans are on file and open to public review at the Kingman Resource Area office. Habitat management plans are periodically evaluated to determine if management direction and actions are adequate and if plan objectives are being met. Using and considering monitoring data, changed policies and direction and wildlife and other resource program needs, the BLM updates and revises habitat management plans jointly with the Arizona Game and Fish Department. The current habitat management plan process can incorporate new data, decisions and changes in management direction and policies.

The Aquarius Habitat Management Plan called for determining the potential for reestablishing bighorn sheep into the Upper Bill Williams drainage. This determination will be made. Management actions outlined in habitat management plans to improve habitat for mule deer, elk and javelina are considered adequate and up-to-date and would be implemented under all alternatives.

Desert bighorn sheep and their habitat are important resources on the public lands of Arizona. These resources will be managed in accordance with the management and protection measures identified in resource planning documents developed to implement BLM and district policies on desert bighorn sheep.

Detailed estimates of big game forage allocations are presented in the Cerbat/Black Mountains and Hualapai-Aquarius grazing environmental impact statements on file in the Kingman Resource Area office. These allocations will be carried forward except when modified in special management areas where habitat monitoring indicates the need for modification. Monitoring of big game habitat, i.e., utilization of key forage species, will continue to be conducted as part of an integrated resource monitoring program specifically designed by an interdisciplinary team. Information obtained from monitoring studies will be analyzed and necessary changes in management prescriptions initiated to protect the habitat.

In some areas, habitat overlap and conflicts exist among wildlife, wild equids and livestock. Where analysis of monitoring data indicates a need for change in number of grazing animals in areas of multiple use, allocations will be determined for each species on a case-by-case basis. In areas of multiple species uses, where the habitat is a crucial element for continued survival of a particular species, the allocation (forage, water and/or space) will first provide for that population's needs. The remainder of the allocation will then be divided as prescribed under each alternative.

All decisions proposed for activity management plans will be developed through consultation, cooperation and coordination with affected interests and agencies and will conform to BLM policy.

Wildlife habitat management actions (spring developments, exclosures and game waters) will continue as funding allows. Prescribed burning will be designed to improve wildlife habitat.

Rangeland management practices and rangeland improvements will be designed or modified to maintain or improve wildlife habitat. Livestock grazing management will incorporate the needs of key plant species important to wildlife and safe to use by wildlife in accordance with BLM Standards found in Manual Supplement 6516 and BLM handbook H-1741-1.

All new fences on public lands will be built to allow for wildlife passage in accordance with BLM fence standards. Any existing fences obstructing wildlife movements will be brought into conformance with the adopted standards.

Wildlife escape devices will be installed on all new and existing water tanks or troughs built for livestock on waters having public water rights and located on public lands.

To the extent possible, new roads will not be built in crucial wildlife habitat. However, existing roads may be improved to accommodate mineral development or other uses. Impacts will be carefully analyzed through the environmental analysis process. Existing roads may be permanently or seasonally closed to vehicles where problems exist or are expected.

Existing Plans, Decisions and Objectives

Since completion of the management framework plans, several habitat management plans have been completed and are being implemented. These include Black Mountains, Hualapai, Aquarius, Cerbat-Music and Bill Williams-Crossman Peak (prepared jointly with the Havasu Resource Area).

Habitat management plans are periodically evaluated to determine if their objectives are being met and updated or revised to meet changing situations or needs. When this Resource Management Plan becomes final, habitat management plans will be revised or amended according to need for Black Mountains, Hualapai, Aquarius, Cerbat-Music and Bill Williams-Crossman Peak.

SPECIAL STATUS SPECIES MANAGEMENT

Management of special status species is guided by habitat management and recovery plans in cooperation with state and federal agencies and affected parties.

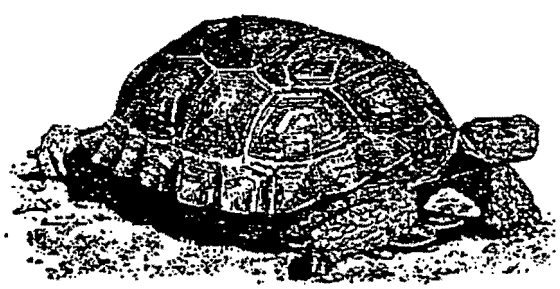
The Endangered Species Act of 1973, as amended, is the authority to conserve threatened and endangered species on public lands. Section 4(f) of the Endangered Species Act directs the Secretary of the Interior to develop and implement recovery plans for the conservation and survival of endangered species. Section 7(a)(1) requires each federal agency to carry out proactive measures to recover listed species and Section 7(a)(2) requires each federal agency to avoid jeopardizing the continued existence of listed species through their actions.

Any federally authorized, funded or implemented actions that may affect listed or proposed species are reviewed in cooperation with the U.S. Fish and Wildlife Service.

BLM policy for special status candidate species is contained in BLM Manual Section 6840. The BLM must carry out management consistent with multiple use for conservation of candidate species and their habitats and must ensure that actions authorized, funded or carried out do not contribute to the need to list any of these species as threatened or endangered. These actions are also conducted on split-estate lands if the surface management agency does not have adequate data. It is also policy to systematically monitor category 1 and 2 candidate species to determine if a species should be listed.

Potential impacts to species are analyzed in an environmental review by the BLM for each project. Protection measures may be stipulated in the decision record in the environmental assessment or in the U.S. Fish and Wildlife Service's biological opinion.

Protection and management of endangered species will continue, as will inventory for federal- and state-candidate species. Monitoring programs will be implemented on known populations of listed and candidate species. Where monitoring finds threats to these populations, actions will be taken to protect the species and their habitats.



Plant Species

A draft recovery plan has been prepared for Arizona cliffrose *Purshia subintegra*). When the recovery plan is finalized, the BLM will incorporate the provisions into a habitat management plan or an area of critical environmental concern plan, which will be implemented.

Animal Species

Habitat for state-listed species is managed in cooperation with the Arizona Game and Fish Department under provisions of the Sikes Act (1974), as amended. As additional wildlife information is gathered, existing habitat management plans would be updated or revised.

Actions proposed in the Resource Management Plan will adhere to objectives stated in the bald eagle, peregrine falcon and Hualapai Mexican vole recovery plans. When revising or developing resource activity plans, specific objectives and actions stated in these recovery plans will be incorporated.

To improve raptor habitat, new powerlines will be built to "electrocution proof" specifications and existing powerlines will be modified as problem lines are identified.

The desert tortoise and its habitat are important resources on the public lands of Arizona. These resources will be managed in accordance with the Arizona Implementation Strategy developed to incorporate BLM management philosophy from Desert Tortoise Habitat Management on The Public Lands: A Rangewide Plan, dated November 1988. This management effort will include continuing inventory of desert tortoise habitat, monitoring of desert tortoise habitat quality and quantity, categorization of habitat according to guidelines described in the Implementation Strategy and management of categories of habitat according to the management actions in the Implementation Strategy. Where enough data exist, the strategy will be implemented through this land use plan. If such data are lacking, the strategy will be implemented through activity plans or land use plan amendments, following acquisition of the needed data. Management objectives related to habitat quality and quantity for the desert tortoise will be included in those activity plans, land use plan amendments or other documents.

The categories of desert tortoise habitat designated by the BLM establish goals for the management of desert tortoise and their habitats, based on several criteria. Briefly summarized, management of Category I and Category II areas emphasizes maintenance of viable desert tortoise populations in areas where all Category I or most Category II conflicts are resolvable. Category III habitats are generally characterized by lower densities of desert tortoises in areas where habitat has been fragmented or otherwise degraded, or where landownership patterns are such that effective management is difficult (see Map 34).

RIPARIAN AREA MANAGEMENT

Legal authority for BLM management of riparian-wetland areas is based on numerous laws and executive orders, including the Taylor Grazing Act of 1934, the Endangered Species Act of 1973, the Federal Land Policy and Management Act of 1976, the Emergency Wetland Resources Act of 1986, the Water Quality Act of 1987, Executive Order 11988 (Floodplain Management) and Executive Order 11990 (Protection of Wetlands). On January 22, 1987, the BLM issued its riparian area management policy which defined the term riparian area, set management objectives and outlined specific policy direction. This policy is the basis for BLM Manual 1737 (Riparian-Wetland Area Management), the Bureau-wide Riparian-Wetland Initiative for the 1990s and the Arizona Riparian-Wetland Area Management Strategy. Riparian management plans will be consistent, to the extent practicable, with state of Arizona riparian habitat protection policy, "Protection of Riparian Areas" dated February 14, 1991 (Executive Order 91-6).

The overall objective is to achieve proper functioning condition for riparian areas.

In addition, the national and state strategy plans outline seven implementation strategies to meet the objective: (1) Inventory/Classification -- collect, compile and evaluate baseline information to determine current status, potential and condition. (2) Activity Plan Preparation/Revision -- Develop/revise plans that involve riparian-wetland areas prescribing actions to meet management objectives. (3) Project Development/Maintenance -- Complete projects such as fences, water developments, tree planting and habitat improvement structures to create, improve and/or maintain riparian-wetland conditions. Maintain projects to continue their beneficial use. (4) Monitoring -- Monitor to determine if management action is meeting specific objectives for riparian-wetland areas. (5) Protection/Mitigation - Avoid or mitigate the impact of surface-disturbing activities on riparian-wetland areas. (6) Acquisition/Expansion - acquire and expand riparian-wetland areas through exchange, donation or purchase. (7) Public Outreach -- The development and presentation of workshops to the citizens of Arizona, including school children, livestock interests and conservation groups. The intent of the workshops will be to educate the public and to gain their support for BLM riparian management efforts.

These strategies will be implemented by an interdisciplinary team. Since numerous highly valued resources depend on riparian-wetlands, it is important that specialists such as hydrologists, wildlife biologists, soil scientists, range conservationists and recreation planners work cooperatively to develop management strategies to allow areas to be used and yet meet the identified objective. All actions will occur only after compliance with the National Environmental Policy Act.

Existing Plans and Decisions

The decisions in the Burro Creek Riparian Management Plan, May 1983, and the Bill Williams Riparian Management Area Plan, August 1989, will be incorporated into the Resource Management Plan.

HAZARDOUS MATERIALS MANAGEMENT

The three laws most commonly associated with hazardous materials include the Resource Conservation and Recovery Act, or Public Law 94-580; the Comprehensive Environmental Response, Compensation and Liability Act, or Public Law 96-510, otherwise known as the Superfund Act; and the Superfund Amendment Reauthorization Act,

2. Highway 93 north, connecting the Cerbat and Black mountains (Grasshopper Junction).

3. Highway 93 south, linking the Hualapai and Aquarius mountains (three corridors).

   a. Carrow-Stephens Ranches
   b. Burro Creek
   c. Between the Poachie Range and the Grayback Mountains

4. I-40, connecting the Black and Hualapai mountains (two corridors).

   a. Walnut Creek/Haviland
   b. Buck Mountain Wash

5. Highway 66, linking the Cottonwood and Music mountains.

6. Pierce Ferry Road, linking the Cerbat Mountains and Lake Mead.

7. Cottonwood Road linking portions of the Black Mountains north and south of the road.

8. Highway 93 north near Kingman (Coyote Pass), linking the Cerbat and Hualapai mountains.

9. Alamo Road, linking the McCracken and Hualapai mountains.

10. I-40 near Kingman, linking the Hualapai and Cerbat mountains (Holy Moses Wash).

n southern Mohave County, the Casteneda, McCracken, Aubrey, awhide, Artillery and Poachie mountains are currently well linked y movement corridors. Due to the remote nature of these areas, evelopment is low, enabling wildlife to move freely among these ıountain ranges. These links would remain in public ownership. cross resource area boundaries, the Bill Williams, Mohave and uckskin mountains are also well linked with the above mountain nges, and these links would remain in public ownership.

uture rights-of-way, especially road development, would not fragıent these mountain ranges because they are critical to the ongoing rvival of wildlife in this region.

hese corridors would be managed to maintain, develop or reestabsh natural movement of wildlife species while minimizing the death f these animals.

onstruction of overpasses or underpasses, culvert modification and ncing designed to allow wildlife movement would be requested of e Arizona Department of Transportation. A total of 46,252 acres ould need to be acquired for management and retention of the rridors (see Appendix 20).

Additional corridors may be identified in the future on a case-by-case basis to meet resource management objectives.

General Wildlife Habitat

Management of general wildlife habitat would preserve habitat integrity under all types of land uses. Clearances would continue as proposed under *Alternative 1*.

Big Game

In addition to activities proposed under *Alternative 1*, crucial big game habitat would be designated within the Black Mountains Ecosystem Management and Aubrey Peak Bighorn Sheep habitat areas of critical environmental concern.

Desert bighorn sheep have very specific habitat requirements that can only be met in the presence of certain physical and biological conditions. In addition to the typical requirements for food, water and cover, desert bighorn require sparsely vegetated areas with steep, rocky slopes. The relative size of these habitats must be large to accommodate movements and permit the exchange of genetic material throughout the populations. Habitat partitioning and segregation have been a serious threat to bighorn sheep populations throughout the range of the species. Furthermore, bighorn sheep have shown extreme sensitivity to human disturbance, communicable diseases and interspecific and intraspecific competition for food, water and space.

The Black Mountains are widely recognized as critical to the welfare and continued existence of desert bighorn sheep. They represent the largest contiguous block of desert bighorn sheep habitat in Arizona. This area provides all of the habitat requirements of desert bighorn sheep in an optimal arrangement. Topographic relief provides the essential escape habitat for bighorns through much of the mountain range. Perennial springs provide abundant water over much of the range. Numerous manmade water developments have improved the quality of these habitats by making them available to bighorn yearround. The predominately public ownership of the Black Mountains has protected them from significant habitat disturbance.

While desert bighorn sheep are currently thriving throughout much of their range, their existence was tenuous in the relatively recent past. Because of the bighorn sheep's specific habitat requirements and their inherent sensitivity to environmental disturbance, resource managers must exercise caution in managing conflicting or threatening uses in sheep habitat.

The Black Mountains have been identified as one of the outstanding desert bighorn sheep habitats in Arizona (see area A on Map 9). The forage allocations established for deer, bighorn sheep, wild burros and livestock in the 1978 Cerbat/Black Mountains Grazing Environmental Impact Statement identified complex habitat use conflicts among these ungulates. To resolve these conflicts, available forage would be allocated for each species using the ratios shown in Table 10. A total of 9,500 animal unit months would be allocated for all ungulates in the Black Mountains Ecosystem Management Area of Critical Environmental Concern, Wilson Ridge, and important wild burro habitat to the

west (see area A on Map 9). This would not include areas primarily grazed by cattle, such as the lower elevation areas between the Black Mountains and State Highway 93 (see area B on Map 9); Area B accounts for the 2,500 animal unit months difference between the forage allocations identified in Alternatives 1 and 2). This alternative allows for a realistic forage allocation based on actual use patterns. The forage allocation assures sufficient vegetation remains for protection of non-game animals, wilderness values and watersheds.

Table 10
* PERCENT FORAGE ALLOCATION RATIOS

Desert Bighorn Sheep	Mule Deer	Wild Burros	Cattle
30%	10%	30%	30%

* Forage is allocated to animal units at the ratio of cattle 1:1; bighorn sheep 5:1, deer 4:1 and wild burros 2:1.

The forage allocations shown in Table 10 would be the basis for initial adjustments of ungulate numbers. These allocations will be applied generally over the entire Black Mountains area, but may be differentially applied in a stratified habitat area management concept. Habitat stratification is the delineation of specific habitats preferred by separate ungulate species that are selected for their unique combination of topography, forage, water and cover. These initial allocations may be modified with continuing utilization and habitat trend studies. Management priority would be given to desert bighorn sheep in lambing grounds and high-value bighorn habitat within the Black Mountains Wild Burro Herd Management Area. Desert bighorn sheep habitat has been divided into four stratified habitat areas by the Arizona Game and Fish Department (see Map 33). Stratified habitat areas are classified as Lambing Grounds, High Value, Medium Value and Low Value areas. The classification relates to the quality of topography, forage, water and cover requirements of desert bighorn sheep. In priority areas, burros will not be excluded from historic areas without development of an alternative water strategy. Overlap may occur in joint use areas.

Where population overlaps and significant competition for habitat exists among ungulates, data would be compiled and analyzed through studies (research, monitoring, inventories, etc.) to identify the crucial elements of each species' habitat. This would include food, water, cover and space. As these elements are identified, forage allocation ratios would be refined and adjusted. Through consultation and coordination with the Arizona Game and Fish Department, wildlife population adjustments would be made based on analysis of integrated habitat monitoring data and resource objectives.

Aubrey Peak provides crucial habitat for desert bighorn sheep in the southern portion of the resource area (see area D on Map 9). The most limiting factors for bighorn sheep in this portion of the area are lambing ground habitat and water. Aubrey Peak is the only habitat in the southern portion which provides a combination of these crucial factors and supports a resident herd of bighorn sheep. As a result, Aubrey Peak is the biological key to desert bighorn sheep herds within a complex of mountain ranges in the Lower Bill Williams watershed. Forage allocations for bighorn sheep, mule deer and livestock were proposed in the 1981 Hualapai-Aquarius Grazing Environmental Impact Statement. Use overlap was not identified as a conflict as forage was not allocated for livestock on slopes greater than 50 percent, based upon the BLM's livestock grazing suitability criteria. In addition, competition for forage among mule deer and bighorn sheep is minimal due to low population levels of deer and differences in forage preference. Prevalent conflicts occurring in the Aubrey Peak area are human activities associated with mining, off-highway vehicle travel and development of communication sites.

No domestic or feral sheep or goats will be allowed within nine miles surrounding desert bighorn habitat unless a cooperative agreement has been reached to the contrary. Domestic sheep and goats will be trucked rather than trailed when trailing would bring sheep and goats closer than nine miles to occupied desert bighorn ranges.

Activities (excluding work on mining claims) which could harm lambing or rearing of newborn bighorn sheep in the Black Mountains, Aubrey Peak or other future or existing lambing areas would be excluded from December 1 to May 31.

Mineral leasing would be allowed on identified lambing grounds with special stipulations (see Map 33) and management prescriptions in the Black Mountains Ecosystem Management and Aubrey Peak areas of critical environmental concern. Elsewhere, mineral leasing would be allowed in riparian areas with a no surface occupancy stipulation (see Map 11).

Guidelines used to develop mineral leasing stipulations include soil moisture conditions, soil characteristics and time of year or season.

A total of 22,962 acres would have a seasonal no surface occupancy stipulation.

Pronghorn antelope habitat on public lands would be managed according to existing habitat management plans to support 400 animal unit months on Goodwin Mesa and 300 animal units around Cherokee Point. Habitat would be improved to provide crucial spring forbs necessary for fawn survival and other habitat components important for increasing the size of the antelope population.

As new information is obtained on the distribution and habits of elk and their associated impacts in the Hualapai Mountains, existing habitat management plans would be revised and updated cooperatively with the U.S. Fish and Wildlife Service and the Arizona Game and Fish Department. Potential conflicts exist between elk and the endangered Hualapai Mexican vole in the Hualapai Mountains. Detailed information concerning

Desert tortoise: The Sonoran population of the desert tortoise is a candidate for federal listing as an endangered species. Desert tortoise habitat is found on boulder-strewn hills and in steep, rocky terrain. The habitat is usually dominated by ocotillo, saguaro and paloverde vegetation. In keeping with the BLM's Desert Tortoise Rangewide Plan (1988), areas of crucial tortoise habitat were identified and assigned priorities. The McCracken and Poachie mountains were identified as the most significant tortoise habitat in the resource area, outside of wilderness areas. Forage in desert tortoise habitat is also being utilized by livestock, wild burros, bighorn sheep, javelina and deer. Potential conflicts for desert tortoise exist due to grazing pressure from ungulates.

Additional conflicts may result from human surface-disturbing activities. The management prescriptions within the McCracken and Poachie areas of critical environmental concern are designed to reduce or resolve these conflicts with desert tortoise.

RIPARIAN AREA MANAGEMENT

Objective

Same as under *Alternative 1*.

Plan Actions

Same as under *Alternative 1* except the most significant riparian areas (Burro, Francis, Wright and Cottonwood creeks, the Big Sandy, Santa Maria and Bill Williams rivers and Alamo Lake) would be designated as areas of critical environmental concern and plans would be developed for these areas (see Table 5).

Management prescriptions necessary to protect and improve these riparian areas are described in the Special Management Areas section below and in Table 11. Mineral closures for areas of critical environmental concern are found in appendices 10 and 11.

Riparian zones are the most productive and sensitive habitats within the Sonoran and Mohave deserts and are used by wildlife more than any other habitat type. They support species found nowhere else except in riparian zones.

Strips of riparian woodland, such as cottonwood-willow communities, provide nesting habitat, aquatic habitat, movement corridors and havens of refuge and food sources for species not common to the southwest, but which must cross the desert during their migrations.

In addition, properly functioning riparian areas enhance watershed values such as water storage, long-term flow, reduction of peak flows, flooding, erosion and regeneration and maintenance of riparian communities.

Smaller riparian areas such as springs, seeps, canyon bottoms and other water-influenced areas would be managed to improve riparian conditions. Riparian improvement techniques could include, but are not limited to, construction of exclosure fences around riparian zones and piping of water outside to grazing animals, rotation of livestock grazing and development of alternate water sources.

HAZARDOUS MATERIALS MANAGEMENT

Objective

The objective is to reduce hazards to the public and natural resources on public lands from toxic materials.

Plan Actions

Plot location of land uses which use or generate toxic materials in groundwater basins. All authorized uses on public lands would be monitored through mining plans of operation, mining notices, environmental assessments, right-of-way stipulations, etc., to ensure that the use of hazardous materials is in compliance with existing laws and regulations.

Through an interdisciplinary team effort, known or possible conditions which might contaminate aquifers or riparian systems would be outlined. All mines using hazardous materials would be required to institute measures to meet the requirements of all pertinent environmental laws as addressed in 43 CFR 3809.2-2. State and federal laws would be enforced.

WILD AND FREE-ROAMING HORSE AND BURRO MANAGEMENT

In addition to the management proposed in *Alternative 1*, the Black Mountains Ecosystem Management Area of Critical Environmental Concern would be designated in the Black Mountains Herd Management Area.

The Wild Free-Roaming Horse and Burro Act of 1971 (Public Law 92-195, as amended) established policy regarding management of wild free-roaming horses and burros on the public lands. Congress found wild horses and burros to be "living symbols of the historic and pioneer spirit of the West." These animals were identified as "an integral part of the natural system" in those areas where populations existed at the passage of the Act.

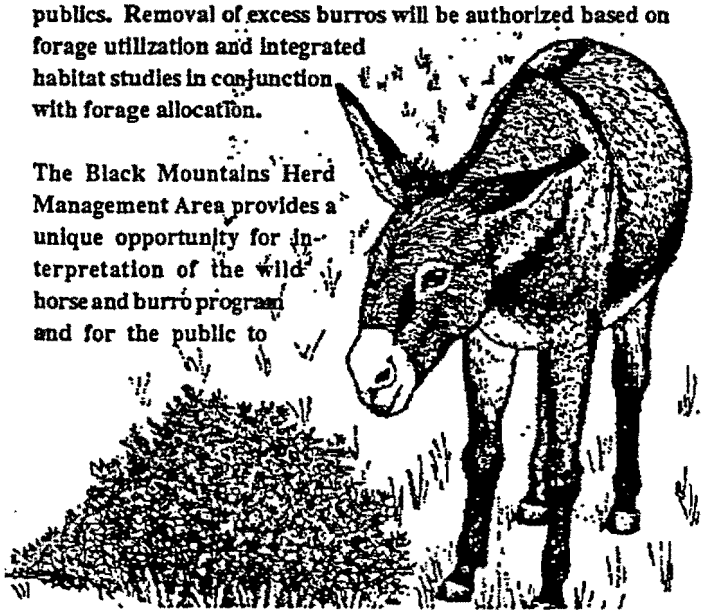
Three wild horse and burro herd management areas were identified in the Kingman Resource Area, based on population inventories following passage of the Act. These areas are the Big Sandy, the Cerbat and the Black Mountains herd management areas. Approximately 25 percent of the nation's wild burro population is found on BLM-administered lands in these three areas. Animals may not be relocated to areas where populations did not exist in 1971 (Public Law 92-195, Sec. 9). The herds are managed to assure their free-roaming character, health and self-sustaining ability in a thriving ecological balance.

Wild horse and burro management on public lands requires maintenance of a herd inventory, habitat monitoring and the removal and placement of excess animals to the public for adoption.

Detailed estimates of wild horse and burro forage allocations are presented in the Cerbat/Black Mountains and Hualapai-Aquarius grazing environmental impact statements. Both are on file at the BLM office in Kingman. These allocations will be carried forward except where modified when habitat monitoring indicates the need for changes.

The Black Mountains have been identified as one of the BLM's outstanding wild burro herd areas in the West (see area A and B on Map 9). The forage allocation established for deer, bighorn sheep, wild burros and livestock in the 1978 Cerbat/Black Mountains Grazing Environmental Impact Statement identified complex habitat use conflicts among these ungulates. To resolve these conflicts, available forage would be allocated for each species using the ratios in Table 10. This alternative allows for a realistic forage allocation based on actual use patterns. The forage allocation assures sufficient vegetation remains for protection of non-game animals, wilderness values and watersheds.

Forage allocation percentages will serve as a starting point for habitat monitoring. Where ungulate populations overlap, data would be compiled and analyzed through studies (research, monitoring, inventories, etc.) to identify the crucial elements of each species' habitat. This would include food, water, cover and space. As these elements are identified, forage allocation ratios would be refined. Monitoring will determine which ungulate species are using an area and determine the percentage of forage used by each species. Ungulate population adjustments would be made based on analysis of integrated habitat monitoring data and resource objectives and in consultation and coordination with other state and federal government agencies and interested publics. Removal of excess burros will be authorized based on forage utilization and integrated habitat studies in conjunction with forage allocation.



The Black Mountains Herd Management Area provides a unique opportunity for interpretation of the wild horse and burro program and for the public to observe wild burros on public lands. Initially, roadside signs interpreting wild burro management and providing information on the species and its role in the West would be placed at viewing areas along the Historic Route 66 Back Country Byway. Other routes in the herd management area would be considered on a case-by-case basis. In addition, the BLM would consider the designation of a wild burro range after further review and study on a state-wide basis. Any designation proposal would be developed in consultation and coordination with other state and federal agencies and interested publics.

The Big Sandy Herd Management Area would be managed to support a genetically viable population of burros defined as a minimum of 50 effective breeding animals (see Map 9a). Integrated habitat monitoring would be developed to determine forage allocations necessary to support a thriving natural ecological balance among all ungulates using the Area. Population adjustments would be based on analysis of integrated monitoring data and resource objectives, and in consultation with other government agencies and interested publics. Riparian habitat objectives would be developed in new resource activity plans and revisions of existing plans.

The boundary of the Cerbat Herd Management Area would be identified using the initial 1974 inventory of wild horse and burro use areas recorded in the Cerbat Mountain Unit Resource Analysis (see Map 9a). This delineation would determine a manageable wild horse unit through identification of the resources needed to sustain a free-roaming population of wild horses. Additional resources such as water, escape cover and other crucial habitat components would also be analyzed. The BLM would seek to acquire suitable resource components existing in private ownership through exchange or purchase with willing sellers or through cooperative agreements with private landowners (see habitat acquisition areas on Map 9a). Approximately 39,000 acres is identified for acquisition and addition to the Cerbat Herd Management Area (see map 9a).

In some situations, wild horses are benefiting from privately owned water sources. The BLM recognizes that livestock permittees are under no obligation to continue to provide water to wild horses. If private waters are no longer available, the BLM will develop waters to keep the horses in their present range on public lands and support a viable wild horse population. In 1992, two BLM waters were developed to support the Cerbat horse herd.

In addition to determining and incorporating a manageable wild horse use area, the BLM would determine the population structure necessary for a viable herd. Integrated habitat monitoring would allow the BLM to determine forage allocations necessary to support a thriving natural ecological balance among all ungulates using the Cerbat Herd Management Area. Studies would also be initiated to identify the ecological niche currently being occupied by the Cerbat wild horses and to determine wild horse

Table 11 (continued)

ALTERNATIVE 2 SUMMARY OF MANAGEMENT PRESCRIPTIONS FOR AREAS OF CRITICAL ENVIRONMENTAL CONCERN

Site Name and Designation	Values	Lands	Minerals	Range and Watershed Management	Cultural	Recreation and OHVs	Wildlife and T&E	Riparian	Vegetative Products
White-Margined Penstemon Reserve ACEC (17,489 acres)*	Crucial habitat for the white-margined penstemon and desert tortoise	Acquire private and state lands and minerals; confine new major rights-of-way to existing corridors	Require mining plans of operation and mandatory bonding for other than casual use; allow mineral leasing subject to stipulations	Manage livestock grazing to achieve white-margined penstemon desired plant community description objectives		Limit off-highway vehicle use to designated roads and trails; do not allow developed recreation facilities	Monitor white-margined penstemon and desert tortoise populations; support research on population dynamics; develop a coordinated resource management plan and include objectives for white-margined penstemon and desert tortoise		Prohibit removal of native plants except for salvage operations
Carrow-Stephens Ranches ACEC (542 acres)*	Excellent historic sites and paleontological resources	Confine rights-of-way to the area west of Highway 93; acquire non-federal surface and subsurface; implement withdrawal decisions	Withdraw 524 acres from mineral entry, allow mineral leasing with no surface occupancy and do not allow mineral material disposals; require mining plans of operation and mandatory bonding, including casual use	Fence the area and remove it from consideration for public livestock grazing	Prepare a site project plan; plan inventories and interpretation of existing resources	Limitoff-highway vehicle use to designated roads and trails; develop plans for recreation facilities and visitor use in a special recreation management area plan		File for water rights on springs and for instream flow	Prohibit removal of native plants
McCracken Desert Tortoise Habitat ACEC (21,740 acres)*	Excellent habitat for desert tortoise; scenic values; important backcountry recreation opportunities	Acquire private and state land and minerals; confine new major rigths-of-way to existing corridors; do not allow communication sites	Require mining plans of operation and mandatory bonding for other than casual use; allow mineral leasing subject to stipulations	Manage ungulate grazing to achieve desert tortoise desired plant community description objectives		Limit off-highway vehicle use to existing roads, trails and washes; do not allow developed recreation facilities; plan for dispersed backcountry recreation	Conduct inventories and monitor habitat condition; assess impacts of ungulate grazing and make necessary adjustments in ungulate numbers and grazing season		Prohibit removal of native plants except for salvage operations

* Public land surface acres

(continued)

SPECIAL MANAGEMENT AREAS

Objectives

Special designations are proposed to help protect special status plants and animals, cultural values, scenic values and wildlife and riparian resources.

Plan Actions

Twelve areas of critical environmental concern are proposed, totaling 315,712 acres. The citizens of Meadview have stated that they want stronger protection for the Joshua Tree Forest-Grand Wash Cliffs than can be afforded by an area of critical environmental concern. They have requested that the BLM pursue national conservation area status to improve protection for this area. The National Park Service has also expressed strong support for this action (see Map 21). Another area of critical environmental concern (Carrow-Stephens) is also proposed as a special recreation management area, covering 542 acres. Areas of critical environmental concern would be managed under principles of multiple use. Existing and proposed uses would be evaluated for compatibility with area of critical environmental concern goals and objectives. Management strategies would be developed in activity plans to conform with management prescriptions outlined in each area. Existing uses not compatible with area of critical environmental concern values would be eliminated, mitigated or modified to lessen adverse impacts. It is the intent of the BLM to facilitate public access (ranchers, hunters, etc.) while protecting natural resource values. All actions will occur only after compliance with the National Environmental Policy Act.

Lands proposed for area of critical environmental concern now covered by wilderness have been dropped from consideration for area of critical environmental concern status. However, in these areas, management prescriptions to protect sensitive resources in wilderness will be included in wilderness management plans.

One area of critical environmental concern proposed in the draft Resource Management Plan (1990) has been dropped from further consideration in this alternative. The proposed Western Bajada Area of Critical Environmental Concern was identified to protect desert tortoise habitat and sensitive cultural resources. Further site-specific inventory indicated high levels of surface disturbance due to the proximity of Bullhead City. Future management would be hindered by continued use of the area and urban expansion. It would be almost impossible to protect the resources identified for special attention.

The lands adjacent to Bullhead City have now been identified for disposal to facilitate city expansion. Mitigation will be provided for the loss of desert tortoise habitat or cultural resources in any exchange (see map 13). These disposal lands would be used to acquire additional high-value desert tortoise habitat or significant cultural resources.

The Clay Hills Research Natural Area of Critical Environmental Concern southern boundary has been modified. Those parts of sections 21, 22, 26 and 27, T. 16.5 N., R. 17W. (south of Alamo Road) area excluded from the original area. The parts of sections 25 and 36, T. 16.5 N., R. 17 W. (south of Alamo Road) and the north half of section 1, T. 16 N., R. 17 W., are included in the area of critical environmental concern boundary.

The relevance and importance criteria which qualify each area to be an area of critical environmental concern are outlined in the following pages. Also shown are the goals, objectives and management prescriptions required to protect and improve the sensitive resources of each area of critical environmental concern. Table 11, which follows the detailed information for each area of critical environmental concern, summarizes the management prescriptions for each area of critical environmental concern, showing how the prescriptions would benefit or constrain important resources. Acquisitions for areas of critical environmental concern are found in Appendix 22.

Approximately 23,800 acres of federal minerals would be proposed for withdrawal from mineral entry (see Table 12) to protect sensitive resources in areas of critical environmental concern (see appendices 10 and 11). Sensitive plant and animal species, riparian areas and cultural resources are impacted by surface-disturbing activities which alter crucial habitat and destroy irreplaceable scientific information. The continuation of these activities has the potential to destroy the irreplaceable resources identified for protection in the areas of critical environmental concern.

Areas withdrawn from mineral entry are subject to valid existing rights. Area of critical environmental concern designations would require bonding and mining plans of operation for all activities (other than casual use) conducted under the 1872 Mining Law.

A total of 35,864 acres of non-federal minerals are within the withdrawn areas. They are not subject to withdrawal restrictions, but are proposed for acquisition. If these are acquired they would be withdrawn from mineral entry (see appendices 10 and 11).

For restrictions on mineral leasing and mineral material disposals (see tables 11 and 12).

Within special management areas, the total amount of federally controlled surface estate exceeds the total amount of federal mineral estate. Therefore, the total acreage of mineral withdrawals may be less than the total federally controlled surface acreage.

environmental concern. Develop desired plant community descriptions and include these in a coordinated resource management plan.

11. Evaluate all other land use authorizations for compatibility with goals and objectives of the area of critical environmental concern, including reclamation withdrawals.

12. Continue to monitor white-margined penstemon and desert tortoise populations.

13. Support research proposals designed to obtain information about population dynamics for white-margined penstemon and desert tortoise.

14. Develop a coordinated resource management plan.

CARROW-STEPHENS RANCHES AREA OF CRITICAL ENVIRONMENTAL CONCERN

RELEVANCE

This area contains rare historic cultural resources including an 1880s two-story adobe ranch house, numerous outbuildings, a system of canals and ditches and irrigated fields, a pioneer cemetery and a 1930s Depression-era cannery. Pliocene fossil deposits and prehistoric Indian sites are also found in or near the area.

IMPORTANCE

Irreplaceable historic resources, exemplary of late nineteenth century farming and ranching life in northwestern Arizona, have tremendous potential for recreational and educational development. The area contains physical evidence of 5-1/2 million years of life, revealed through unique fossils, prehistoric Indian sites and two pioneer homesteads.

GOALS

To protect, preserve and develop the historical, prehistorical and paleontological resources of the area.

OBJECTIVES

1. Minimize surface disturbance.

2. Resolve conflicts caused by incompatible activities on private and state lands which affect management of resources on neighboring public lands.

3. Provide a unique living history experience for the public.

4. Provide recreational and educational opportunities.

5. Obtain a sufficient water supply to develop and maintain the project.

MANAGEMENT PRESCRIPTIONS

1. Propose designation of 542 acres of public lands as an area of critical environmental concern.

2. Limit off-highway vehicle use to existing roads and trails.

3. Withdraw 542 acres from mineral entry, subject to valid existing rights, and do not allow mineral material disposals.

4. Require mining plans of operation and mandatory bonding for all mineral exploration and development activities, including casual use.

5. Allow mineral leasing with no surface occupancy.

6. Acquire 133 acres of private lands (surface and subsurface, see Appendix 22).

7. Fence the area of critical environmental concern and remove it from consideration of public livestock grazing.

8. Within the existing corridor, confine new rights-of-way to the area west of Highway 93.

9. Apply for a permit with the state and drill a well for irrigating pastures and orchards as part of a proposed living history exhibit.

10. Do not allow removal of native plants.

11. Evaluate all other land use authorizations for compatibility with goals and objectives of the area of critical environmental concern.

12. Promote cultural and paleontological resource inventories, research projects by qualified institutions and individuals and evaluate site information.

13. Develop an area of critical environmental concern plan to include a cultural resource project plan and a special recreation area management plan, specifically addressing educational brochures, interpretive materials for strategic locations, living history activities and recreation facilities.

McCRACKEN DESERT TORTOISE HABITAT AREA OF CRITICAL ENVIRONMENTAL CONCERN

RELEVANCE

This area has been identified as Category I habitat for the desert tortoise, as defined in the BLM's Rangewide Tortoise Habitat Management Plan. The Sonoran desert tortoise is a candidate for federal listing as an endangered species. Under the rangewide plan, category I areas have been identified as habitat essential for the continued existence of a viable population of desert tortoise. Aggressive, positive management of other desert tortoise habitat is needed.

The McCracken Mountains are typical, small, desert mountains with rugged boulder-strewn slopes rising above the surrounding bajadas. There are few roads into the area. The unique vegetation, jumbled granitic boulder piles which dominate the area, and limited vehicle access offer visitors both scenic views and back country recreation opportunities.

IMPORTANCE

The desert tortoise has existed for tens of thousands of years and now is being significantly impacted by pressures of an expanding human population, development in tortoise habitat and other competing uses. There are few places where a desert tortoise population is considered to be in a healthy, thriving, stable condition. The future of this species could depend on how well the BLM manages the remaining desert tortoise habitat.

In addition, the McCracken Mountains support an unusual plant community that is transitional between Mohave and Sonoran desert scrub. The species assemblage found in this area is known only from Arizona. Several characteristic species here are among the most distinctive dominants of the two desert regions, giving the area a very unusual vegetative aspect.

Concern for the rapid decline of the Mohave tortoise population has gained international attention, being closely monitored by such conservation groups as the Desert Tortoise Council, the Natural Resources Defense Council, the Environmental Defense Fund and the Defenders of Wildlife. Similar concern has been expressed regarding the Sonoran population. In response, the BLM developed the Desert Tortoise Rangewide Plan (1988). Management goals, objectives and prescriptions would conform to the rangewide plan.

GOAL

To promote long-term viability of a desert tortoise population.

OBJECTIVES

1. Achieve and maintain diverse plant communities and stable soils.
2. Minimize surface disturbance.
3. Resolve conflicts caused by incompatible activities on private and state lands which affect management of resources on neighboring public lands.
4. Minimize adverse interactions between people and tortoises.
5. Obtain adequate data on tortoise population dynamics to guide management decisions.

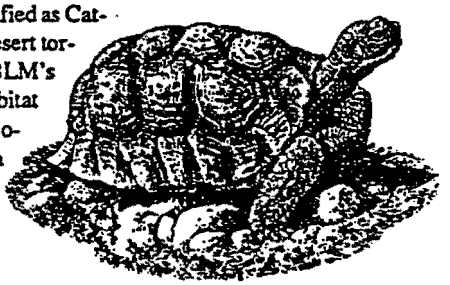
MANAGEMENT PRESCRIPTIONS

1. Propose designation of 21,740 acres of public land as an area of critical environmental concern.
2. Limit off-highway vehicle use to existing roads and trails.
3. Require mining plans of operation and mandatory bonding for all mineral exploration and development activities, other than casual use.
4. Allow mineral leasing, subject to appropriate stipulations designed to protect resource values.
5. Authorize mineral material disposal only when no reasonable management alternative can be identified *and* the disposal would not conflict with objectives for the area.
6. Acquire 11,024 acres of private, 320 acres of state lands (surface and subsurface) and 3,638 acres of nonfederal subsurface estate (see Appendix 22).
7. Do not allow developed recreation facilities; plan for dispersed recreation.
8. Confine new major rights-of-way to existing corridors.
9. Do not allow communication sites.
10. Develop and implement livestock management plans incorporating desired plant community descriptions to achieve goals and objectives of the area of critical environmental concern on the Chicken Springs 0021, Bateman Springs 0006 and Artillery Range 0003 allotments.
11. Manage ungulate grazing to ensure adequate and suitable perennial and ephemeral forage and cover for tortoises throughout the year, especially during the spring and late summer-fall. Adjust ungulate grazing through analysis of monitoring data which would consider forage allocation, use limits and season of use.
12. Conduct tortoise inventories, monitor habitat conditions and assess impacts of ungulate grazing.
13. Do not allow removal of native plants except for salvage operations.
14. Evaluate all other land use authorizations for compatibility with goals and objectives of the area of critical environmental concern.

POACHIE DESERT TORTOISE HABITAT AREA OF CRITICAL ENVIRONMENTAL CONCERN

RELEVANCE

This area has been identified as Category I habitat for the desert tortoise, as defined in the BLM's Rangewide Tortoise Habitat Management Plan. The Sonoran desert tortoise is a candidate for federal listing as a threatened or endangered species.



ALTERNATIVE 2 SUMMARY OF MANAGEMENT PRESCRIPTIONS FOR AREAS OF CRITICAL ENVIRONMENTAL CONCERN

Site Name and Designation	Values	Lands	Minerals	Range and Watershed Management	Cultural	Recreation and OHVs	Wildlife and T&E	Riparian	Vegetative Products
White-Margined Penstemon Reserve ACEC (17,489 acres)*	Crucial habitat for the white-margined penstemon and desert tortoise	Acquire private and state lands and minerals; confine new major rights-of-way to existing corridors	Require mining plans of operation and mandatory bonding for other than casual use; allow mineral leasing subject to stipulations	Manage livestock grazing to achieve white-margined penstemon desired plant community description objectives		Limit off-highway vehicle use to designated roads and trails; do not allow developed recreation facilities	Monitor white-margined penstemon and desert tortoise populations; support research on population dynamics; develop a coordinated resource management plan and include objectives for white-margined penstemon and desert tortoise		Prohibit removal of native plants except for salvage operations
Carrow-Stephens Ranches ACEC (542 acres)*	Excellent historic sites and paleontological resources	Confine rights-of-way to the area west of Highway 93; acquire non-federal surface and subsurface; implement withdrawal decisions	Withdraw 524 acres from mineral entry, allow mineral leasing with no surface occupancy and do not allow mineral material disposals; require mining plans of operation and mandatory bonding, including casual use	Fence the area and remove it from consideration for public livestock grazing	Prepare a site project plan; plan inventories and interpretation of existing resources	Limitoff-highway vehicle use to designated roads and trails; develop plans for recreation facilities and visitor use in a special recreation management area plan		File for water rights on springs and for instream flow	Prohibit removal of native plants
McCracken Desert Tortoise Habitat ACEC (21,740 acres)*	Excellent habitat for desert tortoise; scenic values; important backcountry recreation opportunities	Acquire private and state land and minerals; confine new major rigths-of-way to existing corridors; do not allow communication sites	Require mining plans of operation and mandatory bonding for other than casual use; allow mineral leasing subject to stipulations	Manage ungulate grazing to achieve desert tortoise desired plant community description objectives		Limit off-highway vehicle use to existing roads, trails and washes; do not allow developed recreation facilities; plan for dispersed backcountry recreation	Conduct inventories and monitor habitat condition; assess impacts of ungulate grazing and make necessary adjustments in ungulate numbers and grazing season		Prohibit removal of native plants except for salvage operations

* Public land surface acres

(continued)

Table 12
Alternative 2 Mineral Closures

Name	Closed to Mineral Material Disposals	Withdrawn from Mineral Entry	Mineral Leasing No Surface Occupancy	Withdrawn from Mineral Leasing
Joshua Tree Forest - Grand Wash Cliffs	0	0	0	0
Black Mountains	0	0	0	0
Wright-Cottonwood Creeks Riparian and Cultural	4,570	4,570	4,570	0
Hualapai Mountain	2,186	2,186	2,186	0
White-Margined Penstemon	0	0	0	0
Carrow-Stephens Ranches	542	542	542	0
McCracken Desert Tortoise Habitat	0	0	0	0
Poachie Desert Tortoise Habitat	0	0	0	0
Aubrey Peak Bighorn Sheep Habitat	0	0	0	0
Burro Creek Riparian and Cultural	5,160	5,160	5,160	0
Clay Hills Research Natural Area	1,114	1,114	0	1,114
Three Rivers Riparian	10,228	10,228	10,228	0
Campgrounds	500	500	500	0
Total Public Land Acres*	24,300	24,300	23,186	1,114

* The acreages were obtained from the Geographic Information System. Margin of error is ± one percent.

APPENDIX I

DECISION RECORD FOR THE WHITE CANYON PLAN AMENDMENT AND ENVIRONMENTAL ASSESSMENT

United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Tucson Field Office
12661 East Broadway
Tucson, AZ 85748-7208
(520) 722-4289

In reply refer to:
1600(060)

April 16,1998

Dear Interested Party:

Enclosed is a copy of the **Decision Record** for the White Canyon Plan Amendment and Environmental Assessment (EA) for the Phoenix and Safford District Resource Management Plans (RMP).

Thank you for providing comments during the preparation of the EA-level plan amendment. This decision approves a portion of the proposed plan amendment (February 1996), specifically for the designation and management of the White Canyon Area of Critical Environmental Concern (ACEC). The document does not adopt any decisions relating to proposed changes in land tenure designations from retention to disposal by exchange. This action amends the Phoenix RMP but not the Safford District RMP.

Thanks you for your participation and interest in this process. If you have any questions, call the Project Manager, Shela McFarlin at (602) 417-9568.

Sincerely,

Jesse Juen
Field Manager

Enclosure:
Decision Record

DECISION RECORD
for the White Canyon Plan Amendment

EA Name/Number: PROPOSED WHITE CANYON PLAN AMENDMENT AND ENVIRONMENTAL ASSESSMENT for the Phoenix and Safford District Resource Management Plans, AZ-024-95-039

BLM Office: Tucson Field Office

This Decision Record amends the Phoenix RMP but has no effect on the Safford District RMP.

Decision: It is my decision to approve the following parts of the Proposed White Canyon Plan Amendment and the management prescriptions defined therein.

The White Canyon Area of Critical Environmental Concern (ACEC) designation will be modified as follows:

- 300 non-wilderness federal acres identified in the Phoenix RMP will be retained as the White Canyon ACEC (as mapped on page 9 of the EA; mainly within T3S, R12E, Section 23, NE 1/4, approximately 140 acres and Section 25, NW 1/4, approximately 160 acres);

- 1,620 wilderness acres formerly designated as part of the ACEC in the Phoenix RMP will continue to be managed as wilderness under all appropriate guidelines but will cease to be designated as part of the White Canyon ACEC;

- BLM will seek to acquire 480 acres in Section 24 (in T3S, R12E but excluding the SE 1/4) to be managed as part of the White Canyon ACEC. Acquisition will be from the State of Arizona or subsequent land owners through appropriate mechanisms such as donation, friendly condemnation or exchange.

- New management prescriptions will replace the Phoenix RMP management actions ascribed to the White Canyon ACEC. A coordinated resource management plan will be completed. Motorized travel will be limited to designated roads and trails. Surface occupancy for oil and gas leasing will be prohibited. The plan will evaluate whether any ACEC areas not already under mining claims should be withdrawn.

That portion of the proposed plan amendment intended to change land tenure designations of the identified parcels (the "subject lands") from retention to disposal by exchange have been set aside, and will be reconsidered within the Asarco Ray Land Exchange/Plan Amendment EIS under preparation.

Protest Resolution:

Three protest letters were received from the Sierra Club, Southwest Center for Biodiversity and the

Huachucha Hiking Club. The issues identified in the protests pertain principally to the land tenure decisions in the proposed plan amendment. The BLM responses to the three protest letters in May 1997 indicated that the protest issues had become moot. That is, ASARCO Incorporated, during the protest resolution period, requested that BLM consider an expanded exchange with significant increases in the selected lands acres and appropriate changes in the offered lands package. BLM agreed to process the expanded exchange proposal and to combine a new plan amendment covering the original and expanded exchange selected lands (excluding 637 acres in Casa Grande) into the proposed exchange EIS.

Alternatives Considered:

Four plan amendment alternatives were analyzed: the Preferred Alternative, the Asarco Proposed Action Alternative, the Non-Wilderness ACEC and Public Access Alternative, and the No-Action Alternative.

The Preferred Alternative (the Proposed Plan Amendment) retains 300 non-wilderness federal acres currently managed as the White Canyon ACEC for special management of riparian, scenic and cultural values. If 480 acres in Section 24 are obtained by BLM in the future, these acres (all but the SE 1/4 of Section 24) are considered to be ACEC and will be managed under ACEC prescriptions. Since 1,620 acres of the original ACEC are now wilderness and managed under the Desert Wilderness Act of 1990, this alternative drops the wilderness acres from the ACEC.

The Asarco Proposed Action would have permitted all selected lands to be disposed of through exchange---once evaluated through a NEPA process. This would have included 160 acres of the White Canyon ACEC. The White Canyon ACEC would have no longer existed as an area for special management attention.

The Non-Wilderness ACEC and Public Access Alternative would have reduced the amount of public lands available for exchange by 1,280 surface acres and would have retained the White Canyon ACEC on 300 acres. This alternative was designed in response to public concerns about the White Canyon ACEC and about trail access through T3S, R12E, Sections 25 and 26.

The No Action Alternative stated the existing management situation that is presented within the Phoenix and Safford District RMPs. Its adoption would have meant no changes to the current RMPs and the land exchange could not have been further evaluated by BLM. The White Canyon ACEC would have remained designated with 300 non-wilderness and 1,620 wilderness acres. Mining, recreation and other multiple-use management actions that were provided for in the RMPs would not have changed.

Rationale for Decision:

The decision responds to public issues identified through a scoping period and through public review of the draft plan amendment, and is based on the finding of no significant impacts (FONSI) and supporting environmental assessment. An environmental impact statement is not required for the plan

amendment decisions which consider the White Canyon ACEC. As indicated above, the land tenure decisions pertaining to disposal by exchange are being set aside and will be combined into the exchange EIS.

The Federal Land Policy and Management Act (FLPMA) requires the identification and management of areas of critical environmental concern (ACECs) as part of the land use planing by the agency (Sections 102, 103, 201 and 202). The White Canyon ACEC values were identified as part of the Phoenix RMP for important scenic, cultural and riparian values. Retaining the 300 non-wilderness acres of the ACEC will afford special management attention for these values especially in the likelihood of mining exploration or development and increased recreational use of the area. Mining activities will require a plan of operation through the 43 CFR 3809 regulations affording an opportunity to evaluate such actions on these values. The BLM will seek to acquire an additional 480 acres of state land (current ownership) to expand protection and management of the ACEC values, especially the riparian habitat. No change in management practices results from deleting 1,620 acres of wilderness ACEC acres from the White Canyon ACEC since these are already managed under the more stringent wilderness guidelines.

Implementation:

A coordinated resource management plan will be completed which includes the White Canyon ACEC and will include these management prescriptions for the ACEC: motorized travel will be limited to designated roads and trails; surface occupancy for oil and gas leasing will be prohibited; and, the plan will evaluate whether any ACEC areas not already under mining claims should be withdrawn.

Recommended by:

Tucson Field Manager — Date: 4/6/98

Approved by:

Arizona State Director — Date: 4/6/98

4310-917-P

DEPARTMENT OF THE INTERIOR

Bureau of Land Management

(AZ-917/AZ-060; AZA 28350)

Notice of Availability of the Decision Record for the White Canyon Plan Amendment/ Environmental Assessment for the Phoenix Resource Management Plan, Pinal County, Arizona.

AGENCY: Bureau of Land Management, Interior.

ACTION: Notice of Availability.

SUMMARY: The State Director has approved that portion of the proposed plan amendment for the designation and management of the White Canyon Area of Critical Environmental Concern (ACEC). In compliance with the Federal Land Policy and Management Act of 1976, as amended, and Section 102(2)(c) of the National Environmental Policy Act of 1969, the plan amendment revises designation and management decisions made through the Phoenix Resource Management Plan (RMP). The proposed modification to land tenure designations have been set aside and will be integrated with an environmental impact statement under preparation for the proposed Ray Land Exchange.

FOR FURTHER INFORMATION, CONTACT: Shela McFarlin, Project Manager, Bureau of Land Management, Arizona State Office, 222 North Central Avenue, Phoenix, AZ 85004, or telephone (602) 417-9568.

SUPPLEMENTAL: The Decision Record will amend the Phoenix RMP to modify the White-Canyon ACEC designation as follows: 1) 300 non-wilderness federal acres will be retained as the White Canyon ACEC (within T3S, R12E, Section 23, NE 1/4 and Section 25, NW 1/4); 2) 1,620 wilderness acres formerly designated as ACEC will continue to be managed as wilderness under all appropriate guidelines, but will cease to be designated as ACEC; and, 3) BLM will seek to acquire 480 acres in Section 24 (T3S, R12E) to be managed upon

acquisition as ACEC. Acquisition will be from the state of Arizona or subsequent land owners through appropriate mechanisms such as donation, friendly condemnation or exchange. New ACEC management prescriptions will replace the Phoenix RMP management actions and a coordinated resource management plan will be completed. Motorized travel will be limited to designated roads and trails. Surface occupancy for oil and gas leasing will be prohibited. The plan will evaluate whether any ACEC areas not already under mining claims should be withdrawn.

Public reading copies may be reviewed at the following BLM locations:

Arizona State Office, 222 North Central Avenue, Phoenix, Arizona 85004

Tucson Field Office, 12661 East Broadway, Tucson, Arizona 85748-7208

Phoenix Field Office, 2015 West Deer Valley Road, Phoenix, Arizona 85027

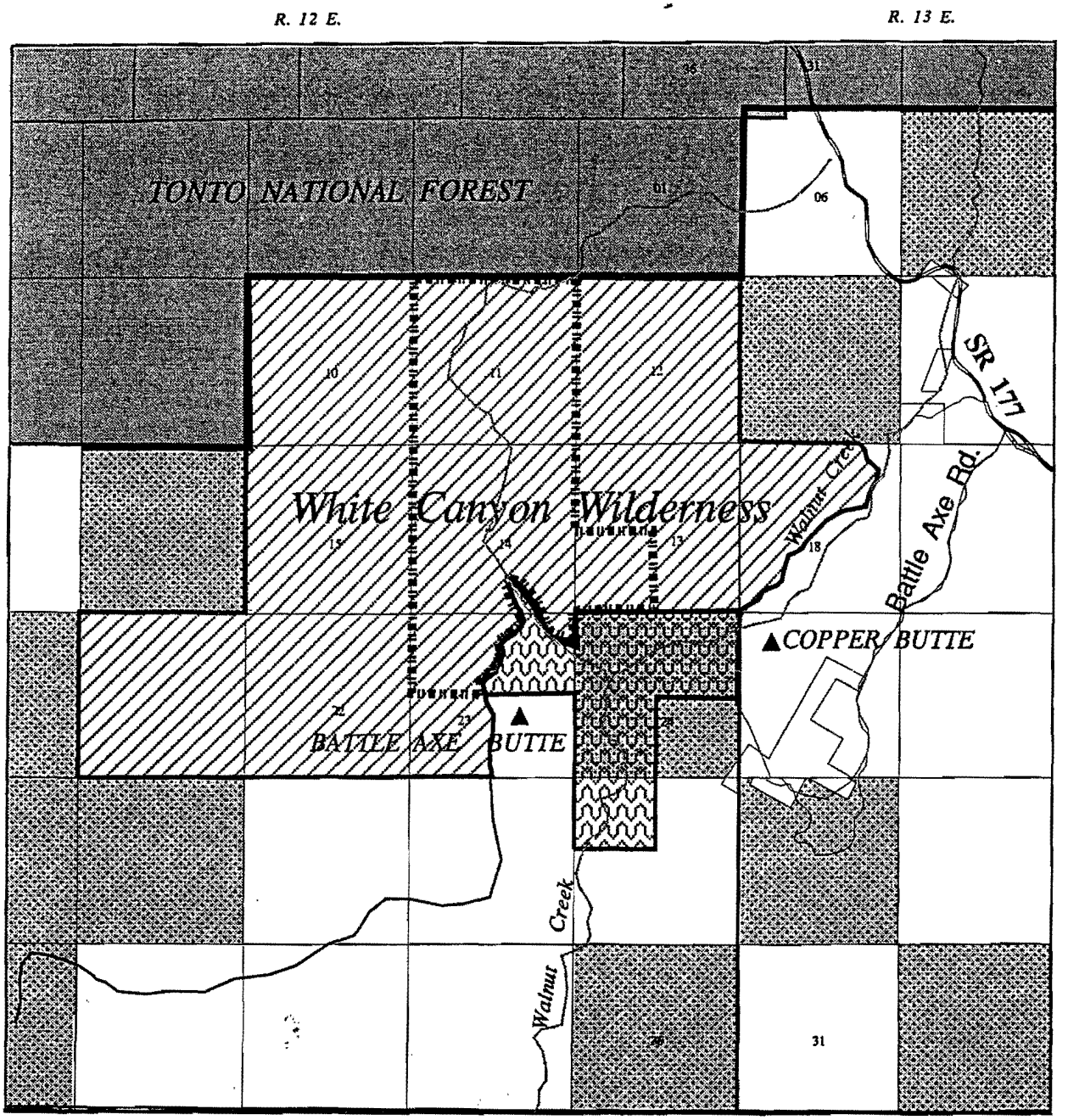
Lonna O'Neal

Lonna O'Neal
Acting State Director

4/17/98

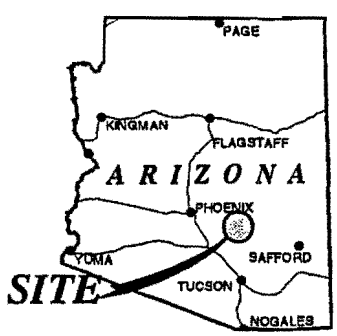
Date

WHITE CANYON AREA OF ENVIRONMENTAL CONCERN



LEGEND

- Area of Critical Environmental Concern Designation Removed
- Area of Critical Environmental Concern
- White Canyon Resource Conservation Area
- White Canyon Wilderness
- BLM Lands
- Private Lands
- State Lands
- Forest Service Lands



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April 1, 1998

ACRONYMS & ABBREVIATIONS

ACEC	Area of Critical Environmental Concern
ADEQ	Arizona Department of Environmental Quality
ADOT	Arizona Department of Transportation
ADWR	Arizona Department of Water Resources
AGFD	Arizona Game and Fish Department
AIRFA	American Indian Religious Freedom Act
AMA	Active Management Areas
AMLRA	Arizona Mined Land Reclamation Act
APP	Aquifer Protection Permit/Program
ARS	Arizona Revised Statutes
ASCI	Asarco Santa Cruz Inc.
ASLD	Arizona State Land Department
ATI	Agreement to Initiate
AUM	Animal Unit Month
AWQS	Arizona Water Quality Standards
BADCT	Best Available Demonstrated Control Technology
BE	Biological Evaluation
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
BMP	Best Management Practices
CB	Copper Butte
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CH	Chilito Hayden
CFR	Code of Federal Regulations
CFS	Cubic Feet per Second
CG	Casa Grande
CO	Carbon Monoxide
COE	Corps of Engineers
CWA	Clean Water Act
DEIS	Draft Environmental Impact Statement
DOI	Department of Interior
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESA	Endangered Species Act
EXIST	Existing Mining Foreseeable Use Category
FEIS	Final Environmental Impact Statement
FLEFA	Federal Land Exchange Facilitation Act
FLPMA	Federal Land Policy and Management Act
FONSI	Finding of No Significant Impact
FR	Federal Register
GRRMA	Gila River Riparian Management Area
INTER	Intermittent Foreseeable Use Category
KM	Kilometers
kV	kiloVolt
LRP	Long-Range Prospect Foreseeable Use Category
LTMA	Long-Term Management Area
MGCRMA	Middle Gila Cultural Resource Management Area
MPO	Mining Plan of Operations
MSHA	Mine Safety and Health Administration
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NCA	National Conservation Area, including RNCAs
NHPA	National Historic Properties Act
NOA	Notice of Availability
NOD	Notice of Decision
NOEP	Notice of Exchange Proposal
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRHP	National Register of Historic Places
OSHA	Occupational Safety and Health Administration
PILT	Payments in Lieu of Taxes
PM_{10}	Particulate Matter of 10 microns or less in aerodynamic diameter
POS	Production Operation and Support Foreseeable Use
RCRA	Resource Conservation and Recovery Act
RCA	Resource Conservation Area
RM	Ray Mine
RMP	Resource Management Plan
RNCA	Riparian National Conservation Are, a subset of NCA
ROD	Record of Decision
ROM	Run-of-Mine
ROW	Right-of-Way
SCJV	Santa Cruz Joint Venture
SO_2	Sulfur Dioxide
SPCC	Spill Prevention Control and Countermeasure Plan
SX/EW	Solution Extraction/Electrowinning
SWPPP	Storm Water Pollution Prevention Plan
TCP	Traditional Cultural Property
TDS	Total Dissolved Solids
TFO	Tucson Field Office
TRANS	Transition Foreseeable Use Category
T & E	Threatened and Endangered
USC	United States Code
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
W&SR	Wild and Scenic Rivers Act
WSCA	Wildlife Species of Concern in Arizona
VRM	Visual Resource Management