



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

Ray Land Exchange

Final Supplemental Environmental Impact Statement/Proposed Plan Amendments
Arizona State Office, Gila District Office

July 2019



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BLM Estimated Total Cost of
Developing and Producing
this Document: \$1.8 Million

RAY LAND EXCHANGE/PROPOSED PLAN AMENDMENT

FINAL

SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT

Bureau of Land Management
Arizona State Office
Gila District Office

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United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Gila District Office
3201 East Universal Way
Tucson, AZ 85756



In reply refer to:
2800 (G020)
AZA31116

July 2019

Dear Reader:

Enclosed is the Proposed Resource Management Plan Amendments (RMPAs)/Final Supplemental Environmental Impact Statement (Final SEIS) for the Ray Land Exchange. The Bureau of Land Management (BLM) prepared the Proposed RMPAs/Final SEIS in consultation with various government agencies and organizations, taking into account public comments received during this planning effort. The Final SEIS supplements the *Final Environmental Impact Statement – Ray Land Exchange/Plan Amendment* (BLM 1999) (FEIS).

The Proposed RMPAs/Final SEIS analyzes the potential impacts of completing the Ray Land Exchange with ASARCO LLC (ASARCO), including amending three RMPs to make certain lands available for disposal. ASARCO proposes to acquire from the BLM approximately 10,976 acres of public lands and federally owned mineral estate adjacent to its Ray Complex (Ray Mine and associated processing facilities near Hayden, Arizona) and in the Casa Grande, Arizona vicinity (the **Selected Lands**). In exchange, ASARCO is offering to the BLM approximately 7,304 acres of private lands (the **Offered Lands**) identified by the BLM as desirable for consolidating checkerboard land ownership and improving access to existing federal land for traditional uses such as hunting and other recreation.

The Proposed Action and alternatives presented and analyzed in the Final SEIS are the same as those presented and analyzed in the FEIS. However, since updated appraisals revealed in 2018 that the value of the Selected Lands had increased, omitting some of these lands will be necessary to comply with the statutory requirement that the federal and private lands to be exchanged be in equal value, with no more than a 25% cash equalization payment included. Therefore, the BLM's final decision will require a modification of the Proposed Action presented in the Final SEIS. Based on the 2018 appraisals, BLM likely would dispose of only 9,339 acres (7,196 acres of full estate and 2,143 acres of subsurface mineral estate only, the surface of which is owned by ASARCO). ASARCO would be required to make up the difference in value with a cash equalization payment.

The Final SEIS analyzes and compares the effects of the land exchange on the foreseeable mining operations conducted on federal lands under BLM and other federal and state regulations with the effects of the land exchange on the foreseeable mining operations conducted on private lands under applicable federal and state regulations. The Final SEIS also addresses public comments received on the Draft SEIS.

Pursuant to BLM's planning regulations at 43 CFR §1610.5-2, any person who participated in the planning process for the Proposed RMPAs and has an interest that is or may be adversely

affected by the planning decisions may protest approval of the planning decisions contained therein. The BLM's proposed RMPA decisions will change certain land tenure designations from “retention” to “disposal” for the Lower Sonoran, Phoenix, and Safford Resource Management Plans (RMPs):

1. Approximately 9,906 acres designated in the Lower Sonoran and Phoenix RMPs as part of the White Canyon Resource Conservation Area (RCA) to be changed from retention to disposal; and
2. Approximately 433 acres designated in the Safford District RMP as part of the former Safford District Long-Term Management Area to be changed from retention to disposal.

The Proposed RMPAs/Final SEIS is open for a 30-day protest period beginning the date that the U.S. Environmental Protection Agency publishes its Notice of Availability in the *Federal Register*. The regulations specify the required elements of your protest. Take care to document all relevant facts. As much as possible, reference or cite the planning documents or available planning records (for example, meeting minutes or summaries, correspondence, etc.). Instructions for filing a protest with the Director of the BLM regarding the Proposed RMPAs may be found online at <https://www.blm.gov/programs/planning-and-nepa/public-participation/filing-a-plan-protest> and at 43 CFR §1610.6-2. All protests must be in writing and mailed to the appropriate address, as set forth below, or submitted electronically through the BLM ePlanning project website. Protests submitted electronically by any means other than the ePlanning project website protest section will be invalid unless a protest is also submitted in hard copy. Protests submitted by fax will also be invalid unless also submitted either through ePlanning project website protest section or in hard copy. All protests submitted in writing must be mailed to one of the following addresses:

<u>Regular Mail:</u>	<u>Overnight Delivery:</u>
Director (210)	Director (210)
Attn: Protest Coordinator	Attn: Protest Coordinator
P.O. Box 7138320	M Street SE, Room 2134LM
Washington, D.C. 20024-1383	Washington, D.C. 20003

The BLM Director will render a written decision on each land use plan protest. The decision will be sent to the protesting party by certified mail, return receipt requested. The decision of the BLM Director shall be the final decision of the Department of the Interior on each land use plan protest. Responses to land use plan protest issues will be compiled and formalized in a Director's Protest Resolution Report made available following issuance of the decisions.

Upon resolution of all land use plan protests the BLM will issue a Record of Decision (ROD), which will include information on any further opportunities for public involvement.

Copies of the final Proposed RMPAs/Final SEIS have been sent to affected federal, state, and local government agencies and American Indian tribes. Copies of the Final SEIS are available for public inspection at the BLM Gila District Office, 3201 East Universal Way, Tucson, AZ 85756; at the BLM Arizona State Office, One North Central Avenue, Suite 800, Phoenix, AZ 85004-4427; and at the BLM Kingman Field Office, 2755 Mission Boulevard, Kingman, AZ 86401-5308. In addition, copies of the Final SEIS can be viewed at the Kearny Public Library,

912-A Tilbury Drive, Kearny, AZ 85137. You may also access the document on the internet at: <https://go.usa.gov/xmkTs>.

Sincerely,

A. Scott Feldhausen, Gila District Manager
Bureau of Land Management

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SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT

Ray Land Exchange/Plan Amendment

U.S. Department of the Interior
Bureau of Land Management
Gila District Office
Tucson, Arizona
July 2019

Lead Agency: U.S. Department of the Interior, Bureau of Land Management

Type of Action: ☐ Draft ☒ Final

Cooperating Agencies: None

Responsible Official: A. Scott Feldhausen, Gila District Manager

For Further Information Contact: Michael Werner
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BLM Arizona State Office
(602) 417-9561

Abstract

This Final Supplemental Environmental Impact Statement (Final SEIS) documents additional analysis of potential environmental impacts of a proposed land exchange between the Bureau of Land Management (BLM) and ASARCO LLC of approximately 10,976 acres of public lands and federally owned mineral estate in Arizona for acquisition by ASARCO LLC in exchange for approximately 7,304 acres of private land in Arizona. Specifically, the Final SEIS analyzes and compares the effects of the land exchange with the foreseeable mining operations conducted on federal lands under applicable federal and state laws, including BLM regulations (the No Action Alternative) with the effects of the land exchange with the foreseeable mining operations conducted all or partially on private lands under applicable federal and state and federal laws (the Proposed Action and action alternatives), and addresses public comments received after release of the Draft Supplemental Environmental Impact Statement. The Final SEIS also analyzes the effects of proposed plan amendments for the Lower Sonoran, Safford, and Phoenix RMPs, which are needed so that BLM may consider the exchange of lands identified for retention. The Final SEIS analysis addresses concerns identified by the Ninth Circuit Court of Appeals of the environmental impact analysis contained in the original *Final Environmental Impact Statement (FEIS) – Ray Land Exchange/Plan Amendment* (BLM 1999). The court found that the BLM had not adequately compared the environmental effects of exchanging the land with the effects of not exchanging the land in the FEIS. In addition to presenting this comparative analysis, the Final SEIS provides updated and revised information that was not applicable, or not available, in 1999.

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ACRONYMS AND ABBREVIATIONS

Document abbreviations	
FEIS	<i>Final Environmental Impact Statement – Ray Land Exchange/Plan Amendment</i> (BLM 1999)
Kingman RMP	<i>Record of Decision for the Approval of the Kingman Resource Area Resource Management Plan/Final Environmental Impact Statement</i> (BLM 1995)
Lower Sonoran RMP	<i>Lower Sonoran Record of Decision and Approved Resource Management Plan</i> (BLM 2012a)
Phoenix RMP	<i>Phoenix Resource Management Plan/Environmental Impact Statement, Record of Decision</i> (BLM 1989)
Middle Gila Canyons TMP	<i>Middle Gila Canyons Transportation and Travel Management Plan</i> (BLM 2010b)
Safford RMP	<i>Records of Decision, Final Safford District Resource Management Plan/Environmental Impact Statement</i> (BLM 1992, 1994)
Other abbreviations	
°F	degrees Fahrenheit
µg/m ³	microgram(s) per cubic meter
4WD	4-wheel-drive
AAC	Arizona Administrative Code
ACEC	Area of Critical Environmental Concern
ACHP	Advisory Council on Historic Preservation
ADEQ	Arizona Department of Environmental Quality
ADMMR	Arizona Department of Mines and Mineral Resources
ADWR	Arizona Department of Water Resources
AGFD	Arizona Game and Fish Department
AMA	Active Management Area
APP	Aquifer Protection Permit
Arizona Trail	Arizona National Scenic Trail
ARPA	Archaeological Resources Protection Act
ARS	Arizona Revised Statutes
ASARCO	ASARCO LLC
ASLD	Arizona State Land Department
ASMI	Arizona State Mine Inspector

ASU	Arizona State University
ATV	all-terrain vehicle
AUM	animal-unit month
AZHGIS	Arizona Heritage Geographic Information System
AZPDES	Arizona Pollutant Discharge Elimination System
BADCT	Best Available Demonstrated Control Technology
BCR	Bird Conservation Region
BGEPA	Bald and Golden Eagle Protection Act
bgs	below ground surface
BLM	Bureau of Land Management
BUFFER	Buffer
CAA	Clean Air Act
CBD	Collectively, the Center for Biological Diversity, the Western Lands Project, and the Sierra Club
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
cfs	cubic feet per second
CIA	cumulative impact analysis
CIAA	cumulative impacts analysis area
CO	carbon monoxide
CRP	converter retrofit project
CWA	Clean Water Act
DEIS	draft environmental impact statement
E	East
EIS	environmental impact statement
EO	executive order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
EXIST	Existing Mining
FEIS	final environmental impact statement
FLPMA	Federal Land Policy and Management Act
FRWR	Federal Reserved Water Rights
GIS	geographic information system
gpm	gallons per minute
GWSI	Groundwater Site Inventory

HDMS	Heritage Data Management System
HUC	hydrologic unit code
IBA	Important Bird Area
IBLA	Interior Board of Land Appeals
IM	instruction memorandum
IPCC	Intergovernmental Panel on Climate Change
KOP	key observation point
L	low
LRP	Long-Range Prospect
M	moderate
MBTA	Migratory Bird Treaty Act
mg/L	milligram(s) per liter
mgd	million gallons per day
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MPO	mine plan of operations (collectively, a mining and reclamation plan of operations)
MUSY	Multiple Use-Sustained Yield
N	North
NASS	National Agriculture Statistics Service
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NEMO	Arizona Nonpoint Education for Municipal Officials
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
No.	number
NO ₂	nitrogen dioxide
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWP	Nationwide Permit
O ₃	ozone
OHV	off-highway vehicle
PA	programmatic agreement
Pb	lead

PCAQCD	Pinal County Air Quality Control District
PILT	payments in lieu of taxes
PM	particulate matter
PM _{2.5}	particulate matter 2.5 microns in diameter or smaller
PM ₁₀	particulate matter 10 microns in diameter or smaller
POS	Production Operations and Support
ppb	part(s) per billion
ppm	part(s) per million
PWR	Public Water Reserve
R	Range
RCA	Resource Conservation Area
RFFA	reasonably foreseeable future action
RMP	resource management plan
ROD	Record of Decision
ROW	right-of-way
S	South
SEIS	supplemental environmental impact statement
SHPO	State Historic Preservation Office
SIP	state implementation plan
SMA	special management area
SO	Secretarial Order
SO ₂	sulfur dioxide
SR	State Route
subpart 3809 regulations	surface management regulations at 43 CFR subpart 3809
SUV	sport-utility vehicle
SX/EW	solvent extraction/electrowinning
T	Township
TCP	traditional cultural property
THPO	Tribal Historic Preservation Office
TIP	tribal implementation plan
TMDL	total maximum daily load
TRANS	Transition
TSF	tailings storage facility
USACE	U.S. Army Corps of Engineers

USC	United States Code
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UTV	utility terrain vehicle
VRI	Visual Resource Inventory
VRM	Visual Resource Management
W	West
WSA	Wilderness Study Area
WUS	waters of the U.S.

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EXECUTIVE SUMMARY

INTRODUCTION

The Bureau of Land Management (BLM) issued a final environmental impact statement (FEIS) for the Ray Land Exchange/Plan Amendment in June 1999 and the Record of Decision (ROD) in May 2000 (BLM 2000a). The decision approved a land exchange between ASARCO LLC (ASARCO) and the BLM for approximately 10,976 acres of BLM-administered public lands (including 2,780 acres of federally owned subsurface mineral estate) for acquisition by ASARCO (the “**Selected Lands**”) in exchange for approximately 7,304 acres of private land (the “**Offered Lands**”).

The decision was challenged, and in 2010 the United States Court of Appeals for the Ninth Circuit concluded the BLM had not adequately compared the environmental effects of exchanging the land with the effects of not exchanging the land in the FEIS.

The Final Supplemental Environmental Impact Statement (Final SEIS) supplements the 1999 FEIS by providing clarifying analysis of potential environmental impacts of the land exchange and alternatives. Specifically, the Final SEIS analyzes and compares the effects of the land exchange on the foreseeable mining operations conducted on federal lands under BLM and other federal and state regulations with the effects of the land exchange on the foreseeable mining operations conducted on private lands under applicable federal and state regulations. The Final SEIS also addresses public comments by clarifying the impacts to cultural resources and recreational access.

PURPOSE OF AND NEED FOR THE ACTION

The purpose of, and need for, the action remains the same as in the FEIS (BLM 1999, Page S1). Specifically, the purpose of the proposed Ray Land Exchange/Plan Amendments is to consider amending the Lower Sonoran, Phoenix, and Safford Resource Management Plans (RMPs) to allow for disposal of the **Selected Lands** and exchanging ownership of federal lands for private lands. The need for action is to respond to ASARCO’s request for a land exchange, while allowing BLM to acquire lands with public values.

ALTERNATIVES

The four alternatives presented in the Final SEIS are the same as considered in the FEIS. BLM considered ASARCO's best-estimate for future use of the **Selected Lands** (Appendix C) as common to all alternatives.

Under the No Action Alternative, no lands would be exchanged. The **Selected Lands** would remain in federal ownership and would continue to be managed by BLM in accordance with the multiple-use management directives in the Federal Land Policy and Management Act of 1976 (FLPMA) and the RODs for the current Lower Sonoran, Phoenix, and Safford District RMPs. To develop the mineral resources on public lands under this alternative, ASARCO would be required to obtain surface use authorization from the BLM and comply with other federal and state regulations.

The three action alternatives (the Proposed Action, the Buckeye Alternative, and the Copper Butte Alternative) all include plan amendments to the Lower Sonoran, Phoenix, and Safford RMPs that would change the land tenure status to allow for disposal of the **Selected Lands**. Each of the action alternatives presents a different land exchange option as described below.

Under the Proposed Action (which is the BLM's Preferred Alternative), the BLM would dispose of up to 10,976 acres of **Selected Lands** consisting of up to 31 parcels in Pinal and Gila Counties, including 2,780 acres of split-estate lands in which ASARCO owns the surface estate and the United States has retained the mineral estate. In exchange, the BLM would acquire up to 7,304 acres of **Offered Lands** in 18 parcels located in Mohave and Pinal Counties that possess resource qualities considered to be of significant value to the public. There is one element of the Proposed Action that is different than the FEIS: In June 2018, ASARCO informed the BLM it will no longer donate any of the 480 acres of ASARCO's land in Section 24 adjacent to the White Canyon Wilderness to the BLM as a component of the land exchange.

Under the Buckeye Alternative, the total acreage of the **Selected Lands** would be reduced to approximately 10,176 acres by excluding about 800 surface and subsurface acres of parcel CB-1 in Sections 25 and 26. The **Offered Lands** would be reduced to approximately 6,659 acres.

Under the Copper Butte Alternative, the **Selected Lands** area would be reduced to approximately 9,161 acres by excluding surface and subsurface acres of parcel CB-1 (1,120 acres), parcel CB-2 (615 acres), and portions of parcel CB-3 (80 acres). The **Offered Lands** would be reduced to approximately 5,606 acres.

ENVIRONMENTAL IMPACTS

Biological Resources

Under all alternatives, foreseeable mining operations on the **Selected Lands** would result in removal of between 4,078 and 5,347 acres of the 8,196 acres of natural vegetation and soil resources. Vegetation outside of the anticipated mining footprint may also be affected by fugitive dust and other irritants disrupting photosynthetic processes. Noise and vibration from foreseeable mining operations may also potentially cause changes in wildlife dispersal, reproductive behavior, communication patterns, decreased foraging success, and increased predation.

Under the No Action Alternative, any proposal submitted under the BLM's surface management regulations would include reclamation plans that address the effects of the proposed use on vegetation and wildlife, including providing for revegetation and controlling soil erosion. Additionally, the plan would require restoration of any disturbed riparian areas, and require noxious weeds to be treated, in accordance with BLM performance standards. Consequently, under the No Action Alternative, vegetation would be reclaimed or restored after foreseeable mining operations if retained in federal ownership. Management of biological resources on the **Offered Lands** would not be subject to federal land management policy.

Under the Proposed Action, biological resources on the **Selected Lands** may be affected differently by foreseeable mining operations because the statutory and regulatory requirements applicable to mining on private lands do not require operators to mitigate, reclaim, or restore the

lands to the same as under the No Action alternative. Private landowners may specify the post-mining land uses and thus determine the type, density, and diversity of vegetation; noxious weed management would not be required under state law. Thus the Proposed Action may have different impacts to vegetation and wildlife habitat because the conveyance to ASARCO could reduce the nature and extent to which the impacts to vegetation on the **Selected Lands** are addressed. Acquisition of the **Offered Lands** would create larger, continuous, areas of land to be managed by BLM, in accordance with federal law and regulation. Some of the parcels would be located within the boundaries of existing Areas of Critical Environmental Concern (ACECs), wilderness, or other protected designations, providing increased habitat protection, connectivity, and conservation opportunities.

The potential impacts from the land exchange under the other action alternatives vary based on the amount of surface estate acreage in the **Selected Lands** being retained in federal ownership: 800 acres under the Buckeye Alternative, and 1,815 acres under the Copper Butte Alternative. Biological resources on lands conveyed to ASARCO would experience the same direct impacts as the Proposed Action due to the different reclamation and restoration requirements that apply to private lands. Biological resources on lands remaining under BLM management would experience the same direct impacts described under the No Action Alternative. Varying acreages of the **Offered Lands** would come under federal management, and would therefore be subject to federal policy and regulation; 7,304 acres impacted under the Proposed Action, 6,659 acres under the Buckeye Alternative, and 5,606 acres under the Copper Butte Alternative. The acquisition of the **Offered Lands** could potentially increase wildlife habitat protection and connectivity on the associated landscapes.

The BLM has completed consultation on the Proposed Action for species listed under the Endangered Species Act, as well as proposed and Designated Critical Habitat. On the **Selected Lands** conveyed under any of the action alternatives, ASARCO would not be required to protect or mitigate for disturbance of unoccupied designated or proposed critical habitat. Therefore, protective measures for critical habitat on the **Selected Lands** would be reduced in the absence of federal management. Placing the McCracken Mountains parcels into federal management would increase the acres of Sonoran Desert tortoise habitat managed by BLM in the McCracken Desert Tortoise Habitat ACEC.

Water Resources

Foreseeable mining operations on the **Selected Lands** may affect surface water and groundwater resources to some degree, as discussed in the FEIS. Prior to conducting foreseeable mining operations on the **Selected Lands**, ASARCO would be required to obtain and comply with all water resource authorizations from state and local agencies that administer laws and regulations applicable to water quality and quantity, regardless of land ownership.

The BLM's regulations authorize the agency to require additional measures as a condition of approval only if foreseeable mining operations would cause unnecessary or undue degradation despite compliance with permitting or other state and federal requirements. Based on the foreseeable uses presented by ASARCO (see Appendix B), there is no indication that ASARCO would propose to mine under the No Action Alternative in a way that would comply with state and federal permitting requirements, but still cause unnecessary or undue degradation and thus

allow BLM to impose additional requirements as a condition of approval. Nor is it possible to quantify how impacts to surface water or groundwater resources might change if such additional requirements were incorporated. Consequently, based on the foreseeable uses presented by ASARCO (see Appendix B), the selection of alternatives is not expected to have any direct impact to surface water or groundwater resources.

The No Action Alternative would have no direct effects on 18 Federal Reserved Water Rights (FRWR). By contrast, the Proposed Action, Buckeye, and Copper Butte Alternatives would directly impact FRWR on the **Selected Lands** because such rights would be revoked or relinquished on any lands that are conveyed in the land exchange.

None of the alternatives are expected to have an impact on water resources of the **Offered Lands**. Acquisition of the **Offered Lands** may require filing of state-based water rights.

Air Quality

Foreseeable mining operations on the **Selected Lands** would affect air quality, as quantified using the air permitting mechanisms available through the Clean Air Act (CAA). Quantification of air quality impacts requires detailed descriptions of the proposed extent of mining operations including, for example, a roster of equipment and ore production rates. Although ASARCO has provided general information about its future mining operations, it has not submitted any permit applications or provided sufficient details regarding exploration, mine development, operations, and closure/reclamation to provide a quantification of emissions resulting from the foreseeable mining operations.

For purposes of analyzing the impacts from the proposed land exchange and comparing them to the No Action Alternative, BLM assumes that, as discussed in the FEIS, foreseeable mining operations would comply with state and/or local permitting for air quality through the CAA under all alternatives. The BLM's regulations do authorize the agency to require additional measures as a condition of approval if foreseeable mining operations would cause unnecessary or undue degradation despite compliance with permitting or other state and federal requirements. Based on the foreseeable uses presented by ASARCO (see Appendix B), there is no indication that ASARCO would propose to mine under the No Action Alternative in a way that would comply with state and federal air quality permitting requirements, but still cause unnecessary or undue degradation and thus allow BLM to impose additional requirements as a condition of approval. Nor is it possible to quantify how air quality impacts might change if such additional measures were incorporated. Consequently, based on the foreseeable uses presented by ASARCO (see Appendix B), the land exchange is not expected to impact air resources.

None of the alternatives are expected to generate an air quality impact to the **Offered Lands**.

Mineral Resources

The mineral potential for occurrence in the **Selected Lands** is the same under all alternatives, including the No Action Alternative. The potential for development of locatable minerals in the **Selected Lands** is also the same under all alternatives, given ASARCO's stated intention to pursue copper mining and mining-related activities on the **Selected Lands** regardless of whether the land exchange occurs or not.

Under the No Action Alternative and for **Selected Lands** that would remain in federal ownership under the Buckeye and Copper Butter Alternatives, foreseeable mining operations would be required to comply with applicable federal and state laws governing disposal of federal minerals, including the BLM's regulations at 43 Code of Federal Regulations (CFR) subpart 3809. Under the Proposed Action, ASARCO would have exclusive rights to, and control development of, all mineral resources in the **Selected Lands**, and foreseeable mining operations would be required to comply with applicable federal, state, and local environmental regulations.

The **Offered Lands** have not been assessed for mineral potential, and no mineral development plans exist. Of these lands, the 6,384-acre McCracken Parcels have a Special Warranty Deed restricting mining and the 160-acre Knisely Ranch Parcel Group is located in the Mount Tipton Wilderness and thus would not be available for mining.

Of the 7,304 acres included in the **Offered Lands**, mineral development could potentially occur on the 320-acre Gila River at Cochran parcel, the 320-acre Tomlin parcel group, and on the 120-acre Sacramento Valley parcel. Under the No Action Alternative, and where retained in private ownership under the Buckeye and Copper Butte alternatives, holders of the mineral rights could develop any minerals subject to applicable laws and regulations. Under all action alternatives, any potential development on the lands transferred into federal ownership would be required to follow BLM's mining laws and regulations.

Land Use

Under all alternatives, the foreseeable mining operations may also change the visual quality of portions of the **Selected Lands** from natural appearance and undeveloped scenic quality, to actively mined, and reduce the acreage of lands authorized for livestock grazing under federal leases.

Under the No Action Alternative, there would be no change in land ownership or management of the **Selected** (10,976 acres) and **Offered Lands** (7,304 acres). Under the No Action Alternative, the timing of impacts to existing rights-of-way (ROWs) and grazing authorizations would be determined by the implementation of any surface use authorization or Mine Plan of Operations. BLM would consider new ROWs on the **Selected Lands** in accordance with applicable RMPs. Visual resources would be managed according to BLM standards. Nine existing ROWs on the **Offered Lands** would remain subject to management of the private landowner.

Under the Proposed Action, 10,976 acres of land would be conveyed to ASARCO, and 7,304 acres of land would become public land managed by the BLM under applicable RMPs. Existing ROW holders on the **Selected Lands** would negotiate any modifications to their ROW grant with ASARCO. BLM would manage the nine existing ROWs on the **Offered Lands** in accordance with applicable laws and regulations. Livestock grazing lessees would be given 2 years to cease livestock grazing on those portions of their federal allotments associated with the **Selected Lands** but could continue at the discretion of ASARCO. Approximately 7,000 acres of land could become available for grazing in Mohave County, and 320 acres could become available in Pinal County. BLM visual resource standards would no longer apply to the **Selected Lands** and there is no state equivalent standard for management of impacts to visual quality.

BLM would designate visual resource management (VRM) classifications to the **Offered Lands** and manage them in accordance with BLM visual resource policy.

Under the Buckeye and Copper Butte Alternatives, the impacts to land ownership, management of public lands, grazing and visual resources on the **Selected Lands** would be the same as those described under the No Action Alternative on the 800 acres not exchanged under the Buckeye Alternative and the 1,815 acres not exchanged under the Copper Butte Alternative, and the associated lands retained in private ownership. Under the Copper Butte Alternative, the BLM would continue to manage three ROWs on the **Selected Lands**, and one ROW on the **Offered Lands** would remain under private control. Otherwise, impacts to ROWs would remain the same as under the No Action Alternative.

Access and Recreation

Foreseeable mining operations on the **Selected Lands** are expected to eliminate access of up to 8,196 acres of public land, including approximately 30.8 miles of existing routes. Closure of routes would lead to a loss of continuity and dead-end situations on adjacent public lands.

Under the No Action Alternative, retaining the **Selected Lands** in federal ownership would result in access remaining for some period prior to ASARCO obtaining surface use authorization that results in the elimination or disruption of access. Any discretionary authorizations could include measures to address impacts to access or recreation. It is not possible to determine the additional length of time that access would remain available or when existing routes would be affected. There would be no change in public access or recreational opportunities on the **Offered Lands**.

Under the Proposed Action, the **Selected Lands** would be conveyed to ASARCO; closure would be at its discretion and impacts to access and recreation resulting from the land exchange could be immediate. Under the Buckeye Alternative, impacts resulting from the land exchange to the lands conveyed could be immediate, as with the Proposed Action, while on the 800 acres of **Selected Lands** retained in federal ownership, access impacts to those lands would not occur until ASARCO is granted surface use authorization that eliminates or restricts access. Under the Copper Butte Alternative, impacts to the lands conveyed could be immediate, as with the Proposed Action, while on the 1,815 acres of **Selected Lands** retained in federal ownership, access impacts to those lands would not occur until ASARCO is granted surface use authorization that eliminates or restricts access. Under all action alternatives, the **Offered Lands** coming under federal management would become accessible to the public for a variety of recreation opportunities.

Wilderness Resources/Special Management Areas

The White Canyon ACEC, White Canyon Wilderness, and the Arizona National Scenic Trail (Arizona Trail) would be impacted by the foreseeable mining operations on the **Selected Lands**. Foreseeable mining operations would be seen, felt, and/or heard from these areas, impacting the “solitude” characteristics of Wilderness and the recreational settings of the Arizona Trail.

Under the No Action alternative, these characteristics would remain until ASARCO obtains surface use authorization for operations that would affect these resources. Any discretionary

authorizations could include measures to address noise or visual impacts. Access to these areas would be eliminated or greatly restricted due to foreseeable mining operations. Under the No Action Alternative, the **Offered Lands** would remain private.

Under the action alternatives there would be no requirement to mitigate noise or visual impacts under state law. Under the action alternatives, the **Offered Lands** would be included in and managed within the framework of several existing special management areas—the Gila River Riparian Management Area, Middle Gila Cultural Resource Management Area, White Canyon Resource Conservation Area, Black Mountain Herd Management Area, Big Sandy Herd Management Area, McCracken Desert Tortoise Habitat ACEC, and Mount Tipton Wilderness. Under the Buckeye and Copper Butte Alternatives, 640 and 1,698 acres respectively of the **Offered Lands** would not be included in the McCracken Desert Tortoise Habitat ACEC.

Wilderness Characteristics

Reasonably foreseeable mining operations on parcels RM-17 and CB-2 of the **Selected Lands** could occur on approximately 748 acres of the Granite Mountain wilderness characteristics inventory unit. Under all alternatives, these foreseeable mining operations could eliminate the unit's qualifying wilderness characteristics by reducing the wilderness characteristics inventory unit to less than 5,000 acres. The wilderness characteristics of the remaining lands within the unit, particularly "solitude," would be impacted by the foreseeable uses, as mining activities would likely be seen, heard, and felt by visitors.

Under the No Action Alternative, any future requests for discretionary surface use authorization on the **Selected Lands** could include measures to address effects on the wilderness characteristics of the Granite Mountain wilderness characteristics inventory unit. Under the action alternatives, that opportunity to address impacts to wilderness characteristics would only exist on the lands retained under the Buckeye and Copper Butte alternatives.

Under the No Action Alternative, the **Offered Lands** would remain private. Under the action alternatives, the **Offered Lands** acquired would be inventoried for wilderness characteristics.

Cultural and Heritage Resources

Impacts to cultural resources from the land exchange are considered in two ways: land status changes related to conveyances under the exchange and, impacts from the change in regulatory framework that would result from the land exchange.

In terms of impacts related to the land status changes, National Historic Preservation Act (NHPA) regulations identify conveyances of sites eligible for listing on the National Register of Historic Places (NRHP), or sites that are still undetermined, out of federal ownership, including through a land exchange, as having a direct adverse effect on historic properties. NHPA regulations characterize the conveyances themselves direct adverse effects, regardless of the foreseeable use of the conveyed lands, because the change in land status removes the protections for these resources under the NHPA.

Under the No Action Alternative, there would be no land status changes, and thus no direct adverse effects within the meaning of the NHPA regulations. All of the action alternatives

include conveyances of the **Selected Lands** and thus would result in direct adverse effects, as quantified by the number of affected NRHP-eligible sites and traditional cultural properties (TCPs) on the lands that would be conveyed: 57 NHPA-eligible sites and 5 TCPs under the Proposed Action; 53 NHPA-eligible sites and 5 TCPs under the Buckeye Alternative; and 37 NHPA-eligible sites and 3 TCPs under the Copper Butte Alternative.

Foreseeable mining operations could also disturb cultural resources. The extent and manner in which BLM would be required to address adverse effects from such disturbance is impacted by the selection of alternatives. Under the No Action Alternative, BLM would be required to develop a Programmatic Agreement (PA) covering all 57 NHPA-eligible sites and resolve adverse effects to the properties from any proposed surface use authorization or mine plan of operations (MPO).

Under the action alternatives, the protections under the BLM's regulations, as well as the protections of the NHPA, Archaeological Resources Protection Act (ARPA), and the Native American Graves Protection and Repatriation Act (NAGPRA) generally would not apply on the **Selected Lands**. However, human remains and funerary objects found on the **Selected Lands** would be subject to Arizona Revised Statutes (ARS) 41-865. Thus, with the exception of human remains and funerary objects, selecting any of the action alternatives is likely to cause direct impacts to known and newly discovered cultural resources because unless there is a federal nexus, there would be no requirement to protect cultural resources. To resolve these impacts of the action alternatives, a PA between ASARCO, BLM, and State Historic Preservation Office (SHPO) has been executed. The PA describes actions required to resolve adverse impacts to cultural resources (historic properties), primarily consisting of data recovery designed to extract the significant information from each site before any ground-disturbing activities occur. Any sites discovered after the lands leave federal ownership will likely not be subject to protection.

The transfer of the **Offered Lands** under the Proposed Action would bring several archaeological sites and TCPs under the protection of the ARPA, NHPA, and NAGPRA. Any future activity on the parcels with these resources would be subject to compliance with federal law. Under the Buckeye and Copper Butte alternatives, the **Offered Lands** not exchanged would not become subject to NHPA and ARPA or NAGPRA. However human remains and funerary objects on those lands would be subject to ARS 41-865.

Socioeconomic Conditions

Foreseeable mining is not expected to have an impact on population or demographics within the study area. Foreseeable mining operations on the **Selected Lands** are expected to increase employment and wages. There is no difference in impacts from any of the alternatives with respect to employment, income, population, or demographics.

Under the No Action Alternative, Pinal and Gila Counties would continue to receive payments in lieu of taxes (PILT) of approximately \$30,442 for the **Selected Lands**. Mohave and Pinal Counties would continue to receive annual property taxes of approximately \$9,500 for the **Offered Lands**.

Under the Proposed Action, Pinal County would receive \$1.1 million to \$1.5 million in annual property taxes on the **Selected Lands** and would forego approximately \$29,700 in PILT

revenues for those lands. Pinal County would also forego approximately \$2,500 in annual property tax revenues on the **Offered Lands**, which would be partially offset by approximately \$900 in PILT revenues for those lands. Gila County would receive \$33,600 to \$37,000 in annual property taxes on the **Selected Lands** and would forego approximately \$700 in PILT revenues for those lands. Under the Proposed Action, Mohave County would forego approximately \$7,000 of annual property tax revenues on the **Offered Lands**, which would be partially offset by approximately \$4,000 in PILT revenues for those lands. The action alternatives would have similar effects on taxes and PILT revenues, with adjustments for the acreage retained in federal ownership.

Under the Buckeye Alternative, Pinal County would receive between \$1.0 million and \$1.4 million in annual property tax revenues on the **Selected Lands** and forego an estimated \$27,400 in PILT revenues. Gila County would see the same impacts as described for the Proposed Action. On the **Offered Lands**, Pinal County would see the same impacts as described for the Proposed Action. Mohave County would forego about \$6,500 in annual property tax revenues and receive about \$3,700 in annual PILT revenues.

Under the Copper Butte Alternative, Pinal County would receive between \$0.9 million and \$1.2 million in annual property tax revenues on the **Selected Lands** and forego \$24,300 in annual PILT revenues. Gila County would see the same impacts as described for the Proposed Action. On the **Offered Lands**, Pinal County would see the same impacts as described for the Proposed Action. Mohave County would forego \$5,600 in annual property tax revenues and would receive about \$3,100 in annual PILT revenues.

Under all alternatives, there is no quantifiable impact to grazing economics on either the **Selected** or **Offered Lands**.

There would be an estimated displacement of approximately \$170,000 in recreation-related spending under all alternatives due to foreseeable mining on the **Selected Lands**. The displacement of recreation-related spending would be dependent upon timing of any approved surface use authorizations. Under the action alternatives, timing of this displacement may be immediate. Some of the recreational use may shift to the **Offered Lands** and contribute to recreation-related spending the nearby communities.

Under the No Action Alternative, the **Selected Lands** would remain under federal ownership, and future uses of the land would be subject to Executive Order (EO) 12898. Multiple federally recognized tribes have identified concerns about the impacts from mining activities and access to places of traditional cultural importance on the **Selected Lands**. If any surface use authorization of the **Selected Lands** is sought, including a new or modified MPO, the BLM would continue to monitor and analyze the demographic and economic trends of the affected environment and engage with populations of concern as required under EO 12898.

Under the action alternatives, state and local regulations of mining operations on private land do not contain provisions equivalent to EO 12898 for environmental justice. The demographics of the study area do not indicate a disproportion of low-income or minority populations that would require analysis if the lands remained in federal ownership. The absence of a requirement to consider environmental justice under EO 12898 that results from the conveyance of federal lands

under the Proposed Action, Buckeye or Copper Butte Alternatives is not expected to result in impacts to environmental justice on the **Selected** or **Offered Lands**.

PUBLIC INVOLVEMENT

Public involvement efforts for the Ray Land Exchange Final SEIS were built upon the previous public involvement activities and were designed to educate the public about the Ray Land Exchange and the Final SEIS rationale and process. The BLM consulted and coordinated with federal and state agencies and tribes; see Appendix I, Consultation and Coordination. Refer to Appendices I and J of the FEIS for more information regarding previous public involvement activities.

CHAPTER 1

PURPOSE OF AND NEED FOR ACTION

1.1 INTRODUCTION

The Bureau of Land Management (BLM) issued the *Final Environmental Impact Statement – Ray Land Exchange/Plan Amendment* in June 1999 (herein called the FEIS) and an associated Record of Decision (ROD) in May 2000 (BLM 1999, 2000a). The FEIS describes the potential impacts of land use plan amendments and a land exchange between the BLM and ASARCO LLC (ASARCO), a mining company. The land exchange would involve up to 10,976¹ acres of public lands and federally owned mineral estate, which ASARCO would acquire in exchange for up to 7,304 acres of private land that the BLM has identified as desirable for public ownership. This Final Supplemental Environmental Impact Statement (Final SEIS) addresses concerns identified by the United States Court of Appeals for the Ninth Circuit regarding the environmental impact analysis contained in the FEIS. The court found that the BLM had not adequately compared the environmental effects of exchanging the land with the effects of not exchanging the land in the FEIS.

This Final SEIS also analyzes proposed amendments to the *Lower Sonoran Record of Decision and Approved Resource Management Plan* (Lower Sonoran RMP) (BLM 2012a), *Records of Decision, Final Safford District Resource Management Plan and Environmental Impact Statement* (Safford RMP) (BLM 1992, 1994), and the *Phoenix Resource Management Plan/Environmental Impact Statement, Record of Decision* (Phoenix RMP) (BLM 1989); these amendments are needed to allow for disposal of the federal lands.

Lastly, this Final SEIS addresses any significant new circumstances and information, such as changes in the affected environment, as well as any changes to the regulatory framework that are relevant to analyzing the impacts of the proposed land exchange.

1.2 PROJECT HISTORY AND BACKGROUND

ASARCO first proposed a land exchange in 1994, in order to consolidate its holdings in the Ray Mine Complex and Casa Grande area, as described in Chapter 1 of the FEIS. The BLM began processing the exchange under a Memorandum of Agreement (MOA). The FEIS was completed in 1999, and a ROD was issued in 2000 (BLM 1999, 2000a). The BLM's decision was set aside and remanded for additional analysis.

Ongoing ASARCO operations hold existing permits summarized in Table 1.8-4 *Permits Issued at the Ray Mine* and Table 1.8-5 *Permits Issued at Hayden Operations* (see Appendix G, Final SEIS Tables).

¹ The acreage figure for the Selected Lands (the parcels that ASARCO would like to acquire) used throughout this document is approximate, but correct in magnitude and sufficiently accurate to be used pending cadastral survey or other BLM-approved methods to quantify acreage. Of the 10,976 acres, 8,196 are surface and mineral estate acres and 2,780 are only mineral estate acres.

1.3 PROPOSED ACTION OVERVIEW

The Proposed Action consists of: 1) the proposed Ray Land Exchange, and 2) proposed amendments to the Lower Sonoran, Safford, and Phoenix RMPs, to allow disposal of the **Selected Lands**. The proposed land exchange includes approximately 10,976 acres of public lands and federally owned mineral estate located near ASARCO's Ray Mine Complex and other operations in south-central Arizona. The parcels that ASARCO has identified it would like to acquire are termed the "**Selected Lands**." For most of the **Selected Lands** (8,196 acres), both the surface and mineral estates are in federal ownership and would be traded in the proposed land exchange. The remainder of the **Selected Lands** (2,780 acres) consists of split-estate lands, where the BLM administers the mineral estate (subsurface) and the surface estate is in non-federal ownership.

In exchange for these federal holdings, the BLM would acquire approximately 7,304 acres of private land within the state of Arizona. These parcels are termed the "**Offered Lands**."

The **Offered Lands** possess resource qualities considered to be of significant value to the public and have been identified as desirable for acquisition (see the Phoenix RMP [BLM 1989] and the *Record of Decision for the Approval of the Kingman Resource Area Resource Management Plan/Final Environmental Impact Statement* [Kingman RMP; BLM 1995]).

1.4 PURPOSE OF AND NEED FOR ACTION

The purpose of, and need for, the action remains the same as in the FEIS (BLM 1999, page S1). Specifically, the purpose of the proposed Ray Land Exchange/Plan Amendments is to exchange ownership of federal lands for private lands and amend the Lower Sonoran, Safford, and Phoenix RMPs to allow for disposal of the **Selected Lands**. The need for action is to respond to ASARCO's request for a land exchange, while allowing BLM to acquire lands with public values.

1.5 DECISION TO BE MADE

The BLM will decide whether to approve the proposed plan amendments for the Lower Sonoran, Safford, and Phoenix RMPs, which are needed so that BLM may consider the exchange of lands identified for retention. If the plan amendments are approved, the BLM will determine whether the proposed land exchange would be in the public interest. The authorized officer may complete an exchange only after a determination is made that the public interest will be well served (43 Code of Federal Regulations [CFR] § 2200.0-6(b)). If the BLM determines that the proposed land exchange is in the public interest, the BLM will decide whether to approve the land exchange as proposed, or with modifications in the Record of Decision.

1.6 PROJECT LOCATION

The **Selected Lands** consist of 31 parcels of public lands located in Pinal and Gila Counties in south-central Arizona. These 31 parcels are clustered in four areas: the **Ray Mine Complex**, **Copper Butte/Buckeye**, and **Chilito/Hayden** parcel groups are near ASARCO's Ray Mine Complex near Kearny; and three **Casa Grande** mineral-estate only parcels located about

50 miles west of the Ray Mine Complex, near Casa Grande, Arizona (see Figure 1.6-1 *Ray Land Exchange/Plan Amendment SEIS project location map* in Appendix F, Final SEIS Figures).

The Tucson Field Office manages 23.5 of the **Selected Lands** parcels, the Safford Field Office manages 4.5 parcels.² Due to changes in BLM field office boundaries, the three parcels near Casa Grande were part of the Tucson Field Office when the FEIS was completed; those parcels are now managed by the Lower Sonoran Field Office.

The **Offered Lands** consist of 18 parcels owned by ASARCO in Pinal and Mohave Counties, Arizona. These parcels are treated throughout this document as five units (two single parcels and three parcel groups): Gila River at Cochran, Sacramento Valley Parcel, Tomlin Parcel Group, Knisely Ranch Parcel Group, and McCracken Mountains Parcel Group. The **Offered Lands** fall within the administrative boundaries of the Tucson and Kingman Field Offices.

Additional descriptions of the parcels and locational information are provided in Chapter 2. Appendix A of the FEIS provides a legal description of the subject parcels. Appendix F provides maps and figures of the subject parcels.

1.7 RESOURCE MANAGEMENT PLAN CONFORMANCE

Sections 201 and 202 of Federal Land Policy and Management Act of 1976 (FLPMA) direct the BLM to conduct land use planning in a manner that ensures that land use plans and implementation decisions remain consistent with applicable laws, regulations, orders, and policies.

The Lower Sonoran, Safford, and Phoenix RMPs would require amendments before the **Selected Lands** parcels could be exchanged. The amendments would change the land tenure status for the **Selected Lands** parcels from retention to available for disposal.

If acquired, the **Offered Lands** would be managed in conformance with the applicable Kingman and Phoenix RMPs.

1.8 APPLICABLE LAWS AND REGULATIONS

This section, along with Table 1.8-1 *Principal Laws Relating to the Ray Land Exchange/Plan Amendments* (see Appendix G), summarizes and updates information from the FEIS, presenting the principal laws and regulations with which the BLM must comply in order to authorize the proposed land exchange.

In addition, this section describes the laws and regulations applicable to mining operations on federal and non-federal lands in Arizona. Although these laws do not govern the proposed land exchange or the proposed plan amendments, an understanding of the legal framework for mining operations on federal and non-federal lands is important in order to compare and understand the reasonably foreseeable impacts of the proposed action alternatives and the No Action Alternative under the applicable regulatory frameworks.

² Note: Parcel is split between the Tucson Field Office and the Safford Field Office.

1.8.1 Federal Land Policy and Management Act of 1976

1.8.1.1 RESOURCE MANAGEMENT PLAN AMENDMENT AUTHORITY

The BLM is directed under Section 202(a) of the FLPMA to develop, maintain, and when appropriate, revise land use plans which provide by tracts or areas for the use of the public lands.

1.8.1.2 LAND EXCHANGE AUTHORITY

The BLM is authorized to complete land exchanges under Section 206 of the FLPMA, as amended by the Federal Land Exchange Facilitation Act of 1988, but only after a determination is made that the public interest will be served by the exchange.

Land exchanges are considered discretionary and voluntary actions (43 CFR § 2200.0-6). Objectives and criteria for federal land ownership adjustments are provided in general by Section 202 of FLPMA. Table 1.8-2 *BLM Objectives and Criteria for Public Land Disposal and Acquisition* (see Appendix G) summarizes these objectives and criteria for disposing of and acquiring public lands.

Determination of Public Interest

As required by Section 206(a) of FLPMA and the BLM's implementing regulations at 43 CFR § 2200.0-6(b), when determining whether an exchange is in the public interest, the BLM authorized officer shall give full consideration to the opportunity to achieve better management of federal lands, to meet the needs of state and local residents and their economies, and to secure important objectives, including but not limited to: protection of fish and wildlife habitats, cultural resources, watersheds, wilderness, and aesthetic values; enhancement of recreation opportunities and public access; consolidation of lands and/or interests in lands, such as mineral and timber interests, for more logical and efficient management and development; consolidation of split estates; expansion of communities; accommodation of land use authorizations; promotion of multiple-use values; and fulfillment of public needs.

In making this determination, the authorized BLM officer must find that the resource values and the public objectives that the **Selected Lands** or interests to be conveyed may serve if retained in federal ownership are not more than the resource values of the **Offered Lands** or interests and the public objectives they could serve if acquired, and that the intended use of the conveyed **Selected Lands** will not significantly conflict with established management objectives on adjacent federal and Indian trust lands.

This determination will be made in the Record of Decision for the Final SEIS, and considers all aspects identified above as well as public comments on the Draft Final SEIS regarding the public interest determination.

Equal Value

The FLPMA requires that the lands being exchanged be of equal value. Any difference in appraised values between the **Offered** and **Selected Lands** may be equalized through a cash

payment from the proponent of up to 25% of the value of the **Selected Lands** (see 43 CFR³ §§ 2201.1-1, 2201.5, and 2201.6), and/or the acreages proposed for exchange may be adjusted. The equal value requirement ensures that the exchange is fair in terms of monetary value. Any required equalization of values will be addressed in the Record of Decision for the Final SEIS.

1.8.2 Legal Authorities Governing Mining Operations

This section describes the federal and state laws and regulations governing mining operations. Table B-1 in Appendix B, Comparison Tables, provides a comparison of relevant BLM regulatory requirements and standards with other federal, state, and local regulatory requirements and standards. Table B-2 compares BLM regulatory requirements and standards with requirements and standards of the Arizona Department of Environmental Quality (ADEQ) Aquifer Protection Permit (APP) and Arizona State Mine Inspector (ASMI) state mined land reclamation plan program. Comparison of these two tables shows that for every regulatory requirement or standard in 43 CFR subpart 3809.401 and subpart 3809.420, a counterpart federal, state, or local regulatory requirement or standard would apply, except for protection of federal survey monuments in 43 CFR subpart 3809.420(b)(9). In many cases, the regulatory requirements overlap (see Tables 1.8-3, 1.8-4, and Table 1.8-5 in Appendix G for examples of permits typically required for mining on private and federal lands).

There are some regulatory controls that are specific to lands under federal ownership. As a result, some actions may be subject to National Environmental Policy Act (NEPA) review prior to a permitting decision only if the lands are in federal ownership, which may affect the public's awareness of environmental impacts to those resources, as well as the type of restoration or reclamation measures that might be applied. Affected environments where it is known or anticipated that a variance could occur are identified, in summary form, in Table 1.8-6 *Key Resource Areas that may Lack Analysis without BLM NEPA Review Associated with Approval of an MPO under 43 CFR subpart 3809* (see Appendix G). The effects of removing these regulatory controls under the land exchange alternatives is evaluated in detail in the resource-specific impact analyses contained in Chapter 4, Environmental Effects.

1.8.2.1 MINING OPERATIONS ON BLM-MANAGED LANDS

Mining operations on BLM-managed public lands must obtain surface use authorization from BLM in addition to the permits required for mining on non-federal lands. The BLM primarily administers mining operations on public lands under its surface management regulations at 43 CFR subpart 3809. In addition, some mining-related surface uses are authorized under the BLM's regulations at 43 CFR Parts 2800 and 2900. Before the BLM can provide surface use authorization of federal lands, the BLM generally conducts an environmental analysis of the impacts of the proposed use and the operator must demonstrate that the use would not cause unnecessary or undue degradation of the lands, as required by section 302(b) of FLPMA, 43 United States Code (USC) § 1732(b).

The FEIS (Section 1.6.4.1) contains a detailed discussion of the BLM's surface use authorization regulations in effect at that time. The BLM revised its regulations at 43 CFR subpart 3809 in 2001 after the FEIS and ROD were completed. Under the current regulations any new or

³ Unless a different title is noted, all further CFR citations in the document are to Title 43.

modified mine plan of operations (MPO) must include, among other things, monitoring, reclamation, and interim management plans. The BLM's regulations at 43 CFR subpart 3809.500 also require all mining operations to provide financial assurances to guarantee completion of reclamation in the event of default by the operator. These bonding requirements ensure that taxpayers are not burdened with cleanup of mining operations on the public lands.

The BLM must prepare an environmental analysis under the NEPA before approving any newly proposed MPO or MPO modification, or other mining-related surface use. The NEPA review provides the BLM and the public with the opportunity to analyze potential environmental impacts of approving the proposed MPO. The NEPA analysis also assists the agency in determining whether the proposed operations would cause unnecessary or undue degradation of the lands and, if so, how the operations must be modified, mitigated, or avoided before the BLM can approve the surface use. BLM typically involves other federal, state, and local agencies during review of a proposed MPO as part of the decision-making process.

1.8.2.2 MINING OPERATIONS ON NON-FEDERAL LANDS

Mining operations on non-federal lands must be authorized by the agencies listed in Table 1.8-3 *Summary of Key Required Permits/Approvals for ASARCO to Operate the Ray Mine Complex on Private Lands* in Appendix G. Mine operators on non-federal lands must provide, among other things, monitoring, reclamation, and interim management plans in order to obtain the necessary permits. (See Tables B-1 and B-2 in Appendix B for applicable non-BLM federal and state regulations, and their equivalent subpart 3809 regulations.) For example, operators must provide financial assurances to ensure completion of reclamation, which BLM would not be party to. Unlike some states, Arizona does not have a state environmental planning statute which requires analysis of impacts before permit issuance. Thus, for permits that do not have a federal nexus, no environmental analysis would be required before the permit is issued.

Where a federal nexus exists, such as when a 404 permit is required, the federal agency will complete an environmental analysis under NEPA, including public review and comment, before making a decision about whether to issue the permit. During the NEPA process, the federal agency would identify any applicable project design measures and analyze the effectiveness of those measures to reduce impacts on the affected environment.

1.9 SUMMARY OF SUPPLEMENTAL EIS PUBLIC INVOLVEMENT EFFORTS

Public involvement efforts for the Ray Land Exchange and plan amendments began in the mid-1990s when a land exchange was first proposed. Public involvement activities included public and agency scoping activities, scoping meetings, Draft EIS (DEIS) review meetings, mailing list development, communications, and consultation with tribes.

Public involvement efforts for the Ray Land Exchange/Plan Amendments Final SEIS built upon the previous public involvement activities. A postcard and a newsletter were sent to the project mailing list, informing the public that the BLM would prepare a supplement to the FEIS. After the Draft SEIS was published in November 2017 for a 90-day public comment period, public meetings were held to provide an overview of the Draft Final SEIS, answer questions, and solicit

public input on how to adjust the parcels in the Proposed Action to account for the change in land valuations. Refer to Appendix I for more information regarding Draft Final SEIS public involvement activities. Refer to Appendix J for comments on the Draft Final SEIS and BLM responses. All of the substantive comments received have been used in preparation of this Final SEIS. Comments regarding the decisions to be made, including the public interest determination, were not included in Appendix J or directly addressed in this Final SEIS; however, the BLM will take those comments into consideration in the Record of Decision.

CHAPTER 2

ALTERNATIVES CONSIDERED

The four alternatives are the same as considered in the FEIS: the No Action Alternative, the Proposed Action, the Buckeye Alternative, and the Copper Butte Alternative. Each of the action alternatives includes land use plan amendments to ensure the public lands proposed for exchange meet the criteria for disposal and are identified as available for disposal.

This chapter presents a brief summary of each alternative, along with any changes that have occurred since the FEIS. FEIS page numbers are provided to assist in locating additional description of the actions. Table 2.6-1 *Comparative Summary of Anticipated Environmental Consequences* in Section 2.6, below, summarizes the potential environmental impacts of each alternative.

2.1 DESCRIPTION OF SELECTED AND OFFERED LANDS

2.1.1 SELECTED LANDS

The **Selected Lands** include 31 parcels in Pinal and Gila Counties (see Figure 2.1-1 *Proposed Action Selected Lands in the Ray Mine Complex and Copper Butte/Buckeye areas*, and Figure 2.1-2 *Proposed Action Selected Lands in the Chilito/Hayden and Casa Grande areas*, in Appendix F). The parcels are grouped into four areas of existing or planned mine-related development:

- Ray Mine Complex (parcels RM-1 through RM-18),
- Copper Butte/Buckeye (parcels CB-1 through CB-5),
- Chilito/Hayden (parcels CH-1 through CH-5), and
- Casa Grande (parcels CG-1 through CG-3).

Table 3.6-7 *Detailed Parcel Information for the Selected Lands* (in Appendix G) lists the parcels, acreage, and other descriptive information. ASARCO holds 751 active mining claims on the **Selected Lands**. If ASARCO obtains the parcels, because the company would own the mineral estate, the mining claims would cease to exist by operation of law.

2.1.1.1 FORESEEABLE USES

ASARCO's foreseeable uses are described in the document *Ray Land Exchange Existing Mining and Foreseeable Mining Use of Selected Lands* (see Appendix C) (ASARCO 2013). While the manner and intensity of these uses on each parcel could ultimately differ in practice depending on whether the land exchange occurs, for purposes of comparison and analysis in this document, the anticipated uses of each parcel are the same across all alternatives. The foreseeable uses are classified into six categories as follows:

- **Existing Mining:** If surface disturbance has already occurred because of mining operations in or adjacent to the Ray Mine, the affected lands are classified as Existing

Mining. These areas account for approximately 398 acres (4%) of the **Selected Lands** and are all located in the Ray Mine Complex area.

- **Production, Operation and Support:** Areas classified as Production, Operation, and Support would be subject to substantial disturbance (25%–100%) of the land surface. These areas constitute an estimated 2,213 acres (20%) 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 Mine Complex area.
- **Transition:** Transition areas would be subject to less intensive mining-related operations, resulting in 5% to 25% surface disturbance. An estimated 522 acres (5%) of the **Selected Lands** fall into this category. Potential foreseeable mining uses include, but are not limited to, traveling areas around overburden and leach rock deposition areas, access roads, stormwater diversion ditches, rights-of-way (ROWs), and administrative facilities.
- **Buffer:** These areas would not be subject to direct mining operations, resulting in less than 5% surface disturbance. Potential uses, which would affect an estimated 5,512 acres (50%) of the **Selected Lands**, include, but are not limited to, consolidation of ASARCO ownership and buffering neighboring landowners from mining operations.
- **Long-Range Prospect:** **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 operations cannot be projected. Approximately 1,692 acres (15%) of the **Selected Lands** belong to this category.
- **Unknown:** **Selected Lands** in this category retain third-party ownership of the surface lands, and future uses of the lands are not known. This category applies to the three mineral estate parcels near Casa Grande and comprises approximately 637 acres (6%) of the **Selected Lands**.

These categories reflect differences in the timing of mining operations, the degree of certainty about the operations (that is, the current stage of planning), and the nature and extent of anticipated surface disturbance resulting from the mining operations. None of these categories include assumptions about land ownership or administrative responsibilities. Table 2.1-5 *Summary of Existing Mining and Foreseeable Uses of Selected Lands* (in Appendix G) summarizes the foreseeable mining uses by parcel. Table 2.1-6 *Mining Operations Expected to Occur within Each Foreseeable Mining Use Category* summarizes the allocation of parcels to their foreseeable use (see Appendix G). Figure 2.1-11 *Foreseeable uses for the Ray Mine Complex and Copper Butte/Buckeye areas* and Figure 2.1-12 *Foreseeable uses for the Chilito/Hayden and Casa Grande areas* (in Appendix F) depict this information.

2.1.1.2 CHANGES TO FORESEEABLE USES OF THE SELECTED LANDS SINCE THE FEIS

The foreseeable uses of some of the **Selected Lands** have changed since the publication of the FEIS. All changes to the foreseeable uses are reflected in the descriptions above. The changes include:

- RM-1 (0.4 acre), RM- 2 (2.3 acres), and RM-3 (1.9 acres): changed to “Existing Mining.” The BLM approved this change through a modification to ASARCO’s MPO, as part of the Ray Consent Decree.
- RM-8: added “Existing Mining” to be consistent with the other parcels’ designations. ASARCO owns the surface estate of the parcel and used the parcel for rock deposition areas prior to 1997.
- RM-10: changed to “Existing Mining” due to approximately 40 acres of additional disturbance, as part of ASARCO’s approved MPO.
- RM-18: changed from a combination of “Production, Operation and Support,” “Transition,” and “Buffer” to simply “Buffer.”
- The “Intermittent” classification used in the FEIS has been renamed “Buffer,” and the “Long Range Plan” classification has been renamed “Long Range Prospect.” A new classification of “Unknown” was added.
- ASARCO no longer plans to conduct mining on the Casa Grande parcels. The future use of these parcels is Unknown. ASARCO determined that it no longer has an interest in developing the Casa Grande parcels and sold the surface estate to the parcels. The sales contract specified that if ASARCO were successful in acquiring the mineral estate associated with these parcels, ASARCO would transfer those mineral rights to the new owner.
- The FEIS states that the surface estates of parcels RM-7, RM-8, RM-9, RM-11, RM-14, RM-15, and CB-5 is owned by the State of Arizona and administered by the Arizona State Land Department (ASLD). After the FEIS, ASARCO purchased the surface estates of those parcels.

2.1.1.3 OFFERED LANDS

The **Offered Lands** consist of five units comprised of three parcel groups and two individual parcels (18 parcels total), located in Mohave and Pinal Counties. The BLM had previously identified these parcels or types of resources for acquisition.

The BLM field office where the lands are located would manage lands acquired by exchange, in accordance with the applicable land use plan and plan amendments and any applicable administrative designations established by the land use plan, such as an Area of Critical Environmental Concern (ACEC). The management objectives and prescriptions that would apply to the parcels have not changed since the FEIS and are listed in Appendix H of the FEIS. Additionally, Section 206 of FLPMA and 43 CFR § 2200.0-6(f-g) mandate that all lands acquired by exchange within the boundaries of a National Wilderness Preservation System, National Trails System, National Wild and Scenic Rivers System, or any other system

established by an Act of Congress, or any national conservation or national recreation area established by Congress are to be managed by the laws, regulations, and rules applicable to that system. Several of the **Offered Lands** parcels are within these types of administrative boundaries, as described in detail below. Table 2.1-2 *Offered Lands Parcels for Acquisition by the BLM* in Appendix G lists the parcels in order of priority for acquisition, with the accompanying parcel description.

Gila River at Cochran Parcel. This 320-acre parcel is located in Pinal County, Arizona, within the boundary of the BLM Tucson Field Office. The Gila River at Cochran parcel would be managed under the Phoenix RMP. BLM would acquire surface estate on the north half of the parcel (160 acres) where BLM currently manages the subsurface mineral estate. BLM would acquire full estate on the southern half of the parcel (160 acres). The parcel is completely surrounded by public lands, contains over 1 mile of the Gila River, and would become part of several special management areas, including the Gila River Riparian Management Area and the Middle Gila Cultural Resource Management Area (see Table 2.1-2 *Offered Lands Parcels for Acquisition by the BLM* in Appendix G for further information regarding these areas). The parcel is within the White Canyon Resource Conservation Area, an area of public lands designated for retention and acquisition in the Phoenix RMP (see Figure 2.1-3 *Offered Lands—Gila River at Cochran parcel* in Appendix F). The parcel contains designated critical habitat for the southwestern willow flycatcher (*Empidonax traillii extimus*), and riparian habitat suitable for the cactus ferruginous pygmy-owl (*Glaucidium brasilianum cactorum*), a rare species that was previously listed as endangered under the Endangered Species Act (ESA). The lands would be managed in accordance with the requirements under the ESA. This parcel is encumbered by the existing Copper Basin Railway ROW (PHX 086661; 100 feet), which covers approximately 24.5 acres of the 320-acre parcel. Bringing this parcel into federal ownership would increase public access to the recreation opportunities of the Gila River and the Gila River Riparian Management Area, in addition to providing important habitat and protecting sensitive resources. Mineral estate on these lands would become available for extraction per federal regulations, upon completion of the land exchange.

Sacramento Valley Parcel. This 120-acre parcel is located in Mohave County, Arizona, adjacent to the Warm Springs Wilderness, approximately 30 miles southwest of Kingman (see Figure 2.1-4 *Offered Lands—Sacramento Valley parcel* in Appendix F). BLM would acquire the surface estate of this parcel (subsurface is already owned by the BLM) and manage it in accordance with the Kingman RMP. Resources of public interest within the Sacramento Valley parcel include Sonoran Desert tortoise and bighorn sheep habitat, the Black Mountain Herd Management Area (wild burros), mineral rights, and public access to the dispersed recreation opportunities of the Warm Springs Wilderness.

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, approximately 10 miles south of Wikieup (see Figure 2.1-5 *Offered Lands—Tomlin parcel group*). These parcels fall within the Big Sandy Herd Management Area (wild burros) and contain habitat for several BLM special status species, including the Sonoran Desert tortoise and multiple species of bats. Tomlin parcel No. 4, a 120-acre parcel, includes a segment of the Big Sandy River that was determined eligible but not suitable for inclusion as a Wild and Scenic River, and its riparian corridor contains habitat for several species, including the lowland leopard

frog; it also contains designated critical habitat for the southwestern willow flycatcher under the ESA. While BLM would acquire the subsurface mineral rights of this parcel group, none of the parcels exhibit a high potential for mineral occurrence. (see Appendix H of the FEIS). Bringing these parcels into federal ownership would increase public access to the dispersed recreation opportunities of surrounding federal lands.

McCracken Mountains Parcel Group. The 10 McCracken Mountains parcels, totaling approximately 6,384 acres, are located in a remote portion of southern Mohave County, Arizona, approximately 20 miles southwest of Wikieup. They are within the McCracken Desert Tortoise Habitat ACEC (see Figure 2.1-6 *Offered Lands—McCracken Mountains parcel group* in Appendix F). Additional portions of the McCracken Mountains were acquired in the Hualapai Mountain Land Exchange in the early 2000s; acquisition would complement that project by providing additional opportunities for wildlife habitat management across the landscape. While BLM would acquire full estate on these parcels, the encumbrance of a Special Warranty Deed forbids any mining activity on these parcels. This parcel group would provide additional public access to the dispersed recreation opportunities of surrounding federal lands, in addition to bringing important tortoise habitat under federal management.

Knisely Ranch Parcel Group. The three Knisely Ranch parcels total 160 acres, and are private inholdings located within the 30,760-acre Mount Tipton Wilderness in Mohave County, Arizona (see Figure 2.1-7 *Offered Lands—Knisely Ranch parcel group* in Appendix F). The title to the surface estate of Section 17, Township (T) 25 North (N), Range (R) 18 West (W) would be transferred to BLM; the mineral estate of Section 17 is already federally owned. The remaining subsurface mineral rights are currently owned by ASARCO. Currently, there are no mining claims on the Knisely Ranch parcels. Under the original Wilderness Act and the 1990 Arizona Desert Wilderness Act, no new claims can be filed within the Mount Tipton Wilderness; and so if these parcels change to federal management, they would be managed for their wilderness values in accordance with the management objectives in the Kingman RMP. Bringing this parcel group into federal ownership would open up additional public access to the dispersed recreation opportunities of the Mount Tipton Wilderness.

2.2 NO ACTION ALTERNATIVE

Under the No Action Alternative, the land exchange would not occur, and the BLM would not amend the Lower Sonoran, Safford, or Phoenix RMPs. Refer to pages 2-10 through 2-15 of the FEIS.

2.2.1 *Future Land Uses, including Mining*

2.2.1.1 SELECTED LANDS

The **Selected Lands** would remain in federal ownership and BLM would continue to manage them in accordance with the multiple-use management directives in FLPMA and the Lower Sonoran, Safford, and Phoenix RMPs. Mining-related uses of the **Selected Lands** (with the exception of the Casa Grande parcels) are reasonably foreseeable under the No Action Alternative (see ASARCO Foreseeable Uses above). The lands are currently open to location, and ASARCO does not need fee title in order to mine under the Materials Act of 1947 or the

Mining Law of 1872, subject to compliance with all applicable regulatory requirements (see Tables B-1 and B-2 in Appendix B). Given the reasonably foreseeable use, the BLM would anticipate processing multiple exploration notices and MPOs under 43 CFR subpart 3809, or other related actions on the parcels—such as related ROWs/authorizations under 43 CFR Parts 2800 or 2920—from ASARCO or other applicants in addition to ASARCO’s currently approved mining operations and related surface use authorizations.

2.2.1.2 OFFERED LANDS

The **Offered Lands** would remain in private ownership. ASARCO has indicated that it may retain the Gila River at Cochran parcel (see Appendix G, Table 2.1-3 *Potential Disposition of the Offered Lands by ASARCO Under the No Action Alternative*).

2.3 PROPOSED ACTION (AGENCY PREFERRED ALTERNATIVE)

The Proposed Action remains the BLM’s Preferred Alternative and consists of: 1) plan amendments to the Lower Sonoran, Safford, and Phoenix RMPs that would change the land tenure status to allow for disposal of the **Selected Lands**, and 2) a land exchange between BLM and ASARCO. Table 2.1-1 *Summary of Selected and Offered Lands Parcels* in Appendix G summarizes the acreages involved in the proposed Ray Land Exchange.

2.3.1 Proposed Plan Amendments

FLPMA states that public lands are to be retained in federal ownership, unless disposal would serve the national interest (FLPMA Section 102(a)(1)). Lands available for disposal must be identified in the approved land use plan on a map or by legal description. The **Selected Lands** parcels are identified for retention in the Lower Sonoran, Safford, and/or Phoenix RMP. The BLM cannot approve actions that are not in conformance with applicable RMPs. The Lower Sonoran, Safford, and Phoenix RMPs would require amendments before the parcels could be exchanged. The amendments would change the land tenure status for the **Selected Lands** parcels from retention to available for disposal. Table 2.1-4 *Selected Lands Parcels Requiring Plan Amendments* in Appendix G lists the parcels with the applicable RMPs. A legal description of the parcels included in the **Selected** and **Offered Lands** is provided in Appendix A of the FEIS, and the parcels are shown on the maps described below.

2.3.2 Land Exchange

The proposed land exchange would enable the BLM to dispose of approximately 10,976 acres of public lands and federally owned mineral estate (the “**Selected Lands**”) located near ASARCO’s Ray Mine Complex and other operations in south-central Arizona within the state of Arizona. For most of the **Selected Lands** (8,196 acres), both the surface and mineral estates are in federal ownership and would be traded in the proposed land exchange. The remainder of the **Selected Lands** (2,780 acres) consists of split-estate lands, where the BLM administers the mineral estate (subsurface) and the surface estate is in non-federal ownership.

In exchange for these **Selected Lands**, the BLM would acquire approximately 7,304 acres of private land termed the “**Offered Lands**.” The **Offered Lands** possess resource qualities

considered to be of significant value to the public and have been identified as desirable for acquisition (see the Phoenix RMP [BLM 1989] and the *Record of Decision for the Approval of the Kingman Resource Area Resource Management Plan/Final Environmental Impact Statement* [Kingman RMP; BLM 1995]). The **Offered Lands** (7,304 acres) consists of 6,384 acres of surface and subsurface mineral estate and 920 acres of surface estate only, where the BLM administers the surface estate and the mineral estate (subsurface) is already in federal ownership.

For the **Selected Lands**, state-based rights would be transferred to ASARCO for all state-based water right certificates and claims located on the **Selected Lands** (see Table 3.3-6 *Summary of Public Water Reserve No. 107 and Appropriative Water Rights* in Appendix G; and Appendix L, AZ IM 2019-004: Consideration of Public Water Reserves (PWR 107) in Land Disposal Transactions).

2.3.3 *Future Land Uses, including Mining*

ASARCO would acquire the **Selected Lands**, consolidating their land holdings in the Ray Mine area. Reasonably foreseeable mining operations on these lands would be subject to the state and federal laws and regulations governing mining on private lands described in Chapter 1 (Section 1.8.2) and Tables B-1 and B-2 in Appendix B.

The BLM would manage the **Offered Lands** in accordance with the applicable RMP.

2.3.4 *Access to Public Lands*

The Proposed Action considers physical public access on all roads that cross the **Selected Lands** in relation to the foreseeable mining uses and public (that is, non-mining) access to the area. Battle Axe Road provides access to the Copper Butte area, both for ASARCO's mining operations and physical public access to the White Canyon Wilderness. The first couple of miles of Battle Axe Road from State Route (SR) 177 are within a Pinal County right-of-way. The Pinal County right-of-way of Battle Axe Road is approximately 2 miles in length, running from SR 177 to ASARCO's private lands located in parcel CB-3. After that, ASARCO owns the legal access to Battle Axe Road. ASARCO has indicated it would work with the BLM, Pinal County, and the Arizona Department of Transportation to determine if legal public access to the White Canyon Wilderness from SR 177 can be established.

2.3.5 *Changes after the FEIS*

Access to Public Lands, including White Canyon Wilderness. The FEIS states that ASARCO agreed to maintain existing physical public access to the White Canyon Wilderness, identifying two proposed routes—one using Battle Axe Road and another that would require creation of a new road alignment (refer to Figure 4-1 of the FEIS, page 4-25). At that time, the existing Battle Axe Road alignment was believed to be on public land. However, research conducted for this Final SEIS determined that this portion of the road actually is located on ASARCO property. ASARCO has indicated that having a physical public access road adjacent to mining activity would present a number of safety concerns and the company does not want public access through or adjacent to their active operations. Thus, ASARCO would likely cease public use of their portion of the Battle Axe Road and would use the road for their foreseeable mining operations at Copper Butte. Closing Battle Axe Road makes physical public access from SR 177 to a popular

point of access to the White Canyon Wilderness much more difficult. (There is legal physical public access from the west, but that access is extremely rugged and much longer.) It is assumed that the existing physical public access roads, including portions of Battle Axe Road from SR 177 to the White Canyon Wilderness, would be closed once mining activities commence in that area.

Potential Donation Parcel (Section 24). The FEIS states that ASARCO had committed to donating approximately 480 acres in Section 24, Township 3 South (T3S), Range 12 East (R12E), Gila and Salt River Baseline and Meridian (“donation parcel” or Section 24) to the BLM if the land exchange was “completed successfully” (Scartaccini 1996). ASARCO no longer is offering the donation parcel.

2.4 BUCKEYE ALTERNATIVE

2.4.1 *Proposed Plan Amendments*

The Proposed Plan Amendments process would be similar to that described under the Proposed Action. The BLM would amend the land tenure status in the Lower Sonoran and Phoenix RMPs to identify the **Selected Lands** as available for disposal (refer to Table 2.1-4 *Selected Lands Parcels Requiring Plan Amendments* in Appendix G for a list of the parcels).

2.4.2 *Land Exchange*

This 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 due to resource concerns. These sections are in **Selected Lands** parcel CB-1 in the Copper Butte/Buckeye area (see Figure 2.1-8 *Selected Lands in the Buckeye Alternative* in Appendix F).

2.4.2.1 **SELECTED LANDS**

This alternative would reduce the total acreage of the **Selected Lands** from approximately 10,976 acres to approximately 10,176 acres by excluding exchange of approximately 800 acres in parcel CB-1 (640 acres in Section 25 and 160 acres in Section 26). Approximately 320 acres of parcel CB-1 in the eastern half of Section 25 would remain in the land exchange proposal (see Figure 2.1-8 *Selected Lands in the Buckeye Alternative* in Appendix F), as well as the remaining **Selected Lands**.

2.4.2.2 **OFFERED LANDS**

All **Offered Lands** would be included, except Section 9 of the McCracken Mountains parcels (640 acres in T14N, R15W), resulting in a total **Offered Lands** package of approximately 6,659 acres (see Figure 2.1-9 *Offered Lands removed in the Buckeye and Copper Butte Alternatives* in Appendix F).

2.4.3 *Access to Public Lands*

In addition to the public lands access described under the Proposed Action, this alternative would not change public access to 800 acres of public lands, and would enable the public to continue

using physical access to the White Canyon Wilderness via Rincon Road through parcel CB-1, until such time as the BLM issues an approved surface use authorization that would prevent access.

2.4.4 Changes since the FEIS

Same as Proposed Action.

2.4.5 Future Land Uses, including Mining

Same as Proposed Action.

2.5 COPPER BUTTE ALTERNATIVE

2.5.1 Proposed Plan Amendments

The Proposed Plan Amendments process would be similar to that described under the Proposed Action, except that, in the Phoenix RMP, the BLM would not change the land tenure status to available for disposal for parcels CB-1, CB-2, or portions of CB-3. The BLM would amend the land tenure status in the Lower Sonoran, Safford, and Phoenix RMPs to identify the remaining parcels as available for disposal (see Table 2.1-4 *Selected Lands Parcels Requiring Plan Amendments* in Appendix G for a list of the parcels).

2.5.2 Land Exchange

This land exchange alternative was developed in response to issues regarding recreation and access to the White Canyon Wilderness through the Copper Butte area. The Copper Butte area **Selected Lands** parcels CB-1, CB-2, CB-3, CB-4, and CB-5 lie adjacent to the White Canyon Wilderness, southwest of SR 177 (see Figure 2.1-10 *Selected Lands in the Copper Butte Alternative* in Appendix F).

2.5.2.1 SELECTED LANDS

The Copper Butte alternative would reduce the total acreage of the **Selected Lands** from approximately 10,976 acres to approximately 9,161 acres (a reduction of 1,815 acres) by excluding parcel CB-1 (1,120 acres), parcel CB-2 (615 acres), and portions of parcel CB-3 (80 acres). Approximately 652 acres of parcel CB-3 as well as the remaining **Selected Lands** would remain in the land exchange proposal (see Appendix F, Figure 2.1-10 *Selected Lands in the Copper Butte Alternative*).

2.5.2.2 OFFERED LANDS

All **Offered Lands** would be included, with the exception of Section 9 (640 acres in T14N, R15W), Section 3 (638 acres in T14N, R15W), and a portion of Section 19 (420 acres in T14N, R14W) of the McCracken Mountains parcels, resulting in a total **Offered Lands** package of approximately 5,606 acres (see Appendix F, Figure 2.1-9 *Offered Lands removed in the Buckeye and Copper Butte Alternatives*).

2.5.3 Access to Public Lands

In addition to the public land access described under the Proposed Action, this alternative would not change physical public access to 1,815 acres of public lands retained, and would enable the public to continue using physical access to the White Canyon Wilderness via Battle Axe Road through parcels CB-2 and CB-3, as well as physical access through CB-1 on Rincon Road, until such time as the BLM issues an approved surface use authorization that would prevent access.

2.5.4 Future Land Uses, including Mining

Same as Proposed Action.

2.5.5 Changes since the FEIS

Same as Proposed Action.

2.5.6 Foreseeable Uses

Same as Proposed Action.

2.6 COMPARATIVE SUMMARY OF ENVIRONMENTAL IMPACTS

Table 2.6-1 below summarizes and compares the supplemental environmental impacts between the No Action, Proposed Action, Buckeye, and Copper Butte Alternatives. Impacts from reasonably foreseeable mining operations that are common to all alternatives are described in the Impacts Common to All Alternatives sections of Chapter 4. Where no impacts from the land exchange were identified the resource is not included in the table below.

Table 2.6-1. Comparative Summary of Anticipated Environmental Consequences of the Ray Land Exchange.

Resource	No Action	Proposed Action	Buckeye Alternative	Copper Butte Alternative
Biological Resources				
Vegetation	Impacted vegetation on the Selected Lands would be reclaimed, and noxious weeds would be treated, in accordance with BLM performance standards. Offered Lands would remain privately owned.	Impacted vegetation on the Selected Lands would be reclaimed to landowner specification and noxious weed management would not be required under state law. BLM would manage Offered Lands with applicable requirements for any future actions.	Same as the Proposed Action for the Selected Lands, except 800 acres of CB-1 would be the same as the No Action. Same as the Proposed Action for the Offered Lands reduced by 640 acres.	Same as the Proposed Action for the Selected Lands, except 1,815 acres (CB-1, CB-2, and part of CB-3) would be the same as the No Action. Same as the Proposed Action for the Offered Lands reduced by 1,698 acres.

Resource	No Action	Proposed Action	Buckeye Alternative	Copper Butte Alternative
Wildlife	<p>Impacted wildlife habitat on the Selected Lands would be reclaimed in accordance with BLM performance standards.</p> <p>Offered Lands would remain privately owned.</p>	<p>Impacted wildlife habitat on the Selected Lands would be reclaimed to landowner specification.</p> <p>Potential wildlife habitat protection and connectivity on the Offered Lands.</p>	<p>Same as the Proposed Action for the Selected Lands, except 800 acres of CB-1 would be the same as the No Action.</p> <p>Same as the Proposed Action except the Offered Lands are reduced by 640 acres of the McCracken Mountains Parcels.</p>	<p>Same as the Proposed Action for the Selected Lands, except 1,815 acres (CB-1, CB-2, part of CB-3) would be the same as the No Action.</p> <p>Same as the Proposed Action except the Offered Lands are reduced by 1,698 acres of the McCracken Mountains Parcels.</p>
Special Status Species	<p>BLM would consult with FWS on impacts of any proposed actions on the Selected Lands.</p> <p>Offered Lands remain private, so no additional protections for special status species, habitat, and T&E critical habitat beyond that provided under applicable law.</p>	<p>On the Selected Lands, ASARCO would not be required to protect or mitigate for disturbance of unoccupied designated or proposed critical habitat. Therefore, protective measures for critical habitat on the Selected Lands would be reduced without the protections of federal management.</p> <p>On the Offered Lands, the McCracken Mountains parcels would be included in the McCracken Desert Tortoise Habitat ACEC.</p>	<p>Same as the Proposed Action for the Selected Lands, except 800 acres of CB-1 would be the same as the No Action.</p> <p>Same as the Proposed Action except 640 acres of the Offered Lands would not be included in the McCracken Desert Tortoise Habitat ACEC.</p>	<p>Same as the Proposed Action for the Selected Lands, except 1,815 acres (CB-1, CB-2, part of CB-3) would be the same as the No Action.</p> <p>Same as the Proposed Action except 1,698 acres of the Offered Lands would not be included in the McCracken Desert Tortoise Habitat ACEC.</p>
Water Rights	<p>Federally Reserved Water Rights (FRWR) would remain on Selected Lands.</p> <p>No changes to the Offered Lands.</p>	<p>Prior to transfer out of federal ownership, revocation of the PWR 107 withdrawal would occur for all 18 FRWR on Selected Lands.</p> <p>Offered Lands may require filing of State-based water rights.</p>	<p>Same as the Proposed Action for the Selected Lands, except revocation of the PWR 107 withdrawal would not occur for 3 FRWR.</p> <p>Same as Proposed Action for the Offered Lands.</p>	<p>Same as the Proposed Action for the Selected Lands, except revocation of the PWR 107 withdrawal would not occur for 4 FRWR.</p> <p>Same as Proposed Action for the Offered Lands.</p>
Mineral Resources	<p>Rights to, and control of, mineral resources would be in accordance with federal mining law on Selected Lands.</p> <p>Mineral resources on the Offered Lands could be developed under state law.</p>	<p>ASARCO would have exclusive rights to, and control development of, all mineral resources in the Selected Lands.</p> <p>760 acres of the Offered Lands would be available for mineral development under federal mining law.</p>	<p>Same as the Proposed Action for the Selected Lands, except 800 acres of CB-1 would be the same as the No Action.</p> <p>Same as the Proposed Action for the Offered Lands.</p>	<p>Same as the Proposed Action for the Selected Lands, except 1,815 acres (CB-1, CB-2, part of CB-3) would be the same as the No Action.</p> <p>Same as the Proposed Action for the Offered Lands.</p>
Land Use				
Land Ownership	<p>Selected Lands would remain in federal ownership.</p> <p>Offered Lands would remain privately owned.</p>	<p>10,976 acres of Selected Lands would be transferred to ASARCO.</p> <p>7,304 acres of Offered Lands would be transferred to federal ownership.</p>	<p>Same as Proposed Action, except 800 acres of CB-1 would remain in federal ownership.</p> <p>Same as the Proposed Action except 640 acres of the Offered Lands, McCracken Mountains Parcels would remain private.</p>	<p>Same as Proposed Action, except 1,815 acres (CB-1, CB-2, part of CB-3) would remain in federal ownership.</p> <p>Same as the Proposed Action except 1,698 acres of the Offered Lands, McCracken Mountains Parcels would remain private.</p>

Resource	No Action	Proposed Action	Buckeye Alternative	Copper Butte Alternative
Management of Public Lands	<p>Selected Lands would be managed under applicable RMPs.</p> <p>BLM would not manage Offered Lands.</p>	<p>Selected Lands would be private and no longer managed under RMPs.</p> <p>BLM would manage Offered Lands under applicable RMPs.</p>	<p>Same as Proposed Action, except for 800 acres of CB-1 would continue to be managed under the Phoenix RMP.</p> <p>Same as Proposed Action, except 640 acres of Offered Lands, McCracken Mountains Parcels would remain privately owned.</p>	<p>Same as Proposed Action, except 1,815 acres (CB-1, CB-2, part of CB-3) would continue to be managed under the Phoenix RMP.</p> <p>Same as Proposed Action, except 1,698 acres of Offered Lands, McCracken Mountains would remain privately owned.</p>
Rights-of-Way	<p>12 existing ROWs would remain on Selected Lands and be subject to BLM regulations.</p> <p>BLM would consider new ROWs on the Selected Lands in accordance with applicable RMPs.</p> <p>Nine existing ROWs would remain on Offered Lands, and subject to management by the landowner.</p>	<p>Holders of 12 existing ROWs would negotiate directly with ASARCO regarding any future modifications. New ROWs on the Selected Lands would be at discretion of ASARCO.</p> <p>Existing and future ROWs on the Offered Lands would be managed in accordance with applicable RMPs.</p>	<p>Same as Proposed Action, except BLM would continue to manage 800 acres of CB-1 for future ROW applications.</p> <p>Impacts to ROWs on Offered Lands would be same as Proposed Action.</p>	<p>Same as Proposed Action, except BLM would continue to manage 3 existing ROWs and continue to manage 1,185 acres (CB-1, CB-2, part of CB-3) of the Selected Lands for future ROW applications.</p> <p>Impacts to ROWs on Offered Lands would be same as Proposed Action, except one ROW would remain in private ownership and be managed the same as the No Action.</p>
Grazing	<p>Current livestock grazing on the Selected Lands could continue under BLM grazing regulations.</p> <p>Any grazing on Offered Lands would continue at discretion of landowner.</p>	<p>BLM would provide a two-year notification prior to termination of existing grazing leases on the Selected Lands. Grazing would then be at the discretion of ASARCO and could be immediately terminated.</p> <p>7,304 acres of Offered Lands could become available for federal grazing.</p>	<p>Same as Proposed Action, except 800 acres (CB-1) of the LEN and Battle Axe allotments on the Selected Lands retained would be managed the same as the No Action.</p> <p>6,659 acres of Offered Lands could become available for federal grazing.</p>	<p>Same as Proposed Action, except 1,815 acres (CB-1, CB-2, part of CB-3) of the LEN and Battle Axe allotments on the Selected Lands retained would be managed the same as the No Action.</p> <p>5,601 acres of Offered Lands could become available for federal grazing.</p>
Visual Quality	<p>Discretionary authorizations on the Selected Lands could include measures to address visual resource management standards.</p> <p>Offered Lands would not be subject to BLM visual resource management standards.</p>	<p>No requirement to mitigate visual resource impacts on the Selected Lands.</p> <p>BLM would designate VRM classifications for the Offered Lands and apply BLM visual resource management standards to future authorizations.</p>	<p>Same as the Proposed Action for the Selected Lands, except 800 acres of CB-1 retained would be the same as the No Action.</p> <p>Same as Proposed Action, except 640 acres of McCracken Mountains Parcels would be managed the same as No Action for Offered Lands.</p>	<p>Same as the Proposed Action for the Selected Lands, except 1,815 acres (CB-1, CB-2, and part of CB-3) retained would be the same as the No Action.</p> <p>Same as Proposed Action, except 1,698 acres of McCracken Mountains Parcels would be managed the same as No Action for Offered Lands.</p>

Resource	No Action	Proposed Action	Buckeye Alternative	Copper Butte Alternative
Access and Recreation	<p>Loss of access on the Selected Lands may be delayed and some access may be retained.</p> <p>Discretionary authorizations on the Selected Lands could include measures to reduce impacts to access and recreation.</p> <p>Offered Lands would have no public access or dispersed recreation.</p>	<p>Loss of access and recreational opportunities on the Selected Lands would be at the discretion of ASARCO and could be immediate.</p> <p>The Offered Lands would provide increased recreational access and opportunities.</p>	<p>Same as the Proposed Action, except 800 acres of CB-1 retained would be the same as the No Action.</p> <p>640 acres of Offered Lands, McCracken Mountains Parcels would be unavailable for public access and recreation.</p>	<p>Same as the Proposed Action, except 1,815 acres (CB-1, CB-2, and part of CB-3) retained would be the same as the No Action.</p> <p>1,698 acres of Offered Lands, McCracken Mountains Parcels would be unavailable for public access and recreation.</p>
Wilderness Resources/ Special Management Areas	<p>Discretionary authorizations on the Selected Lands could include measures to address any noise or visual impacts.</p> <p>Offered Lands would remain private and not incorporated into any Special Management Areas.</p>	<p>No requirement to mitigate noise and visual impacts on the Selected Lands.</p> <p>Offered Lands would be managed in accordance with the objectives in the Phoenix and Kingman RMPs for the associated special management areas to protect the pertinent resources.</p>	<p>Same as the Proposed Action, except 800 acres of CB-1 retained would be the same as the No Action.</p> <p>640 acres of Offered Lands would not be included in the area of the McCracken Desert Tortoise Habitat ACEC.</p>	<p>Same as the Proposed Action, except 1,815 acres (CB-1, CB-2, and part of CB-3) retained would be the same as the No Action.</p> <p>1,698 acres of Offered Lands would not be included in the area of the McCracken Desert Tortoise Habitat ACEC.</p>
Wilderness Characteristics	<p>Discretionary authorizations on the Selected Lands could include measures to address effects to wilderness characteristics.</p> <p>Offered Lands would remain private and not inventoried for wilderness characteristics.</p>	<p>On the Selected Lands, the Granite Mountain wilderness characteristics inventory unit would no longer meet the 5,000-acre size criteria for consideration.</p> <p>Offered Lands would be inventoried for wilderness characteristics.</p>	<p>Same as Proposed Action for Selected Lands.</p> <p>Same as Proposed Action, except 640 acres of Offered Lands, McCracken Mountains Parcels would not be inventoried for wilderness characteristics.</p>	<p>Same as Proposed Action for Selected Lands.</p> <p>Same as Proposed Action, except 1,698 acres of Offered Lands, McCracken Mountains Parcels would not be inventoried for wilderness characteristics.</p>
Cultural and Heritage Resources				
Archaeological Sites	<p>BLM regulations related to cultural and heritage resource management on the Selected Lands would apply.</p> <p>Cultural resources present on Offered Lands would not gain protection under the Archaeological Resources Protection Act (ARPA) and would only be subject to National Historic Preservation Act (NHPA) compliance if future development includes a federal nexus.</p>	<p>All 57 of the NHPA-eligible properties would be directly adversely affected from the transfer of Selected Lands into private ownership. Prior to ground disturbing activities ASARCO would complete terms of the Programmatic Agreement (PA).</p> <p>Cultural resources present on Offered Lands would gain protection under the ARPA and would be subject to NHPA compliance.</p>	<p>Same as the Proposed Action, except 53 historic properties would be directly adversely impacted by the land exchange. The remaining properties would remain under BLM management and its responsibilities under NHPA and ARPA.</p> <p>Same as Proposed Action, except cultural resources present on those parcels of Offered Lands not acquired would be managed the same as the No Action alternative.</p>	<p>Same as the Proposed Action, except 37 historic properties would be directly adversely impacted. The remaining properties would remain under BLM management and its responsibilities under NHPA and ARPA.</p> <p>Cultural resources present on Offered Lands brought into federal ownership would be managed the Same as Proposed Action, except cultural resources present on those parcels of Offered Lands not acquired would be managed the same as the No Action alternative.</p>

Resource	No Action	Proposed Action	Buckeye Alternative	Copper Butte Alternative
Places of Traditional Cultural Significance	<p>All 5 traditional cultural properties (TCPs) on Selected Lands would remain subject to NHPA and ARPA.</p> <p>Offered Lands would not be subject to ARPA and only be subject to NHPA if future development includes a federal nexus.</p>	<p>All 5 TCPs would be adversely impacted from the transfer of Selected Lands into private ownership. The PA has been developed to address these impacts.</p> <p>Eight archaeological sites, 3 roasting features, and all known and unknown TCPs on Offered Lands would become subject to NHPA and ARPA.</p>	<p>Same as the Proposed Action for the Selected Lands.</p> <p>Same as Proposed Action on the Offered Lands, except 640 acres of McCracken Mountain Parcels not acquired would be same as No Action alternative.</p>	<p>Same as Proposed Action, except 3 TCPs on Selected Lands would remain in BLM management.</p> <p>Same as Proposed Action on the Offered Lands, except 1,698 acres of McCracken Mountains Parcels not acquired would be the same as the No Action alternative.</p>
Human Remains and Funerary Objects	<p>Human remains and funerary objects that may be found on Selected Lands would be subject to the Native American Graves Protection and Repatriation Act (NAGPRA).</p> <p>Human remains and funerary objects found on Offered Lands would be subject to Arizona Revised Statutes (ARS) 41-865.</p>	<p>Human remains and funerary objects found on Selected Lands would be subject to ARS 41-865.</p> <p>Human remains and funerary objects that may be found on Offered Lands would be subject to NAGPRA.</p>	<p>Same as the Proposed Action, except 800 acres of CB-1 retained would remain subject to NAGPRA.</p> <p>Same as Proposed Action, except 640 acres of Offered Lands, McCracken Mountains Parcels would be the same as No Action alternative.</p>	<p>Same as the Proposed Action, except 1,815 acres (CB-1, CB-2, and part of CB-3) retained would remain subject to NAGPRA.</p> <p>Same as Proposed Action, except 1,698 acres of Offered Lands, McCracken Mountains Parcels would be same as the No Action alternative.</p>
Socioeconomic Conditions				
Taxes and Payments in Lieu of Taxes (PILT)	<p>The Selected Lands would not be subject to property tax, and federal PILT to Pinal County and Gila County of approximately \$30,442 would continue.</p> <p>The Offered Lands would remain privately owned and be subject to assessed property taxes of approximately \$9,500 in Mohave County and Pinal County.</p>	<p>For the Selected Lands, Pinal County would receive between \$1.1 million to \$1.5 million in annual property tax revenues and would forego an estimated \$29,700 in PILT revenues. Gila County would receive between \$33,600 and \$37,000 in annual property tax revenues and would forego an estimated \$742 in PILT revenues.</p> <p>For the Offered Lands, Pinal County would forego about \$2,500 in annual property tax revenues and would receive about \$900 in PILT revenues. Mohave County would forego about \$7,000 in annual property tax revenues and would receive an estimated \$4,100 in PILT revenues.</p>	<p>For the Selected Lands, Pinal County would receive between \$1.0 million and \$1.4 million in annual property tax revenues and forego an estimated \$27,400 in PILT revenues. Gila County fiscal impacts same as Proposed Action.</p> <p>For the Offered Lands, Pinal County fiscal impacts same as Proposed Action. Mohave County would forego about \$6,500 in annual property tax revenues and receive about \$3,700 in annual PILT revenues.</p>	<p>For the Selected Lands, Pinal County would receive between \$0.9 million and \$1.2 million in annual property tax revenues and forego \$24,300 in annual PILT revenues. Gila County fiscal impacts same as Proposed Action.</p> <p>For the Offered Lands, Pinal County fiscal impacts same as Proposed Action. Mohave County would forego \$5,600 in annual property tax revenues and would receive about \$3,100 in annual PILT revenues.</p>

Resource	No Action	Proposed Action	Buckeye Alternative	Copper Butte Alternative
Recreation Economics	<p>On the Selected Lands estimated displacement of recreation-related spending would be dependent upon timing of approved surface use authorizations.</p> <p>There would be no impacts to recreation economics on the Offered Lands.</p>	<p>Same as No Action for Selected Lands except that timing may be immediate.</p> <p>Offered Lands may contribute to recreation-related spending.</p>	<p>Same as the Proposed Action, except 800 acres of CB-1 retained would be the same as the No Action.</p> <p>Offered Lands would be same as Proposed Action, except 640 acres of McCracken Mountains Parcels would be same as No Action.</p>	<p>Same as the Proposed Action, except 1,815 acres (CB-1, CB-2, and part of CB-3) retained would be the same as the No Action.</p> <p>Offered Lands would be same as Proposed Action, except 1,698 acres of McCracken Mountains Parcels would be same as No Action.</p>
Environmental Justice	<p>BLM would continue to consider environmental justice under Executive Order (EO) 12898 on Selected Lands.</p> <p>Offered Lands are not subject to EO 12898.</p>	<p>No state or local provisions to consider environmental justice on Selected Lands.</p> <p>BLM would comply with EO 12898 on Offered Lands.</p>	<p>Same as the Proposed Action, except 800 acres of CB-1 retained would be the same as the No Action.</p> <p>Same as Proposed Action, except 640 acres of Offered Lands, McCracken Mountains Parcels would have no provisions to consider environmental justice.</p>	<p>Same as the Proposed Action, except 1,815 acres (CB-1, CB-2, and part of CB-3) retained would be the same as the No Action.</p> <p>Same as Proposed Action, except 1,698 acres of Offered Lands, McCracken Mountains Parcels would have no provisions to consider environmental justice.</p>

CHAPTER 3

AFFECTED ENVIRONMENT

3.1 INTRODUCTION

The affected environment information presented here is an update to resource information contained in Chapter 3 of the FEIS. It includes any significant new information, descriptions, or circumstances relevant to understanding environmental concerns that have a bearing on the Proposed Action or project alternatives or their potential impacts. The regulatory and environmental conditions discussed herein provide the basis for the Chapter 4 analysis of potential impacts to resources. Affected environment resources and resource conditions that have not changed are not discussed in detail in this Final SEIS.

The reader should refer to Chapter 3 of the FEIS for additional affected environment information. Page numbers are cited to assist the reader in locating the resource information in the FEIS.

3.1.1 *Analysis Area*

The analysis area varies by resource or use, depending on the geographic extent of the resource or use and the extent of the effects of the alternatives on a resource or use. For biological resources, mineral resources, land use, access and recreation, wilderness resources/special management areas, wilderness characteristics, and cultural and heritage resources, the analysis area is the project area boundary (that is, the area within the **Selected Lands** and **Offered Lands** parcels) because that is the anticipated extent of the effects of the project on the resource. However, for four resources, the analysis area is larger, encompassing larger administrative or natural boundaries because the potential effects on the resource extend beyond the project area boundary. The analysis area for water resources includes the watersheds surrounding the **Selected** and **Offered Lands** parcels; for air quality, the analysis area considered the counties containing the **Selected** and **Offered Lands**; and socioeconomic resources considered county- and state-level data. A 35-square-mile area was studied for visual resources.

3.2 BIOLOGICAL RESOURCES

The Affected Environment for biological resources is provided in the FEIS in Sections 3.2.1 and 3.3.1, pages 3-3 through 3-21 (**Selected Lands**) and Section 3.3.1, pages 3-69 through 3-77 (**Offered Lands**).

3.2.1 *Vegetation*

3.2.1.1 CHANGES IN APPLICABLE REGULATIONS OR BLM POLICIES

Executive Order 13112, Invasive Species, February 3, 1999. This executive order (EO) seeks to improve coordination between federal agencies in efforts to combat invasive plant and animal species and directs federal agencies to prevent introduction of invasive species, control

populations, monitor populations, and provide for restoration of native species, among other requirements. This EO is not cited in the FEIS.

3.2.1.2 CHANGES IN ENVIRONMENTAL CONDITIONS SINCE THE FEIS

Vegetation conditions and general land use have not changed since the FEIS.

No baseline data on invasive species were identified or analyzed within either the FEIS affected environment or environmental consequences biological resources sections. No specific noxious weed or invasive plant species surveys have been conducted on the **Selected** or **Offered Lands**; however, opportunistic observations of these species were noted during field surveys as noted below in compliance with EO 13112.

While the FEIS identifies one non-native grass species—red brome (*Bromus rubens*)—in disturbed areas of the **Selected Lands**, it does not describe it as an invasive species. Since 1999, the BLM conducted one weed survey along the roads east of the Ray Mine Complex, in the vicinity of the parcels; the only noxious weed species observed was buffelgrass (*Pennisetum ciliare*). In addition, an invasive tree species, tamarisk (*Tamarix* spp.), occurs in the Gila River at Cochran parcel along the river. The BLM has also observed a noxious weed species, yellow starthistle (*Centaurea solstitialis*), near Kearny, Arizona (personal communication, D. Tersey, BLM Biologist, 2012).

3.2.2 Wildlife

3.2.2.1 CHANGES IN APPLICABLE REGULATIONS OR BLM POLICIES

Migratory Bird Treaty Act of 1918, as amended (MBTA). This act provides for the protection of migratory birds and prohibits their unlawful take or possession. This act is not cited in the FEIS, and the potential for migratory bird populations to occur and/or be impacted on either the **Offered** or the **Selected Lands** was not discussed. The Department of the Interior has determined that the statute's prohibitions on pursuing, hunting, taking, capturing, killing, or attempting to do the same apply only to affirmative actions (deliberate acts done directly and intentionally to migratory birds) that have as their purpose the taking or killing of migratory birds, their nests, or their eggs.

EO 13186, Responsibilities of Federal Agencies to Protect Migratory Birds. This EO, issued on January 11, 2001, directs each federal agency taking actions that are likely to have a measurable effect on migratory bird populations to develop and implement a Memorandum of Understanding (MOU) with the U.S. Fish and Wildlife Service (USFWS) that will promote the conservation of migratory bird populations. The BLM and USFWS signed an MOU on April 12, 2010, to enhance coordination and communication toward meeting the agency's responsibilities under the MBTA, the Bald and Golden Eagle Protection Act (BGEPA), and this EO. This EO was not issued until after the FEIS was published, and the required MOU between BLM and USFWS regarding this EO was not signed until April 2010.

3.2.2.2 CHANGES IN ENVIRONMENTAL CONDITIONS SINCE THE FEIS

While general wildlife habitat has not changed since the issuance of the FEIS. Migratory birds were not specifically discussed in the FEIS; however, their habitat is the same as general wildlife habitat. The **Selected Lands** are within the Bird Conservation Region (BCR 33 Sonoran Desert). Migratory birds utilize a wide range of habitat for nesting, foraging and wintering. Priority/focal migratory bird species for BCR 33 and U.S. Fish and Wildlife Service's priority migratory birds (2018) that could occur in the area include: cactus ferruginous pygmy owl (*Glaucidium brasilianum*), Bell's vireo (*Vireo bellii*), elf owl (*Micrathene whitneyi*), phainopepla (*Phainopepla nitens*), Lucy warbler (*Oreothlypis luciae*), varied bunting (*Passerina versicolor*), Gila woodpecker (*Melanerpes uropygialis*), gilded flicker (*Colaptes chrysoides*), Costa's hummingbird (*Calypte costae*), and yellow warbler (*Setophaga petechia*).

Bighorn sheep (*Ovis canadensis nelson*) were reintroduced in the Battle Axe grazing allotment approximately 6 miles west of Kearny in 2003. Three subsequent releases occurred at Box Canyon (approximately 17 miles west of Kearny and 5 miles west of parcel CB-1) in 2007, 2010, and 2012. According to telemetry data, the reintroduced sheep are using habitat in the Copper Butte/Buckeye area within the **Selected Lands** (personal communication, D. Tersey, BLM Biologist, 2012).

The Important Bird Area (IBA) program was established in Arizona in 2001 by a nongovernmental organization, the National Audubon Society. The nearest IBA is the Lower San Pedro Important Bird Area; this IBA was recognized in 2008 and is located south of the community of Winkelman and the **Selected Lands** (Arizona Game and Fish Department [AGFD] 2012).

3.2.3 Special Status Species

3.2.3.1 CHANGES IN APPLICABLE REGULATIONS OR BLM POLICIES

The Endangered Species Act of 1973, as amended. The ESA has not changed since the issuance of the FEIS, but the listed species that receive protections under the ESA have changed. These changes are detailed below.

Bureau of Land Management Sensitive Species. The BLM has updated the sensitive species list at least twice since the issuance of the FEIS (BLM 2010a, 2017a); the most recent update was at the District Office level on March 1, 2017 (BLM 2017a), which also clarified requirements regarding sensitive species (see below).

The Bald and Golden Eagle Protection Act. This law (16 USC 668–668c) was enacted in 1940 and has been amended several times. The USFWS published a final rule that took effect on November 10, 2009, for two new permit regulations that would allow for the nonpurposeful “take” of eagles and eagle nests under this act (50 CFR §§ 13 and 22). This act is not cited in the FEIS.

3.2.3.2 CHANGES IN ENVIRONMENTAL CONDITIONS SINCE THE FEIS

The special status species evaluated in this Final SEIS are based on the list of endangered, threatened, candidate, and conservation agreement species for Pinal, Gila, and Mohave Counties, Arizona, available at the USFWS website (USFWS 2014a), with documented occurrence, critical habitat, or both within 5 miles of the project area. BLM reinitiated consultation with USFWS in August 2018 (USFWS 2018). The special status species evaluated in this Final SEIS also include those listed on the BLM sensitive species list (BLM 2017a).

Threatened, Endangered, and Candidate Species

The BLM evaluated whether any federally proposed or designated critical habitat or special status species have been documented in or near the **Selected** and **Offered Lands** (Arizona Heritage Geographic Information System [AZHGIS] 2018) that are not identified in the FEIS, and reviewed the species identified in the FEIS.

The FEIS identifies six species listed as threatened, endangered, or candidate that have the potential to occur in the area of the **Selected** and **Offered Lands**. Of these six species, four have been delisted and no longer receive statutory protection under the ESA: American peregrine falcon (*Falco peregrinus*), cactus ferruginous pygmy-owl (*Glaucidium brasilianum cactorum*), lesser long-nosed bat (*Leptonycteris yerbabuenae*), and bald eagle (*Haliaeetus leucocephalus*). Four candidate species were determined to not warrant listing: headwater chub (*Gila nigra*), roundtail chub (*Gila robusta*) (USFWS 2015b), Tucson shovel-nosed snake (*Chionactis occipitalis klauberi*) (USFWS 2014b), and Sonoran Desert tortoise (*Gopherus morafkai*) (USFWS 2015a); however, Sonoran Desert tortoise and Tucson shovel-nosed snake remain BLM sensitive species. Four species with the potential to occur in the area of the **Selected** and **Offered Lands** have been added to the lists as threatened or endangered: Gila chub (*Gila intermedia*) was listed as endangered in 2005 with critical habitat and is considered to occur in Gila and Pinal Counties, and in 2014, yellow-billed cuckoo (*Coccyzus americanus*) and northern Mexican gartersnake (*Thamnophis eques megalops*) were listed as threatened with proposed critical habitat (USFWS 2014c, 2014d). Acuña cactus (*Echinomastus erectocentrus* var. *acunensis*) was listed as endangered in 2013 (USFWS 2013c) and with designated critical habitat in 2016 (USFWS 2016). Revised critical habitat for southwestern willow flycatcher (*Empidonax traillii extimus*) was designated in 2013 (USFWS 2013a).

Designated critical habitat for southwestern willow flycatcher and proposed critical habitat for yellow-billed cuckoo is present on the Gila River at Cochran parcel and is located within 5 miles of the Ray Mine Complex, Copper Butte/Buckeye, and Chilito/Hayden parcels. Designated critical habitat for southwestern willow flycatcher is also present in one of the Tomlin parcels along the Big Sandy River. Designated critical habitat for Gila chub is within 5 miles of the Ray Mine Complex and Copper Butte/Buckeye parcels and is also on a portion of parcel RM-7. Designated critical habitat for acuña cactus is located within 5 miles of the Cochran parcel. For more detailed information on critical habitat and federally listed species, see the *Biological Assessment of the Proposed Ray Land Exchange/Plan Amendment* (BLM 2013c), the *Biological Opinion for the Proposed Ray Land Exchange/Plan Amendment* (USFWS 2000) and the *Updated Biological Assessment for the Re-initiation of Section 7 Consultation for the Proposed Ray Land Exchange, Pinal and Gila Counties, Arizona* (BLM 2018a).

Other species were not identified for analysis as they are unlikely to occur on the **Selected** or **Offered Lands**. Habitats on the **Selected** or **Offered Lands** are not typical of those known to be used by these species, or the **Selected** or **Offered Lands** are outside the species' known range, or both. The species that *have* been documented within 5 miles of the **Selected** or **Offered Lands**, based on queries of the AGFD Heritage Data Management System (HDMS) online tool (AZHGIS 2018), are listed in Appendix G (see Table 3.2-1 *Special Status Species with Documented Occurrences within 5 Miles of the Selected Lands* and Table 3.2-2 *Special Status Species with Documented Occurrences within 5 Miles of the Offered Lands*).

BLM Sensitive Species

The FEIS identifies 23 plant, fish, and wildlife species listed as sensitive by the BLM that had the potential to occur on the **Selected Lands**; 11 of the 23 species had been recorded on one or more of the **Selected Lands** parcels. The BLM currently lists 56 sensitive wildlife and 24 sensitive plant species known to occur in the BLM Gila District, which includes the Ray Mine Complex **Selected Lands**. Of these 80 sensitive species, 39 have occurrence records within 5 miles of one or more parcels of the **Selected Lands** (see Table 3.2-1 in Appendix G). Twenty-five sensitive plant, fish, and wildlife species were identified as having the potential to occur on the **Offered Lands** parcels, and of the 25 species, nine were recorded on at least one of the **Offered Lands** parcels (see Table 3.2-2 in Appendix G).

Bald eagle (*Haliaeetus leucocephalus*) and golden eagle (*Aquila chrysaetos*) are listed as sensitive by the BLM and are also protected under the BGEPA and the bald eagle is identified and analyzed as a federally listed threatened species in the FEIS. The potential for golden eagle to occur on either the **Offered** or **Selected Lands** is not discussed in the FEIS.

3.3 WATER RESOURCES

The FEIS discusses water resources in Section 3.2.2, pages 3-21 through 3-30 (**Selected Lands**) and Section 3.3.2, pages 3-78 to 3-79 (**Offered Lands**). The Middle Gila River watershed is used to describe the Gila River focus of the land exchange between Winkelman, Arizona, and Mineral Creek. This is generally part of the Arizona Department of Water Resources' (ADWR's) Lower San Pedro Basin planning unit. The Gila River, flowing from the east, is joined by the San Pedro River flowing in from the south, at Winkelman. The San Pedro River is intermittent or ephemeral in most of its reaches. These two reaches are major contributors to flows in the Gila River downstream of the confluence. The Gila River and its tributaries are considered part of the Lower Colorado River Basin.

3.3.1 Changes in Applicable Regulations or BLM Policies

Existing applicable regulations and BLM policies pertaining to water resources are discussed in Section 1.6 (pages 1-7 through 1-12) of the FEIS. New or changed laws, regulations, and policies (including Secretarial and Executive Orders) are discussed below.

3.3.1.1 CLEAN WATER ACT SECTION 404

The Clean Water Act (CWA) remains the major federal legislation regulating surface water quality, with applicable sections (Sections 401, 402, 404, and 303) updated or revised since the

FEIS. CWA Section 404 establishes the permit program for discharge of dredged or fill material into waters of the U.S. (WUS). Administrative changes to the regulatory definition of WUS are currently pending. This permit program is jointly administered by the U.S. Army Corps of Engineers (USACE) and the U.S. Environmental Protection Agency (EPA). The State of Arizona is in the process of evaluating the assumption of primacy for Section 404. Currently the immediate regulatory decision regarding which activities fall under Section 404 of the CWA lies with the USACE Los Angeles District.

In the event that future mining operations impact regulated WUS, ASARCO would be required to secure a Section 404 CWA permit, without regard to any land exchange. Issuance of a Section 404 permit constitutes a federal action subject to analysis under NEPA. Permit approval from the USACE under the nationwide permit (NWP) procedures would not require new NEPA analysis separate from the NWP. Permit submittals to the permitting authority would be reviewed first by the BLM, if the land were to remain public, and would be reviewed first by ASARCO if the land were to become private. In either event, established permit guidelines must be followed for all permit applications, and ultimate permit authority would remain with the USACE and EPA. Any application for a Section 404 CWA permit would trigger NEPA compliance whether the land is public or private.

3.3.1.2 CLEAN WATER ACT SECTION 401

The State of Arizona remains the regulating authority for the CWA Section 401, Water Quality Certification program, which is administered by the ADEQ. For any federal permit, an applicant proposing an activity that may result in a discharge to WUS is required to obtain certification that the discharge would comply with provisions of the CWA. Most minor discharges are given general conditional certification in conjunction with Section 404 permits under the NWP program. Larger and/or more sensitive projects would likely require individual certification. CWA Section 401 has been amended to require public notice of all applications for certification. Arizona Revised Statutes (ARS) 49-202(B)-(H) outline the State's water quality certification procedures for any federal permit or license that involves a discharge to WUS. ADEQ may certify, deny, or waive water quality certification; no federal permit or action may be approved if certification is denied.

3.3.1.3 CLEAN WATER ACT SECTION 402

Since the FEIS, the State of Arizona has been given primacy over Section 402 of the CWA, the National Pollutant Discharge Elimination System (NPDES) program. Under Section 402 and ARS 49-255.01, ADEQ regulates discharge of pollutants (except for dredged or fill material) into navigable WUS under the Arizona Pollutant Discharge Elimination System (AZPDES) program. ADEQ considers virtually all waterways in Arizona, including dry washes, to fall under the jurisdiction of the AZPDES program and gives special consideration to those that have been designated Outstanding Arizona Waters.

ADEQ developed a Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity/Mineral Industry that specifically applies to stormwater runoff from industrial activities related to mining. As discussed in the FEIS, ASARCO has an individual AZPDES permit (AZ0000035); it was last renewed in 2016 (ADEQ 2019). The permit is for stormwater

discharged from the Mineral Creek Diversion Tunnel and the Ray Mine Open Pit. Stormwater falling outside the impoundments is routed into a retention basin.

3.3.1.4 CLEAN WATER ACT SECTION 303

The ADEQ continually updates and revises surface water quality standards and beneficial uses for Arizona's streams and lakes (Arizona Administrative Code [AAC] R18-11). CWA Section 303(d) requires a "303(d) list," recording those water bodies that have a designated beneficial use that is impaired by one or more pollutants. The State must take appropriate action to improve impaired water bodies by establishing total maximum daily loads (TMDLs) and reducing or eliminating pollutant discharges. ADEQ updated the State 303(d) list of impaired water bodies and their associated load limits in 2016. The 2018 list includes Mineral Creek and the Gila River. Mineral Creek is listed as impaired for copper, selenium, and low dissolved oxygen, and 19.8 miles of the Gila River from the San Pedro River to Mineral Creek is listed as impaired for suspended sediment concentrations (ADEQ 2016a, 2018a).

3.3.1.5 STATE AND FEDERAL WATER RIGHTS

The ADWR is the permitting authority of surface water rights through the doctrine of prior appropriation and groundwater rights through the 1980 Groundwater Management Act. Historically, the administrative process of claiming or registering a surface water right in Arizona has not considered other water rights already claimed on the same body of water source. Most water sources within the state are over-appropriated as a result, with multiple claims on the same water. The process of sorting through the priority of conflicting rights, including for federal reservations and to groundwater determined to be subflow, is being handled by Arizona Superior Courts in General Stream Adjudications. The Gila River adjudication is ongoing and encompasses multiple watersheds, including the Middle Gila and San Pedro watersheds.

Federal Reserved Water Rights (FRWR) can also exist on public lands. Some FRWRs on public lands were created by Public Water Reserve No. 107 (PWR 107). PWR 107 was created through an Executive Order that states all public lands within 0.25 mile of a spring or water hole are withdrawn from settlement, location, sale, or entry, and reserved for the public use in accordance with the Stock Raising Homestead Act of December 29, 1916. Under that Act, mineral entry can be allowed. PWR 107 establishes a FRWR for those waters. FRWRs cannot be held by a private party. Thus, if lands containing FRWRs are removed from federal ownership, a portion of the reserved lands are revoked to remove the withdrawal that reserves any exchanged land and relinquish any associated rights that may exist. BLM Arizona policy on this issue is stated in the Arizona Instruction Memorandum, AZ IM-2019-004 (see Appendix L), pursuant to 43 CFR § 2370.0-3(d). Table 3.3-6 *Summary of Public Water Reserve No. 107 and Appropriative Water Rights* (in Appendix G) lists the water rights in the Selected Parcels, and Section 4.3 outlines the revocation procedure.

There are no water rights within the **Offered Lands** parcels. Acquisition of these parcels may establish or initiate related water rights on those lands.

3.3.1.6 AQUIFER PROTECTION PERMIT

The ADEQ is the authorizing agency that issues Aquifer Protection Permits (APPs) to protect the State's groundwater quality by controlling discharges from facilities such as industrial facilities, potential future mining operations, mining operations, and wastewater treatment plants.

A facility is required to obtain an APP if it discharges a pollutant to an aquifer or to the land surface in such a manner that there is a reasonable probability that the pollutant would reach an aquifer. General permits have been updated since the FEIS; a discharge may be authorized under one of the General APPs issued by ADEQ (AAC R18-9, Article 3), or a discharge may require issuance of an Individual APP by the agency. Other updates to the APP rules include new permit review fees, licensing time frames, and changes to financial assurance requirements (ARS 49-243). As part of the permit process, an analysis of specific impacts is presented to ADEQ, along with permit studies, such as the Best Available Demonstrated Control Technology (BADCT) that would be used at the facility. A facility would not be permitted to cause an aquifer to exceed water quality standards. Requirements for any APP post-mine closure would be expected to be designed so that a pit lake would be hydrologically isolated and would not allow pollutants to migrate from the capture zone. The public review process associated with the permits for groundwater quality in Arizona would allow interested parties to review and comment on any future permits before they are approved. ASARCO would be required to have or secure an APP, or an amendment to a current APP (P-100525), that would be thoroughly reviewed by the ADEQ Groundwater Section, whether the facility is operating on public or private lands.

The current APP for the Ray Mine Operations (Permit No. P-100525) held by ASARCO, with the exception of parcels CB-3 and CB-4, includes conditions of maintaining aquifer standards at six point-of-compliance wells (see Figure 3.3-1 *Surface water and wells in the vicinity of Ray Mine Complex Selected Lands and Gila River at Cochran parcel Offered Lands* in Appendix F) and scheduled compliance monitoring and reporting of all points of compliance.

3.3.1.7 STATE WATER QUALITY STANDARDS

State regulations dictate numeric water quality standards for all groundwater within the state and for all surface water. They also dictate that a discharge shall not cause or contribute to a violation of a water quality standard established for a navigable water of the state; and that a discharge shall not cause a pollutant to be present in an aquifer that impairs existing or reasonably foreseeable future uses of that water. Authority under the Safe Drinking Water Act applies only to public drinking water systems and does not extend to regulation of groundwater quality unless potable uses are reasonably foreseeable.

Jurisdiction over general groundwater quality remains with the State of Arizona, administered through the APP program, as described above, and through adherence to State Aquifer Water Quality Standards. Since the 1999 FEIS, the federal standard for arsenic changed to 0.010 milligram(s) per liter (mg/L) (formerly 0.050 mg/L), which is applicable to public water systems. The Arizona Numeric Aquifer Water Quality Standard for arsenic remains at 0.050 mg/L, the only analyte with differing standards.

3.3.2 *Changes in Environmental Conditions since the FEIS*

3.3.2.1 **SELECTED LANDS**

Available information on water resources conditions (quantity and quality) of the **Selected Lands** have changed from the FEIS for both surface water and groundwater. The U.S. Geological Survey (USGS) 8-digit hydrologic unit codes (HUCs) for the watersheds included in the **Selected Lands** are the Middle Gila HUC 15050100 (Ray Mine Complex, Copper Butte/Buckeye, Chilito/Hayden) and the Lower Santa Cruz HUC 15050303 (Casa Grande) (see Appendix F, Figure 3.3-1 *Surface water and wells in the vicinity of Ray Mine Complex Selected Lands and Gila River at Cochran parcel Offered Lands* and Figure 3.3-2 *Surface water and wells in the vicinity of Casa Grande Selected Lands*).

Surface Water

Surface water data from USGS stream flow gages located on the Gila and San Pedro Rivers in the vicinity of the land exchange parcels and water quality data from ADEQ are included below. Also presented are data on surface water conditions in the vicinity of the **Selected Lands**, as collected by ASARCO. There is an integral connection between surface water, described here, and the groundwater within the alluvial aquifer (described below).

No significant additional surface water resources outside those already discussed in the FEIS were identified in the **Selected Land** parcels.

Surface Water Quantity

Ray Mine Complex. ADWR includes much of this area in the watershed of the Lower San Pedro Basin. The Gila River's flow is controlled by releases from the San Carlos Reservoir, located approximately 19 miles northeast from Winkelman, Arizona. USGS gage 09469500 below Coolidge Dam (at San Carlos Reservoir) has recorded a yearly mean discharge of 164 cubic feet per second (cfs) over the period between 1901 and 2018 (USGS 2018a). USGS gage 09474000, located on the Gila River just downstream of Mineral Creek, has recorded a yearly mean discharge of 338 cfs (per year) between 1911 and 2018 (USGS 2018b), and annual runoff has averaged 354,700 acre-feet between 1911 and 2017 (USGS 2018b). Typical daily runoff is lower, between 100 and 300 acre-feet. Seasonal flooding during the summer monsoon season boosts annual volumes in this desert region.

Most of the tributaries to the Gila River in this area are ephemeral, generally only flowing during and immediately after localized rainfall events. The exception is Mineral Creek, a 17.3-mile-long perennial stream that flows through the Ray Mine Complex and several of the **Selected Lands** parcels. As a result of a dam now controlling flow, Mineral Creek is only perennial downstream of the Big Box Dam and is ephemeral upstream of this containment.

Big Box Reservoir, located at the confluence of Devils Canyon and Mineral Creek, was created by the construction of Big Box Dam (in the early 1990s) to control flows through the Ray Mine Complex. Water surveys in July 2007 indicated that the reservoir held 191 acre-feet, with a maximum depth of 22.6 feet near the outflow of the dam (SWCA Environmental Consultants 2007).

On parcel RM-18, there are no stock tanks and 12 springs identified (see Appendix F, Figure 3.3-1 *Surface water and wells in the vicinity of Ray Mine Complex Selected Lands and Gila River at Cochran parcel Offered Lands*). The number and locations of these springs have not changed since the FEIS (ADWR 2009a).

Copper Butte/Buckeye. One additional spring, Wet Weather spring, has been identified in the CB-1 parcel that was not listed in the FEIS (see Appendix F, Figure 3.3-1). The original stock ponds, springs, and ephemeral streams on the parcels, such as in Walnut Canyon, remain as described in the FEIS.

Chilito/Hayden. The San Pedro River flows into the Gila River near parcels CH-4 and CH-5 (see Appendix F, Figure 3.3-1). Near its confluence with the Gila River at Winkelman, Arizona, the San Pedro River is intermittent, with no flow present during much of the year. In 2007 flow was noted as present: the Arizona Nonpoint Education for Municipal Officials (NEMO) Wet-Dry Mapping project recorded an approximately 10-mile-long wet reach of the San Pedro upstream of its confluence with Gila River (Arizona NEMO 2012). The nearest USGS stream gage (09472050) on the San Pedro River is approximately 45 miles upstream at Redington Bridge (USGS 2011a). Data are sparse, but mean annual runoff recorded at the gage between 1998 and 2011 was estimated at 18,860 acre-feet. No available study identifies dynamic streamflow trends of that 45-mile reach. Consequently, the net contribution to the Gila River is uncertain, but could be roughly evaluated using USGS gage data. The uncertainty of any evaluation would be high.

Casa Grande. The **Selected Lands** in the Casa Grande area are within the Santa Cruz River watershed (see Appendix F, Figure 3.3-2 *Surface water and wells in the vicinity of Casa Grande Selected Lands*). There are no known perennial streams, springs, wetlands, riparian areas, or water developments on these selected lands in the Casa Grande area, as documented in the FEIS.

Surface Water Quality

Ray Mine Complex. Water quality in the vicinity of the **Selected Lands** has been measured in Mineral Creek and the Gila River (ADEQ 2018a), and data are available either publicly (Gila River) or from ASARCO (Mineral Creek). The ADEQ designated two reaches as impaired in 2018 for their 303(d) list. The Gila River is impaired for suspended sediments between the San Pedro River and Mineral Creek.

Mineral Creek has been listed as impaired for copper since 1992. Since the issuance of the FEIS, ADEQ has added the reach between Devils Canyon and the Gila River for selenium (2004) and dissolved oxygen (2006 and 2008) to the 2016 and 2018 impaired list (ADEQ 2016a, 2018a). Water quality studies conducted in the Big Box Reservoir in July 2007, indicated low dissolved oxygen and elevated levels of nutrient loading (SWCA Environmental Consultants 2007).

The existing Kearny Wastewater Treatment Plant discharges treated wastewater into the stretch of the Gila River between Winkelman and Walnut Creek, and the ASARCO Ray Mine discharges water to Mineral Creek at Outfall 011. These facilities remain in place, and a review of ADEQ's eMaps interactive environmental mapping database displayed no new facilities discharging wastewater (ADEQ 2018b). The Mineral Creek Diversion Tunnel was constructed to isolate Mineral Creek from the mine and the upstream rock deposition areas. Seepage into the diversion tunnel is captured at Outfall 011. Aside from the permitted stormwater emanating from

the diversion tunnel (Outfall 003), all other stormwater potentially impacted by mining operations is collected for reuse in mining processes. Past monitoring data have shown exceedances for copper, lead (Pb), and zinc at Outfall 003 and exceedances for selenium and copper at Outfall 011 (ADEQ 2014a).

Copper Butte/Buckeye. Walnut Canyon is a relatively large local drainage that is intermittent upstream of parcel CB-1; however, the portion that runs through CB-1 is ephemeral (ADWR 2009a). No water quality data are known to be available for these parcels. A review of available aerial photography through 2018 did not identify any changes in the vicinity of the parcels that would be likely to affect on-site water quality, such as notable ground disturbances or vegetation removals (Google Earth 2018). ADEQ's eMaps interactive environmental mapping database displayed no current stormwater or wastewater permits near the **Selected Lands**, nor did it display any facilities that would contribute to changes in water quality (ADEQ 2013). No water quality data for the on-site dry washes are known to exist.

Chilito/Hayden. ADEQ listed a 14.8-mile-long stretch of the San Pedro River (Aravaipa Creek to the Gila River) as impaired for *E. coli* in 2004; this stretch was removed on ADEQ's 2010/2012 impaired list (ADEQ 2010). This is tributary to that reach adjacent to the ASARCO mining operations and is listed as impaired for suspended sediments (listed in 2006) between the San Pedro River and Mineral Creek. It is also listed on ADEQ's draft 2018 impaired list (ADEQ 2018a). No TMDLs have been prepared; however, ADEQ published a TMDL monitoring summary in 2007 (ADEQ 2007). No other designations have been made.

In addition to the stormwater permits listed in the FEIS, the following stormwater permits are listed on ADEQ's eMaps interactive environmental mapping database (ADEQ 2013) as being in the vicinity of the **Selected Lands**.

- The Bobbit Quarry, located along Smith Wash approximately 1 mile west of CH-5, upgradient of the Gila River, has an AZPDES stormwater permit (ADEQ 2013). Available aerial photography through 2010 indicates that operations at this facility do not appear to have changed significantly since 1999 (Google Earth 2013).
- The Winkelman Wastewater Treatment Plant, located along Quarelli Street on the north side of the Gila River, has an AZPDES stormwater permit (ADEQ 2013). Aerial photography suggests that operations at this facility have not changed significantly since 1999 (Google Earth 2018).

A review of available aerial photography through 2018 did not identify any changes upgradient of the parcels that would affect on-site water quality (Google Earth 2018). ADEQ's eMaps interactive environmental mapping database displayed no current stormwater or wastewater permits or any facilities near the **Selected Lands** that would contribute to changes in on-site water quality (ADEQ 2018b).

No water quality data for the on-site dry washes are known to exist.

Casa Grande. The **Selected Lands** in the Casa Grande area are within the Santa Cruz River watershed. There is no known published surface water quality information for the Santa Cruz River near Casa Grande. ADEQ's eMaps interactive environmental mapping database displayed no current stormwater or wastewater permits in the immediate proximity of the **Selected Lands**,

nor did it display any facilities that would be likely to contribute to changes in water quality (ADEQ 2018b). A review of aerial photography through 2018 did not identify changes in the vicinity of the parcels that would be likely to affect on-site water quality (Google Earth 2018). The Casa Grande wastewater treatment facility (an AZPDES-permitted facility) treats and discharges water to a waterway, a golf course, and for industrial reuse. This facility is located approximately 6 miles east of the Casa Grande parcels, and water is treated to a level of “Advanced Treatment I” (ADWR 2010). Aerial imagery between 2002 and 2018 shows that the wastewater treatment facility has more than doubled the number of digestion and treatment tanks, though it cannot be determined whether this was to add treatment capacity or to improve treated water quality. During that time, the river bed near this facility does not appear to have changed noticeably (Google Earth 2018). The original APP for the permitted Casa Grande facility was issued in 1999, for 4.0 million gallons per day (mgd) with all effluent discharged for reuse. A permit amendment in 2000 allowed the discharge of tertiary treated domestic wastewater to the North Branch of the Santa Cruz River and stated that the wastewater treatment facility is authorized to treat a yearly average limit of 12.0 mgd (ADEQ 2014b).

A review of available aerial photography through 2012 did not identify any changes in the vicinity of the parcels that would be likely to affect on-site water quality, including notable ground disturbances or vegetation removals (Google Earth 2013). ADEQ’s eMaps interactive environmental mapping database displayed no current stormwater or wastewater permits near the **Selected Lands**, nor did it display any facilities that would contribute to changes in water quality (ADEQ 2013).

Groundwater

Since the issuance of the FEIS in 1999, the understanding of existing groundwater conditions—including both quantity and quality—at all the **Selected Lands** parcels has improved through additional information. The FEIS uses a USGS study to characterize the groundwater basins (USGS 1995). That study identifies the Gila River from the San Carlos Reservoir to Kelvin basin and the Lower Santa Cruz basin as the pertinent areas for analysis. To be consistent with currently prevalent nomenclature, ADWR identifies part of the San Carlos Reservoir to Kelvin basin as within the Lower San Pedro Basin (west of Winkelman to Kelvin) and part of it within the Dripping Springs Wash Basin (east of Winkelman). ADWR uses the Donnelly Wash Basin for a portion of the area encompassed by the Lower Santa Cruz basin, which includes Copper Butte and associated subbasins. The San Pedro River above Winkelman is not expressly described in the FEIS but is part of the groundwater environment examined in this Final SEIS; it is considered part of the Lower San Pedro Basin. ADWR subbasins are also used for further, focused analysis (see Appendix F, Figure 3.3-1 *Surface water and wells in the vicinity of Ray Mine Complex Selected Lands and Gila River at Cochran parcel Offered Lands*). Some “basin” designations are made for administrative reasons (for example, Lower San Pedro Basin) and others are purely hydrological in nature (for example, Gila River Basin). Regardless of the case, the principal information of interest is the connection between any flow of water and its source.

Groundwater is generally understood to be contained within porous host rock formations or aquifers. Groundwater in the area of the **Selected Lands** near the mining operations can be found in recent stream alluvium, basin fill, and bedrock aquifers. The three Casa Grande **Selected Lands** parcels have a different geological setting, but likely include basin fill sediments, with

bedrock not expected to be intersected in any water production well. Alluvial aquifers near the **Selected Lands** consist of sands, gravels, and cobbles found within the shallow subsurface flow paths of area drainages. These drainages include perennial, intermittent, and ephemeral reaches. Basin fill sediments are expected to have interbedded silty/sandy/gravels and more clay rich sediments. These formations have less permeability and do not produce as much water. Bedrock aquifers are variable and may contain well cemented sediments, igneous, and metamorphic rocks. No carbonate aquifer production is known in this area and any water production from the bedrock is likely associated with fractures. A bedrock aquifer well would be expected to produce much less than a comparably sized alluvial aquifer well.

The most productive aquifer appears to be the recent stream alluvium of the Gila and San Pedro Rivers, which accommodate greater groundwater flow than basin fill or bedrock aquifers (relatively high transmissivity values). Large water production wells pumping from within or near that stream alluvium might be expected to produce up to about 2,500 gallons per minute (gpm). Bedrock aquifers, at the other extreme, might be expected to produce less than about 30 gpm. Depending on the local geology and well construction, basin fill wells could be considered intermediate in water production volume.

The water supply well field for ASARCO's Ray Mine and Hayden Smelter operations is located in an alluvial aquifer. It consists of Holocene alluvium located spatially close to and below the confluence (downgradient) of the San Pedro and the Gila Rivers. These wells generally have a total depth of less than 100 feet within this unconfined aquifer and static water levels are generally about 15 to 30 feet below ground surface (bgs).

Generally, groundwater flow within the bedrock aquifers originates in recharge zones at the mountains and migrates through fractures to discharge into the alluvial aquifers at lower elevations. The alluvial aquifers receive inflows or recharge from stream flow and discharge from the bedrock aquifer. Principal groundwater flow in the alluvial aquifer is generally northwest parallel to the Gila River, below the confluence with the San Pedro River.

Wells in the vicinity are used to assess existing conditions. Groundwater levels in the vicinity of the Ray Mine Complex and Chilito/Hayden parcels have dropped, and new water quality data are available for the Ray Mine Complex, Chilito/Hayden, and Copper Butte/Buckeye parcels. Additionally, data for the existing ASARCO well field located outside the **Selected Lands** parcels have been included for analysis. It is assumed that future water production for ASARCO will continue to come from this well field. Much of the groundwater data come from the ADWR-maintained Well 55 Registry database of all wells registered in the state (ADWR 2012a, 2018) and the statewide Groundwater Site Inventory (GWSI) database, which consists of field-verified data for wells and springs (ADWR 2012b). Because the data are field verified and constantly being updated, the GWSI data are expected to be the most accurate and include parameters such as current and historic groundwater levels, spring names, and spring permanence (ADWR 2012b).

Groundwater Quantity

Ray Mine Complex and Chilito/Hayden. Both the Ray Mine Complex and Chilito/Hayden parcels are located in the Mammoth subbasin of the Lower San Pedro Basin outside any ADWR Active Management Area (AMA); groundwater flow in this basin is generally toward the Gila

and San Pedro Rivers and then north or northwest (ADWR 2009a). Data may indicate that groundwater levels south of the parcels near Dudleyville have dropped since the early 1990s. However, one observation well (ADWR 55-610320, GWSI), at the confluence of Dodson Wash and the San Pedro River, has regularly recorded water levels between 15 and 20 feet bgs from 1949 to 2017. The 2006 GWSI water-level readings indicate that depth to groundwater in the vicinity of the Ray Mine Complex parcels ranges from 11 feet in wells completed in the alluvium, to 389 feet in those completed in a deeper aquifer. Readings in the vicinity of the Chilito/Hayden parcels taken in 2006 and 2009 show depth to groundwater in this area ranging from 14 to 68 feet (ADWR 2012b). Recorded depths to water in ASARCO monitoring wells located in the vicinity of these parcels ranged from 10 to 42 feet bgs (ASARCO Grupo Mexico 2011).

Wells located on the Ray Mine Complex and Chilito/Hayden parcels (excluding exploratory/geotechnical wells) are shown in Appendix F, Figure 3.3-1 *Surface water and wells in the vicinity of Ray Mine Complex Selected Lands and Gila River at Cochran parcel Offered Lands*, and listed in Table 3.3-1 *Wells Located in Ray Mine and Chilito/Hayden Parcels* (see Appendix G).

ASARCO's water production well field is located at Hayden southeast of the Ray Mine Complex and Chilito/Hayden parcels, just downstream of the confluence of the Gila and San Pedro Rivers. Because the well field is located on private property, the well field was not a subject of the FEIS. The Hayden well field withdraws appropriated surface water (groundwater in the near stream alluvium), under rights granted in the Globe Equity Decree. The well field consists of 20 individual wells (see Table 3.3-2 *ASARCO Non-exempt Production Wells Located at the Hayden Well Field* in Appendix G) which currently supply all operational water to the Hayden and Ray Mine operations.

Copper Butte/Buckeye. The Copper Butte/Buckeye parcels are located in the Donnelly Wash groundwater basin outside any ADWR AMA; groundwater flow in the vicinity of the **Selected Lands** there is assumed to be toward the Gila River (ADWR 2009a). Water-level readings, in the vicinity of the Copper Butte/Buckeye parcels (from 2008), indicates that depth to groundwater approximately 0.5 mile to the north is 14 feet bgs (ADWR 2012a, 2018). This static water level may not reflect conditions on any of the Copper Butte/Buckeye parcels.

One well is listed in the ADWR database as being located on the Copper Butte/Buckeye parcels (excluding exploratory/geotechnical wells). Although locational data in the ADWR database are accurate to only 40 acres, ADWR records indicate that this well is situated in the NW $\frac{1}{4}$ of the NW $\frac{1}{4}$ of Section 19 (T3S, R13E), which would place it on parcel CB-3. This well is shown in Figure 3.3-1 *Surface water and wells in the vicinity of Ray Mine Complex Selected Lands and Gila River at Cochran parcel Offered Lands* and listed in Table 3.3-3 *Well Located in Copper Butte/Buckeye Parcels* (see Appendix F and Appendix G, respectively).

Casa Grande. The Casa Grande parcels are located in the Maricopa-Stanfield Subbasin within the ADWR Pinal AMA. Groundwater flow in this AMA is generally to the north toward cones of depression at the center of the Maricopa-Stanfield Subbasin (ADWR 2010). Groundwater data indicate that levels have risen in the vicinity of the Casa Grande parcels over the past decade.

Water levels recorded in the GWSI database (2007–2011) indicate that depth to groundwater in the vicinity of the Casa Grande parcels ranges from 420 to 530 feet bgs (ADWR 2012b).

Non-exploratory wells located on the Casa Grande parcels held by the third-party surface estate owner are shown in Figure 3.3-2 in Appendix F, and listed in Table 3.3-4 *Wells Located in Casa Grande Parcels* in Appendix G.

Groundwater Quality

Ray Mine Complex, Chilito/Hayden, and Copper Butte/Buckeye. As indicated in Section 3.2.2.2 of the FEIS, wells in the vicinity of the Ray Mine Complex, Chilito/Hayden, and Copper Butte/Buckeye parcels did not meet water quality standards in 1999 but have been in compliance since 2000. Four wells near the town of Hayden (T5S, R14E and T5S, R15E) exceeded drinking water standards for fluoride, arsenic, and mercury (ADWR 2009a). ASARCO monitoring wells located in the Mammoth subbasin in the vicinity of the Ray Mine Complex parcels exceeded aquifer water quality standards for beryllium, cadmium, fluoride, and nickel (ASARCO Grupo Mexico 2011). The range of measured values is presented in Table 3.3-5 *Wells with Exceedances in Aquifer Water Quality Standards, February 2009 to March 2011* (see Appendix G); well locations are provided in Appendix F (see Figure 3.3-1 *Surface water and wells in the vicinity of Ray Mine Complex Selected Lands and Gila River at Cochran parcel Offered Lands*).

Casa Grande. As reported in the FEIS, the Casa Grande parcels are located in areas that may exceed permissible water quality standards for contaminants. No water quality data are available for the wells located on the Casa Grande parcels. Two wells located between the north and south parcels have exceeded drinking water standards for arsenic and radionuclides (ADWR 2010). Without direct sampling, this would only suggest a concern for arsenic and radionuclides on these parcels, since too many variables exist between any two wells (diameter, total depth, screened interval, etc.) to draw a direct correlation.

The USGS HUC 8-digit code for the watershed included in the **Selected Lands** is Middle Gila HUC 15050100.

3.3.2.2 OFFERED LANDS

Additional years of publicly available data compiled since the FEIS are presented below. Stream flow data are available for the USGS stream gage located on the Gila and Big Sandy Rivers in the vicinity of the **Offered Lands**, and water quality data are available from ADEQ.

The USGS HUC 8-digit codes for the watersheds included in the **Offered Lands** are as follows: Middle Gila HUC 15050100 (Gila River at Cochran parcel); Sacramento Wash HUC 15030103 (Sacramento Valley parcel); Detrital Wash HUC 15010014 (Knisley Ranch parcels); Big Sandy HUC 15030201 (Tomlin parcels and McCracken Mountains parcels); and Bill Williams HUC 15030204 (McCracken Mountains parcels).

Surface Water

Surface Water Quantity

Gila River at Cochran Parcel. As described in the FEIS, this parcel contains one perennial stream, a 1.1-mile-long stretch of the Gila River, as shown in Appendix F (see Figure 3.3-1 *Surface water and wells in the vicinity of Ray Mine Complex Selected Lands and Gila River at Cochran parcel Offered Lands*). Surface flows in this segment of the Gila River are partially regulated by releases from the San Carlos Reservoir, which is located approximately 63 river miles upstream. Springs exist within the Donnelly Wash Subbasin, but none are in the vicinity of this parcel (ADWR 2009a). Available aerial imagery through 2019 indicates that the Gila River has meandered (shifted) slightly within the confines of the floodplain during that time span. No obvious springs or seeps, or wetlands outside the floodplain, are evident in any of the reviewed photographs. It does appear that hydro-, meso-, and xeroriparian habitats exist within this parcel (Google Earth 2018). Xeroriparian habitat is defined as habitat supported by intermittent or ephemeral stream flows that increase the amount of water available to plants beyond that available by direct rainfall. Xeroriparian habitat may include mesquite bosques and other vegetation species different from those found in the wetter meso- or hydriparian areas.

Sacramento Valley Parcel. No perennial streams, wetlands, springs, hydro- or mesoriparian areas, or water developments occur in the parcel (Figure 3.3-3 *Surface water in the vicinity of Sacramento Valley Offered Lands* in Appendix F). Aerial photography indicates that xeroriparian areas appear to exist along the washes crossing the parcel (Google Earth 2018). There are no known changes in surface water from the FEIS.

Knisely Ranch Parcels. As depicted in Figure 3.3-4 *Surface water and wells in the vicinity of Knisely Ranch Offered Lands*, there are no perennial streams or wetlands in these parcels; however, Knisely Parcel No. 1 contains Arizona Spring, and Knisely Parcel No. 3 contains Pine Spring. Aerial photography indicates that xeroriparian areas appear to exist along the washes crossing the parcel (Google Earth 2018). No new data or new surveys are known to have been conducted since the FEIS.

Tomlin Parcels. As depicted in Figure 3.3-5 *Surface water and wells in the vicinity of Tomlin and McCracken Mountains Offered Lands*, one of the Tomlin parcels (No. 4) contains one perennial stream and associated riparian area, a 0.5-mile-long reach of the Big Sandy River (ADWR 2009b). Aerial photography indicates that the riparian area includes hydro- and mesoriparian habitat and may include some xeroriparian habitat (Google Earth 2018). The FEIS indicates that base flow of this perennial reach is generally less than 10 cfs, and USGS stream gage 09424450 indicates that figure is still accurate (USGS 2011b). The parcel contains ephemeral washes and no water developments. No changes are known to have occurred since the FEIS.

A review of aerial photography indicates that the middle Tomlin parcel appears to contain a small area of meso- or xeroriparian habitat along a wash in the northeast corner, and the remaining western parcel does not appear to contain any riparian habitat (Google Earth 2018). Neither of these parcels is known to have seeps, springs, wetlands, or perennial streams.

McCracken Mountains Parcels. There is one known perennial spring, Castaneda Wash, and associated riparian areas in the westernmost parcel (see Figure 3.3-5 *Surface water and wells in the vicinity of Tomlin and McCracken Mountains Offered Lands* in Appendix F). A review of aerial photography indicates that most of these parcels do appear to exhibit some degree of xeroriparian habitat along their dry washes (Google Earth 2018). According to the FEIS, three water sources exist on these parcels, an AGFD wildlife development, the McCracken Mountains Catchment No. 1 (AGFD No. 412), and two earthen stock ponds (McCracken Mountain Tank and Hill Tank). The McCracken Mountain Tank no longer exists.

Surface Water Quality

Gila River at Cochran Parcel. A review of available aerial photography through 2010 did not identify any changes on the parcel, or within a 5-mile upgradient radius of the parcel, that would significantly affect water quality, such as changes in drainage patterns, evidence of fires, road building, or development (Google Earth 2018). ADEQ's eMaps interactive environmental mapping database displays no stormwater or wastewater permits near the parcels, nor does it show any facilities that would contribute to changes in water quality (ADEQ 2013). No water quality data for the on-site dry intermittent and ephemeral washes are known to exist. Water quality data from USGS gage 09474000 (the Gila River at Kelvin, Arizona [USGS 1997]) indicate some cases of samples violating numeric water quality standards. These samples are inconclusive due to sparse data or the low number of samples exceeding standards. ADEQ has not determined the reach to be impaired or not attaining standards (ADEQ 2018a).

Sacramento Valley Parcel. A review of available aerial photography through 2018 did not identify any changes on the parcel, or within a 5-mile upgradient radius of the parcel, that would significantly affect water quality. There are no changes for this parcel since the FEIS.

Knisely Ranch Parcels. A review of available aerial photography through 2011 did not identify any changes on or upgradient of the parcels that would be likely to significantly affect water quality (Google Earth 2018). ADEQ's eMaps interactive environmental mapping database displayed no current stormwater or wastewater permits near the parcels, nor did it show any facilities that would contribute to changes in water quality (ADEQ 2013). No water quality data for the on-site intermittent and ephemeral dry washes are known to exist.

Tomlin Parcels. A review of available aerial photography through 2011 did not identify any changes on or upgradient of the parcels that would be likely to significantly affect water quality (Google Earth 2018).

ADEQ's eMaps interactive environmental mapping database displayed no current stormwater or wastewater permits near the parcels, nor did it show any facilities that would contribute to changes in water quality (ADEQ 2013). No water quality data for the on-site dry intermittent and ephemeral washes are known to exist. Water quality samples for USGS gage 09424450 (the Big Sandy River near Wikieup, Arizona) are from 1977–1979 and do not indicate any acute or chronic background or naturally occurring water quality issues. No more water quality data are available (USGS 2013).

McCracken Mountains Parcels. A review of available aerial photography through 2018 did not identify any changes on the parcel, or within a 5-mile upgradient radius of the parcel, that would significantly affect water quality. No changes are known to have occurred since the FEIS.

Groundwater

Existing groundwater conditions on the **Offered Lands** have changed only nominally since the FEIS.

Groundwater Quantity

Gila River at Cochran Parcel. One well occurs on this **Offered Lands** parcel, as reported in the FEIS and shown in the Final SEIS Figure 3.3-1 *Surface water and wells in the vicinity of Ray Mine Complex Selected Lands and Gila River at Cochran parcel Offered Lands* (see Appendix F). Existing groundwater conditions at the Gila River at Cochran parcel remain unchanged.

Tomlin Parcel and a portion of the McCracken Mountains Parcels. With the exception of a small portion of the northern Tomlin parcel, which lies in the Big Sandy groundwater subbasin, these parcels are located in the Bill Williams groundwater subbasin (see Figure 3.3-5 *Surface water and wells in the vicinity of Tomlin and McCracken Mountains Offered Lands* in Appendix F). Groundwater flow in this portion of the basin is generally toward the Bill Williams River, and groundwater levels are reported to have risen 1 to 15 feet from the early 1990s to 2003 (ADWR 2009b). Recorded water levels of wells in the Bill Williams basin in the vicinity of these parcels indicate that groundwater is shallow—12 to 35 feet bgs. As reported in the FEIS, there are no registered wells on the Tomlin parcels or on the portion of the McCracken Mountains parcels in this groundwater basin.

Sacramento Valley Parcel and remaining McCracken Mountains Parcels. The remaining McCracken Mountains parcels and all the Sacramento Valley parcels are located in the Sacramento Valley groundwater basin (see Figure 3.3-3 and Figure 3.3-5 in Appendix F). Groundwater flow in this portion of the basin is generally south or to the west toward the Sacramento Wash. GWSI records note recorded water levels (2006) in the vicinity of the McCracken Mountains parcels show that depth to groundwater is somewhat variable (4 to 155 feet bgs). Groundwater in other areas of the Sacramento Valley basin can be more than 500 feet bgs. There has been relatively no change in groundwater basin levels since the early 1990s. In the vicinity of the Sacramento Valley parcels, groundwater was recorded in 2006 at 551.6 feet bgs (ADWR 2012b), and groundwater levels have risen 1 to 15 feet since the early 1990s (ADWR 2009b).

Knisely Ranch Parcels. The Knisely Ranch parcels are located in the Detrital Valley groundwater basin (see Figure 3.3-4 *Surface water and wells in the vicinity of Knisely Ranch Offered Lands* in Appendix F). General groundwater flow in the basin is to the north toward Lake Mead. The deepest noted groundwater level in the basin lies west of these **Offered Lands** parcels and has been recorded at 597 feet bgs (ADWR 2009b). A GWSI water level recorded for the vicinity was 476 feet bgs in 2006 (ADWR 2012b). There are no wells on the Knisely Ranch parcels.

Groundwater Quality

There are no groundwater quality data available specifically for the **Offered Lands** but drinking water quality data for areas in the vicinity of some of the **Offered Lands** are available and presented below.

Gila River at Cochran Parcel. As described in the **Selected Lands** section above, the parcel is located in the same groundwater basin (Donnelly Wash) as the Copper Butte/Buckeye parcels. No groundwater quality data are available for the parcel, but exceedances of drinking water standards for fluoride, arsenic, and nitrate have occurred in groundwater within 10 miles of the Gila River at Cochran parcel, as described above.

Tomlin Parcel and a portion of the McCracken Mountains Parcels. Groundwater quality in the Bill Williams groundwater basin within 5 miles of these parcels has exceeded drinking water standards for arsenic, Pb, and radionuclides (ADWR 2009b).

Sacramento Valley Parcel and remaining McCracken Mountains Parcels. Groundwater quality in the Sacramento Valley groundwater basin within 10 miles of all of the McCracken Mountains parcels has exceeded drinking water standards for fluoride and radionuclides (ADWR 2009b). No exceedances of drinking water standards have been reported in the vicinity of the Sacramento Valley parcels.

Knisely Ranch Parcels. Water quality in the Detrital Valley groundwater basin is slightly alkaline, with high levels of total dissolved solids (ADEQ 2003; ADWR 2009b). No exceedances of drinking water standards are reported in the vicinity of the Knisely Ranch parcels.

3.4 AIR QUALITY

The FEIS discusses air quality in Section 3.2.2.4, pages 3-30 through 3-35 (**Selected Lands**); air quality is not described for the **Offered Lands** in the FEIS. Greenhouse gas emissions are not evaluated in the FEIS.

3.4.1 Changes in Applicable Regulations or BLM Policies

Changes to the regulatory framework for the air permitting process since the issuance of the FEIS, as well as omissions to the regulatory discussion in the FEIS, are discussed below.

Pursuant to EO 13783, *Promoting Energy Independence and Economic Growth* (issued March 28, 2017) the Council on Environmental Quality (CEQ) withdrew its 2016 “Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews” on April 5, 2017. Following EO 13783 and the CEQ formal withdrawal, the BLM issued Instruction Memorandum (IM) No. 2018-002, “Rescinding the Washington Office Permanent Instruction Memorandum No. 2017-003, The Council on Environmental Quality Guidance on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews,” on October 24, 2017 (BLM 2017b), which rescinded an earlier IM directing BLM to follow the 2016 CEQ guidance (see Appendix H, *Process Information Non-Essential to the*

Decision Being Made, for discussion of climate change and greenhouse gases). Current BLM policy is to disclose potential greenhouse gas emissions without speculating on how such emissions may relate to global climate change.

The EPA delegated authority to ADEQ to administer the Clean Air Act (CAA) and an air permit program in all areas of Arizona except Maricopa, Pinal, and Pima Counties and in all areas within the borders of an Indian reservation. The counties of Maricopa, Pinal, and Pima, as well as some Indian reservations (Navajo Nation, Gila River Indian Community), have derived authority from the ARS, state and county state implementation plans (SIPs), and/or tribal implementation plans (TIPs) to administer air programs in their respective areas. Because the ADEQ oversees Gila County's air quality program, copper mining operations on the **Selected Lands** in Gila County require ADEQ to approve the air permit application. Pinal County has derived authority to operate an air permit program through the Pinal County Air Quality Control District (PCAQCD). Copper mining operations on the **Selected Lands** in Pinal County require PCAQCD to approve the air permit application. The regulations for the administration of the air permit program and issuance of air permits by ADEQ can be found in the AAC, Title 18, and Chapter 2. Pinal County air quality regulations are contained in the PCAQCD Code of Regulations (amended October 13, 2010), a codification of the rules and amendments of the Pinal County Board of Supervisors governing the administration of the air permit program and the issuance of air permits.

Regulatory changes since the issuance of the FEIS applicable to SIPs for the **Selected Lands** include:

- Arizona infrastructure SIP revision (submitted on October 14, 2009) and 1997 particulate matter 2.5 microns in diameter or smaller (PM_{2.5}) National Ambient Air Quality Standards (NAAQS) and 1997 8-hour ozone (O₃) NAAQS supplemental SIP (final plan submitted on December 27, 2012, with an EPA completeness determination dated January 4, 2013 [ADEQ 2016b]). These pending actions from ADEQ to the EPA would implement changes to the NAAQS for PM_{2.5} and O₃ in the state.
- Hayden sulfur dioxide (SO₂) non-attainment area for the 2010 SO₂ NAAQS, March 9, 2017. Arizona infrastructure SIP revisions for 1997 PM_{2.5}, 2006 PM_{2.5}, and 2008 O₃, approved on November 5, 2012, 77 *Federal Register* 66398. The interstate transport requirement of the infrastructure SIP revisions for the 2008 O₃ NAAQS was approved on May 19, 2016 (81 *Federal Register* 31513).
- Hayden SO₂ maintenance plan (final submitted on June 27, 2002, EPA action pending) (ADEQ 2012). The Hayden SO₂ maintenance plan is a request from ADEQ that the EPA redesignate the Hayden SO₂ non-attainment area as being in attainment with respect to the 24-hour average and annual SO₂ NAAQS. The maintenance plan contains federally enforceable conditions for the ASARCO Hayden Smelter. Supplements to this plan were submitted by ADEQ in 2004 and 2006. The SO₂ primary standard was last revised in 2010 (75 *Federal Register* 35520, June 22, 2010). This revision revoked the annual and 24-hour primary SO₂ standards while adding a primary 1-hour SO₂ standard. On October 4, 2013, the EPA designated the Hayden area to be non-attainment for the 2010 SO₂ NAAQS. ADEQ created a SIP for the Hayden SO₂ non-attainment area and submitted it to the EPA on March 10, 2017, for review and approval.

- Arizona SIP revision (ADEQ 2011) under CAA Section 110(a) (1) and (2): implementation of 2008 Pb NAAQS (final submitted on October 14, 2011, EPA action pending). The Arizona SIP revision for the implementation of the 2008 Pb NAAQS was submitted in response to the promulgation of the 2008 revisions to the Pb NAAQS by the EPA. On October 3, 2014, the EPA designated the Hayden area as non-attainment of the 2008 Pb NAAQS. ADEQ created a SIP for the Hayden non-attainment area and submitted it to the EPA for review and approval on March 3, 2017.
- In addition, a limited SIP change affecting Pinal County was approved by the EPA on April 17, 2012. The limited SIP change was a limited approval and a limited disapproval by the EPA of a PCAQCD SIP change proposal to the federally enforceable minimum standards of performance for process particulate emissions.

Updates and revisions to the existing NAAQS since the issuance of the FEIS include promulgation of new and revised NAAQS for Pb (0.15 microgram per cubic meter [$\mu\text{g}/\text{m}^3$] on a 3-month rolling average), 1-hour NO_2 (100 parts per billion [ppb]), 8-hour O_3 (0.070 parts per million [ppm]), 24-hour $\text{PM}_{2.5}$ (35 $\mu\text{g}/\text{m}^3$), and 1-hour SO_2 (75 ppb). These updates and revisions were reflected in a final rule signed October 1, 2015 and became effective December 28, 2015. The previous (2008) O_3 standards additionally remain in effect in some areas. Revocation of the previous (2008) O_3 standards and transitioning to the current (2015) standards will be addressed in the implementation rule for the current standards. Additionally, the EPA revoked the annual particulate matter 10 microns in diameter or smaller (PM_{10}) NAAQS in 2006 (EPA 2011). Ultimately, the more stringent the standard, the greater the emissions reduction and the more extensive the control strategies required to reduce air pollutant concentrations. Table 3.4-1 *National Ambient Air Quality Standards* in Appendix G presents the current NAAQS.

There have been no changes to federally listed Class I areas since the issuance of the FEIS. Figure 3.4-1 *Location of mandatory Class I airsheds relative to the Selected Lands* in Appendix F shows all the current Class I airsheds near the **Selected Lands**.

Appendix B of the Final SEIS provides a comparison of the BLM mining regulations to other federal and state environmental regulations. Subpart 3809.420(b) (4) requires that operators comply with applicable federal and state air quality standards, including the CAA (42 USC 1857 et seq.).

3.4.2 ***Changes in Environmental Conditions since the FEIS***

The FEIS summarizes the air quality permits held at that time by ASARCO for the **Selected Lands**. As described in the FEIS, there are no permits associated with the Copper Butte/Buckeye or Chilito/Hayden Selected Land parcels. The current status (that is, revisions/updates since 1999) of the air quality permits discussed in the FEIS is summarized in Table 3.4-3 in Appendix G, *Air Quality Permits Held by ASARCO for Facilities Adjacent to the Selected Land Parcels*. The facilities listed in Table 3.4-3 are required to report emissions annually. Actual emissions from the facilities listed for 2012, 2013, and 2014 are presented in Table 3.4-4 in Appendix G, *Existing Emissions Inventory for Facilities with Air Quality Permits, in Tons Per Year*.

The FEIS summarizes the ambient concentrations of PM_{10} , Pb, and SO_2 levels for the Ray Mine and Casa Grande area (FEIS Section 3.2.2.4, pages 3-30 through 3-33). The Casa Grande area is

not expected to be developed for use in copper mining operations under either ASARCO's or the BLM's stewardship; however, ambient air emission conditions have been analyzed for this area as part of the land exchange. Air emissions from the most recently available years (2012–2014) for PM₁₀ and SO₂ for the Ray Mine and PM₁₀ for the Casa Grande areas are summarized in Table 3.4-2 in Appendix G, *Ambient Concentrations of PM₁₀ and SO₂*. SO₂ and PM₁₀ data for the Ray Mine area are from the ADEQ Hayden Old Jail monitor, while PM₁₀ data for the Casa Grande Parcel area is from the Pinal County Housing (aka Eleven Mile Corner) monitor.

Visibility data in the region from 2001 to 2014 indicate that visibility on both the haziest and clearest days has shown a significant trend in improvement. Only one monitor (Queen Valley, east of Queen Creek, Arizona) indicates no significant improvement or degradation in visibility on the haziest days (Federal Land Manager Environmental Database 2015).

The **Selected Lands**, specifically the Hayden area in eastern Pinal County and southern Gila County, include an SO₂ non-attainment area, a PM₁₀ non-attainment area, and a Pb non-attainment area. Figure 3.4-2 in Appendix F, *Air quality attainment status relative to Selected Lands in the Ray Mine Complex area*, presents these non-attainment areas for the Ray Mine Complex as of March 2019. The Hayden area is currently classified as being in attainment or unclassified with respect to the NAAQS for O₃, carbon monoxide (CO), nitrogen dioxide (NO₂), and PM_{2.5}. The PM₁₀ and SO₂ non-attainment status of the **Selected Lands** has not changed since the issuance of the FEIS, except for the separation of the Hayden/Miami PM₁₀ non-attainment area on January 24, 2007.

In 2008, EPA revised the standards for Pb such that some areas that were previously in attainment no longer met standards for attainment. On August 20, 2014, the EPA indicated that it is redesignating the Hayden, Arizona, area to non-attainment for the 2008 Pb NAAQS. This decision was based on complete, quality-assured and certified monitoring data from 2012, which indicated that the Hayden area is violating the standard. In addition, preliminary ambient air quality data collected by ASARCO in 2013 and 2014 suggest the area continues to violate the Pb standards (EPA 2014a). The area was officially redesignated to non-attainment for the 2008 Pb NAAQS on October 3, 2014. ADEQ is required to develop a plan showing how the area will attain the Pb NAAQS as soon as possible, but no later than 5 years after redesignation to non-attainment (that is, no later than October 3, 2019). The Arizona SIP revision for the implementation of the 2008 Pb NAAQS was submitted in response to the promulgation of the 2008 revisions to the Pb NAAQS by EPA. New or existing copper mining operations would need to ensure compliance with this plan in the event that it is finalized.

On December 30, 2015, ASARCO entered into Consent Decree No. CV-15-02206-PHX-DLR with the EPA, requiring the Hayden Operations to complete a converter retrofit project (CRP). The CRP is intended to lower the smelter's emissions of particulate matter including Pb. The Consent Decree requires that the old converters cease operation. ADEQ incorporated the CRP improvements as a part of the Pb SIP for the Hayden non-attainment area. The Consent Decree also requires the Hayden Operations to create a fugitive dust plan, which ADEQ incorporated in the Pb SIP for the Hayden non-attainment area. ADEQ created a SIP for the Hayden SO₂ non-attainment area and submitted it to the EPA on March 10, 2017, for review and approval, and on December 14, 2018, the EPA issued a Final Rule Air Plan Approval, indicating the CRP is complete (EPA 2018).

The **Offered Lands** status has not changed since the FEIS and the parcels remain in attainment or unclassified areas.

3.5 MINERAL RESOURCES

The FEIS discusses mineral resources in Section 3.2.3, pages 3-36 through 3-38 (**Selected Lands**) and Section 3.3.3, page 3-79 (**Offered Lands**).

3.5.1 *Changes in Applicable Regulations or BLM Policies*

The BLM's regulations governing mining operations on public lands were amended in 2001, after publication of the FEIS and ROD. These regulations, which would apply to any new or modified operations contain detailed performance standards and require financial assurances to ensure reclamation of all surface disturbance above casual use.

3.5.2 *Changes in Environmental Conditions since the FEIS*

The mineral potential categories for the **Selected Lands** remain unchanged from the FEIS. BLM reviewed the mineral potential for occurrence (high, moderate, low, or unknown) and potential for development of mineral deposits (copper, limestone, etc.) on the **Selected Lands** parcels in 2012 to determine whether any changes needed to be made to the mineral potential classification for the selected parcels (BLM 2012b). The mineral potential categories and certainty of use ratings remain unchanged (Ray Mine Parcels: Moderate Potential; Copper Butte Parcels: High & Moderate Potential; Chilito/Hayden Parcels: Moderate Potential). Mineral potential and level of certainty evaluations used in the FEIS were based on review of the general geologic environment, core samples, and drilling data (Section 3.2.3.1, page 3-26 and Section 3.3.3.1, page 3-79 of the FEIS). In 2013, ASARCO provided updated foreseeable uses; changes to the foreseeable uses since 1999 are shown in Table 3.5-1 below. Foreseeable use changes by operators are based upon many factors (for example, market conditions, technology), and do not change the mineral potential of lands.

Table 3.5-1. Summary of Reasonably Foreseeable Use Changes: 1999 and Current

Parcel	1999 Foreseeable Use	Current Foreseeable Use
RM-2	Buffer	Buffer Existing Mining
RM-8	Production, Operation & Support Transition Buffer	Production, Operation & Support Transition Buffer Existing Mining
RM-18	Production, Operation & Support Transition Buffer	Buffer
CG-1, CG-2, CG-3	Transition Buffer	Convey to new owner

The **Selected Lands** are currently open to location and entry under the Mining Law of 1872 and are encumbered by approximately 750 mining claims owned by ASARCO. Since the FEIS, ASARCO's ongoing operations at the Ray Mine complex expanded on to RM-2, modifying approximately half the 5.23-acre RM-2 parcel, thus the additional foreseeable use of Existing Mining. Those operations were conducted in a manner consistent with the 1998 Ray Consent Decree and the currently approved MPO (AZA-25674) for the Ray Mine and associated operations. Similarly, ongoing operations as well as purchase of State of Arizona lands resulted in changes to parcel RM-8's foreseeable uses. Finally, parcel RM-18's foreseeable use changed consistent with ASARCO's plans to pursue "Production, Operation and Support; Transition; and Buffer" on other lands, leaving RM-18 as "Buffer." Current foreseeable uses are unchanged for all other **Selected Lands**.

Since 1999, ASARCO amended future development goals for its existing approved metallurgical-grade limestone operations on the **Selected Lands** (ASARCO 2013). As noted in Chapter 2, ASARCO no longer intends to mine the Casa Grande parcels.

There are no changes in mineral resources and their potential for the **Offered Lands**.

3.6 LAND USE

The FEIS discusses land use in Section 3.2.4, pages 3-38 through 3-58 (**Selected Lands**) and Section 3.3.4, pages 3-79 to 3-84 (**Offered Lands**). The analysis area is limited to the Selected and **Offered Lands**; however, adjacent lands are considered.

3.6.1 *Changes in Applicable Regulations or BLM Policies*

No new laws, regulations, or EOs that would result in significant changes to the land use impact analyses have been issued since the issuance of the FEIS.

The majority of the **Selected Lands** continue to be managed under either the Phoenix or Safford RMPs (Table 2.1-4 *Selected Lands Parcels Requiring Plan Amendments* in Appendix G lists the applicable RMP by parcel). The exception is the Casa Grande parcels, which are now managed under the Lower Sonoran RMP (BLM 2012a). The **Offered Lands** continue to be within the planning area boundaries of the Phoenix RMP (Gila River at Cochran parcel) and Kingman RMP (all other **Offered Lands**). Figure 3.6-1 *BLM Administrative Boundaries* in Appendix F illustrates the BLM Arizona administrative boundaries.

The BLM completed a Visual Resource Inventory (VRI) for the Tucson Field Office including the **Selected Lands** parcels in 2017. A baseline visual inventory was conducted for the remaining **Selected Lands** parcels during preparation of this Final SEIS. The VRI and Visual Resource Management (VRM) information for the **Selected Lands** parcels is presented in Table 3.6-3 in Appendix G, *Visual Resource Inventory Summary by Parcel*. These VRM classes are considered interim objectives since they have not been established through the land use planning process and establishing VRM classes is not part of the proposed RMP amendments.

Secretarial Order (SO) 3373 *Evaluating Public Access in BLM Land Disposals and Exchanges* (03/21/2019). This SO directs the BLM to formally consider what impact the disposal or exchange of any BLM land will have on the public's ability to access federal lands for

recreation. The FLPMA directs the BLM to identify lands for potential disposal or exchange, using a public process and with state and county involvement. BLM has carried out these provisions revising land use plans and disposal since 1976. However, the BLM's criteria under FLPMA do not require the agency to weigh public access considerations for outdoor recreation (fishing, hunting, hiking, etc.).

3.6.2 Changes in Environmental Conditions since the FEIS

3.6.2.1 SELECTED LANDS

Land Use

Land Ownership

Land ownership (including surface and mineral estate) of the **Selected Lands** is depicted in Appendix F, Figures 2.1-1 and 2.1-2. Eleven (34%) of the **Selected Lands** parcels are split estate (that is, private surface, federal minerals). Parcel information for the **Selected Lands** is provided in Appendix G, Table 3.6-7, *Detailed Parcel Information for the Selected Lands*.

Since the FEIS, changes in ownership have occurred on the following split-estate parcels:

- ASARCO purchased the surface estate of parcels RM-7, RM-8, RM-9, RM-11, RM-14, RM-15, and CB-5, from the State of Arizona; and
- ASARCO sold the surface estate of the Casa Grande parcels (CG-1, CG-2, and CG-3). The sales contract specified that if ASARCO is successful in a land exchange to trade for the mineral estate associated with these parcels, ASARCO would transfer those mineral rights to the new owner.

Management of Public Lands

The **Selected Lands** continue to be used as described in the FEIS, including access to recreation opportunities, dispersed recreation, grazing, and/or mineral development, and ROWs. The management directions for the **Selected Lands** in the applicable RMPs are summarized below.

All Ray Mine Complex parcels except the northern portion of RM-11, Copper Butte/Buckeye parcels, and CH-5

The Phoenix RMP (BLM 1989) established Resource Conservation Areas (RCAs)—areas where BLM would work toward consolidating public lands to improve management efficiency and resource protection. The White Canyon RCA (262,800 acres) encompasses a large region of the surrounding lands along the Middle Gila River, including areas of the Ray Mine Complex. Within the White Canyon RCA are three special management areas: the White Canyon ACEC, Gila River Riparian Management Area, and Middle Gila Cultural Resource Management Area; these areas are discussed in Wilderness Resources/Special Management Areas below. Further detail on the White Canyon ACEC is included in the Land Use and Recreation and Access sections.

The management objectives for the White Canyon RCA are to retain and intensively manage all public land and to work toward acquiring state and private parcels with resource values that would benefit from public ownership. The **Selected Lands** parcels are identified for retention. The Phoenix RMP states:

“...the BLM would consolidate ownership and intensively manage land in seven Resource Conservation Areas (RCAs). ... The BLM would retain all public land (surface and subsurface estate) within the seven RCAs and pursue acquisition of all state land through the BLM-State of Arizona exchange program. Private land within the RCAs is not specifically identified for acquisition; however, exchange proposals initiated by private landowners within these RCAs would receive consideration by the BLM” (Phoenix RMP, page 18).

Northern portion of RM-11 [mineral estate only]; CH-1, CH-2, CH-3, and CH-4

The Safford RMP (BLM 1992, 1994) provides the following management direction for these parcels. BLM’s administrative responsibilities for RM-11 and the CH-1 through CH-4 parcels include, but are not limited to, overseeing mining on public lands, maintaining public access for recreation, maintaining ROWs, and administering grazing allotments.

Casa Grande Parcels (CG-1, CG-2, CG-3)

The Lower Sonoran RMP (BLM 2012a) is the applicable land use plan. All of the Casa Grande parcels are split estate, meaning that BLM has management authority for the mineral estate, but the surface is owned by another entity. In this case, the surface is privately owned by Legends Property LLC. The Lower Sonoran RMP provides management direction for mineral estate, and for disposal of split-estate and isolated parcels but does not specifically list the parcels as available for disposal.

The Lower Sonoran RMP provides the following management direction applicable to the parcels:

- LR-2.1.9: The BLM will continue to eliminate split-estate situations by disposing of federal subsurface estates when there are no known mineral values (page 2-78).
- MM-1.1.3: On split-estate lands, where the BLM manages the federal mineral estate but the surface is not in federal ownership, the BLM will manage the minerals in accordance with existing laws and regulations, while providing the surface owner input into the management process (page 2-87).

Rights-of-Way

In 1999, there were 12 authorized ROWs on the **Selected Lands**, including for roads, electric power transmission lines, communication lines, and a natural gas pipeline (see Table 3.6-1 *Rights-of-Way on Selected Lands* in Appendix G). No new ROWs have been issued or are pending within the **Selected Lands**.

Grazing

Grazing conditions on the **Selected Lands** are described in Section 3.2.4.5 (pages 3-49 through 3-57) of the FEIS. Changes are noted below. All grazing authorizations are Section 15 leases.

Existing Conditions

The status of the grazing allotments on the **Selected Lands** is discussed below, and summarized in Appendix G, Table 3.6-2 *Status of Grazing for Selected Lands*.

Ray Complex

Sleeping Beauty Allotment (RM-1, RM-2, RM-4, RM-6, RM-12, RM-13). The Sleeping Beauty allotment is authorized for a total of 120 animal-unit months (AUMs)⁴ across 893 acres of public land, with 120 AUMs on 709 acres of the **Selected Lands**. ASARCO is the leaseholder. The lease was last renewed in 2016 and expires in 2026. No range improvements have been constructed on this allotment.

Rafter Six Allotment (RM-10, RM-16, RM-17, RM-18). The Rafter Six allotment is authorized for a total of 1,662 AUMs across 15,855 acres of public land within the allotment, with 392 AUMs on 3,740 acres of the **Selected Lands**. The Rafter Six allotment is leased by the Morris Family Trust. The grazing lease was last renewed in 2010 and expires in 2020. Range improvements include Suzie Springs (#030805). No range improvements are on the portion of the Rafter Six allotment within the **Selected Lands**.

Troy Allotment (RM-18). The Troy allotment is authorized for a total of 889 AUMs across 4,370 acres of public land, with 79 AUMs on 400 acres of the **Selected Lands**. The Troy allotment is leased by BLJ Marin Investments, Ltd. The grazing lease was last renewed in 2017 and expires in 2027. No record of range improvements exists for the portion of the Troy allotment within the **Selected Lands**, though there is a perimeter fence along a portion of the Troy allotment boundary (personal communication, D. Tersey, BLM Biologist, 2012).

Copper Butte/Buckeye

LEN Allotment (CB-1, CB-2, CB-3). The LEN allotment is authorized for a total of 2,956 AUMs across 25,553 acres of public land, with 76 AUMs on 640 acres of the **Selected Lands**. The LEN allotment is leased by Vince and Wyatt Ferreira. The grazing lease was renewed in 2012 and expires in 2022. Proposed range improvements requested for the **Selected Lands** within the LEN allotment include the proposed construction and maintenance for the Rincon Reservoir (#035191). In addition, there is some fencing present between the LEN and Battle Axe allotments, and along the Gila River riparian pasture (personal communication, D. Tersey, BLM Biologist, 2012).

Battle Axe Allotment (CB-1, CB-2, CB-3). The Battle Axe allotment is authorized for a total of 2,256 AUMs across 13,113 acres of public land, with 418 AUMs on 1,832 acres of the **Selected Lands**. The Battle Axe allotment is currently leased by Wade Lueck. The grazing lease was renewed in 2017 and expires in 2027. Several range improvement projects exist within this allotment including two earthen stock tanks, a well, and a corral and trough.

⁴ An animal-unit month is the amount of forage needed to sustain one cow or its equivalent for 1 month.

Chilito/Hayden

Hidalgo Allotment (CH-1, CH-2, CH-3). The Hidalgo allotment is authorized for a total of 980 AUMs across 12,848 acres of public land, with 21 AUMs on 272 acres of the **Selected Lands**. The grazing lease for the Hidalgo allotment is held by ASARCO. The grazing lease was renewed in 2010 and expires in 2020. No range improvements exist on **Selected Lands** within the Hidalgo allotment.

Smith Wash Allotment (CH-5). The Smith Wash allotment is authorized for a total of 552 AUMs across 5,762 acres of public land, with 45 AUMs on 475 acres of the **Selected Lands**. The grazing lease for the Smith Wash allotment is held by Joe and Jolene Phillips. The grazing lease was renewed in 2010 and expires in 2020. Range improvements within the **Selected Lands** include a fence (#030421).

Visual Quality

The **Selected Lands** are located in the transition zone between the Sonoran Basin and Range and Arizona/New Mexico Mountains, containing unique form, line and color. The Sonoran Basin and Range is characterized by broad basins and scattered low mountains. These mountains are intermixed with the Sonoran Desert and are near the northern extent of the Madrean Archipelago. The convergence of the three physiographic regions make the project area a particularly diverse region, which is reflected in the visual quality of the landscape.

The visual quality and aesthetic conditions of the landscape since the issuance of the FEIS have remained unchanged, aside from views of active mining at the Ray Mine Complex from adjacent lands or travelways. The landscape is disturbed from its natural state and has been since before the FEIS was published, through a variety of activities ranging from mining, recreation, agriculture, and rural residential development. Key observation points (KOPs) for several parcels were selected to indicate representative views of existing landscapes and are described in detail below.

The analysis area for visual resources is the same as described in the FEIS, which is based on the distance a normal observer would no longer be able to discern a change to the visual landscape (a 35-mile buffer). Beyond 35 miles, normal human vision is unable to see most changes to the landscape due to topography, haze, and glare. Critical views or KOPs are selected from areas that are typical vantages for sensitive viewers. Additionally, the selected KOPs are representative of the range of viewing conditions (for example, elevation) and distance zones for sensitive locations in the analysis area. Distance zones are defined as foreground/middle ground (0–5 miles), background (5–15 miles), and seldom seen (over 15 miles or screened).

Ray Mine Complex. The Ray Mine site has been modified from natural conditions. Parcels RM-2, RM-3, RM-4, RM-5, RM-6, RM-9, RM-10, RM-14, and RM-16 are currently disturbed from their natural state to varying degrees. Parcels RM-11, RM-12, RM-13, and RM-15 are on the mountain slopes outside the currently disturbed area of the Ray Mine, but the proximity to the disturbance affects the visual quality of the parcels.

KOP 1 (see Figure 3.6-2 in Appendix F, *KOP 1—view from SR 177, facing southeasterly*) was selected for the Ray Mine Complex area and represents a typical view from SR 177, which is the only public thoroughfare in the viewshed area. SR 177 passes by the west side of Ray Mine and

affords unobstructed views of the mine pit and operations in the foreground and middle ground. Background views in this area are of vegetated peaks and exposed rocky outcrops at higher elevations.

Parcels RM-1 and RM-7 are located north of the Ray Mine but are currently undisturbed lands with views of geological features to the north and east, such as Pinal Peak. RM-1 consists of gently sloping, northwest-trending alluvial fans with a variety of vegetative density. RM-7 is located within a valley and is characterized by a lake (at the intake for Mineral Creek pipeline) and dense vegetation along the riparian area that bisects the parcel. RM-17 and RM-18 are undisturbed parcels located toward the southern end of the Ray Mine, adjacent to SR 177. All Ray Mine Complex **Selected Lands** parcels are inventoried VRI Class IV, except for R-1, RM-7, RM-12, RM-13, RM-15, RM-17, and RM-18, which are inventoried as VRI Class III (see Table 3.6-3 *Visual Resource Inventory Summary by Parcel* in Appendix G). VRM classes have not been established through the RMP planning process.

The **Arizona National Scenic Trail** (Arizona Trail) is located within 0.75-mile of the RM-17 parcel but it does not cross any of the land exchange parcels (see Section 3.8 for a description of the Arizona Trail). BLM Manual Section MS-6280 – *Management of National Scenic and Historic Trails and Trails Under Study or Recommended as Suitable for Congressional Designation* (BLM 2012c) requires that if a National Trail Management Corridor is not established through the RMP process, an analysis shall be conducted for proposed actions within the National Trail viewshed.

Copper Butte/Buckeye Parcels. The Copper Butte/Buckeye Selected Land parcels are located about 3 miles west of the Ray Mine Complex. With the exception of the seven ROWs on CB-2 discussed in Section 3.6 above (see Table 3.6-1 *Rights-of-Way on Selected Lands* in Appendix G), these parcels are undisturbed from their natural state. Alterations from the natural condition include roads that provide access to recreation areas and other areas of interest, and mineral exploration on adjacent lands and within these parcels. This landscape consists of varying topography, from vegetation-covered hills to exposed rock outcroppings. Color, texture, and line contrast is evident in this area. All Copper Butte/Buckeye **Selected Lands** parcels inventoried as VRI Class II (see Table 3.6-3 *Visual Resource Inventory Summary by Parcel* in Appendix G). KOP 2 depicts a typical view from North Battle Axe Road, facing westerly; the predominant views in this area are accessible primarily from Battle Axe Road (see Appendix F, Figure 3.6-3 *KOP 2—view from North Battle Axe Road, facing west*). VRM classes have not been established through the RMP planning process.

Parcel CB-1 and other Copper Butte parcels are inventoried as having high visual resource value (VRI Class II) due to their high scenic quality, moderate to high visual sensitivity, and visibility in the foreground from the Rincon Road, travel routes in the White Canyon Wilderness, and Arizona Trail (see Figure 4.6-1 *Arizona Trail viewshed analysis* in Appendix F). A portion of CB-1 is projected as a “long-range prospect” foreseeable use and could be used in the future to develop expanded mining operations in the Copper Butte area. Depending on where the mining operations occur, the visual contrast of the disturbance is likely to be noticeable and attract attention due to changes in local landforms, vegetation cover, and potential placement of structures, causing degradation of existing visual resource values.

Chilito/Hayden Parcels. All of the Chilito/Hayden parcels have been disturbed from their natural state and include modifications such as roads and mines. The parcels are also adjacent to industrial use lands. CH-5 is southwest of Hayden and consists of a flat landscape with sparse desertscrub vegetation and some roadway modification. The inventory for the area around parcels CH-1, CH-2, CH-3, and CH-4 is VRI Class II due to the well-screened, low impact of the existing mining disturbance on views from the viewing platforms/locations considered in the VRI. Parcel CH-5 inventoried as VRI Class III, and its visual quality is affected by the existing tailings storage facility adjacent to it (see Table 3.6-3 in Appendix G). The Safford RMP designations for all of the Chilito/Hayden parcels is VRM Class III, Partial Retention of the landscape character (management activities should remain subordinate to the existing landscape character).

Casa Grande Parcels. The Casa Grande parcels only contain federal mineral estate; the surface is previously disturbed from agricultural uses. These parcels are adjacent to agricultural lands and consist of retired agricultural lands. The Lower Sonoran RMP designated the parcels as VRM Class IV (maximum modification is allowable).

3.6.2.2 OFFERED LANDS

Land Use

Land Ownership and Management of Surrounding Public Lands

Gila River at Cochran Parcel. This parcel is located in Pinal County, with the southern half (160 acres) fully owned (surface and mineral) by ASARCO and the northern half (160 acres) a split estate, that is, ASARCO owns the surface and BLM owns the mineral estate. The lands surrounding the parcel are owned by the U.S. Bureau of Reclamation but managed by the BLM Tucson Field Office under the Phoenix RMP. The management of the BLM lands around the Gila River at Cochran parcel are unchanged from the FEIS.

The Phoenix RMP designated the lands that include the Gila River at Cochran parcel as part of the White Canyon RCA. The management objectives for the White Canyon RCA are to retain and intensively manage all public land and to work toward acquiring state and private parcels with resource values that would benefit from public ownership. Acquisition of state and private parcels to consolidate public ownership within the RCA would take place only at the consent of the ASLD or the affected private landowner. The parcel is also located within the Middle Gila Cultural Resource Management Area and contains a segment of the Gila River Riparian Management Area.

Knisely Ranch Parcel Group. This parcel group consists of three parcels (160 acres) located in Mohave County, within the jurisdictional boundary of the BLM Kingman Field Office. The parcels are inholdings within the Mount Tipton Wilderness. Parcel numbers 1 (40 acres) and 3 (40 acres) are fully owned by ASARCO. Parcel number 2 (80 acres) is a split estate: ASARCO owns the surface and the mineral rights are owned by the BLM. The public lands surrounding the parcel group continue to be managed under the Kingman RMP. The management of these lands remains unchanged from the FEIS.

Tomlin Parcel Group. This parcel group consists of three parcels (313.8 acres) located in Mohave County within the jurisdictional boundary of the BLM Kingman Field Office. All three parcels are split estate: ASARCO owns the surface and BLM owns the mineral estate. The lands surrounding the parcel group include privately owned lands, and public lands managed under the Kingman RMP. The management of these lands are unchanged from the FEIS.

Sacramento Valley Parcel. This parcel (120 acres) is located in Mohave County and is a split estate: ASARCO owns the surface and BLM owns the mineral estate. The lands surrounding the parcel are owned by the BLM and private owners. The BLM lands surrounding the parcel continue to be managed under the Kingman RMP and remain unchanged from the FEIS. This parcel would fall within the jurisdictional boundary of the BLM Kingman Field Office.

McCracken Mountain Parcel Group. This parcel group (6,384 acres) consists of 10 parcels in Mohave County that are fully owned (surface and mineral) by ASARCO. The lands surrounding the parcel group are owned by the BLM and the State of Arizona. The BLM lands surrounding the parcel group continue to be managed under the Kingman RMP and remain unchanged from the FEIS. This parcel group would fall within the jurisdictional boundary of the BLM Kingman Field Office.

Land use parcel information (including land ownership) for the **Offered Lands** is provided in Appendix G, Table 3.6-8, *Detailed Parcel Information for the Offered Lands*.

Rights-of-Way

No new ROWs on the **Offered Lands** have been granted since the issuance of the 1999 FEIS. Existing ROWs include unimproved roads, railroad segments, a gas pipeline, and the Gila River and its subsidiaries and any canals. Table 3.6-4 *Current Rights-of-Way on the ASARCO Offered Lands* in Appendix G provides information about the ROWs on the **Offered Lands**.

Grazing

Grazing conditions on the **Offered Lands** are described on pages 3-79 to 3-84 of the FEIS. Grazing occurs on the Gila River at Cochran Parcel, and grazing occurs on the **Offered Lands** from surrounding land, as they are all included within grazing allotments. Where there are no fences, corrals, or natural barriers, livestock is assumed to graze on the **Offered Lands**, in accordance with existing laws and regulations. Table 3.6-5 *Status of Grazing Allotments for Offered Lands (Adjacent Allotments)* in Appendix G provides the grazing status for allotments adjacent to the **Offered Lands** parcels.

Visual Quality

Visual resource inventory (VRI) classes are applied across the landscape, regardless of ownership/management, but VRM designations are not applied to private lands; therefore, BLM has not prescribed VRM classifications for these lands. The BLM Tucson Field Office VRI (including the project area) was completed in 2017; the **Offered Lands** were included in BLM Kingman Field Office VRI classification. VRI information for the **Offered Lands** is presented in Table 3.6-6 *Visual Resource Inventory Summary by Parcel* (see Appendix G). Changes to

human-made visual quality outside BLM-administered lands are not subject to prescribed VRM guidelines or standards.

The Gila River at Cochran parcel is bisected by the Gila River and a railroad corridor. The White Canyon Wilderness lies approximately 5 miles northeast of the Cochran parcel and is designated VRM Class I. The parcel inventoried as VRI Class II on the river corridor, and Class III on the upland south of the Gila River (see Table 3.6-6 *Visual Resource Inventory Summary by Parcel* in Appendix G).

The Sacramento Valley parcel abuts the north boundary of the Warm Springs Wilderness and affords views of the Mount Nutt Wilderness to the north. BLM lands (including the Warm Springs Wilderness) surrounding the Sacramento Valley parcel are designated VRM Class I (BLM 1995). The Sacramento Valley parcel inventoried as VRI Class IV (see Table 3.6-6 *Visual Resource Inventory Summary by Parcel* in Appendix G).

The Tomlin parcels abut BLM land between 7 and 9 miles north of the Arrastra Mountain Wilderness. The Big Sandy River bisects one of the three Tomlin parcels. BLM lands adjacent to the Tomlin parcels are mostly VRI Class IV, with a portion of Class III to the northeast of the parcels (BLM 1995). Two of the Tomlin parcels are VRI Class IV, while the parcel bisected by the Big Sandy River inventoried as VRI Class III (see Table 3.6-6 *Visual Resource Inventory Summary by Parcel* in Appendix G).

The McCracken Mountains parcels are within the McCracken Desert Tortoise Habitat ACEC, approximately 6 miles north of the Aubrey Peak Wilderness. The BLM VRM prescription for adjacent lands is VRM Class IV (BLM 1995). These private parcels are classified as VRI Class IV (see Table 3.6-6 *Visual Resource Inventory Summary by Parcel* in Appendix G).

The Knisely Ranch parcels are surrounded by the Mount Tipton Wilderness. The BLM prescription for Mount Tipton Wilderness is VRM Class I (BLM 1995). The parcels are classified as VRI Class II (see Table 3.6-6 *Visual Resource Inventory Summary by Parcel* in Appendix G).

3.7 ACCESS AND RECREATION

The FEIS discusses access and recreation in Section 3.2.4.3, pages 3-43 through 3-49 (**Selected Lands**) and Section 3.3.4, pages 3-79 to 3-84 (**Offered Lands**).

Access, for the purposes of this Final SEIS, is defined as physical access routes that provide road or trail ingress or egress (to and across) an area. Public access routes are roads and trails that are open to public use. Legal access includes ROWs, claims, or easements and is discussed in Section 3.6, Land Use. Recreation, as an activity and resource, provides users with opportunities, settings, and experiences that vary widely, from off-highway vehicle (OHV) use to camping, hiking, biking, hunting, and wildlife viewing, to name only a few of the more popular forms.

3.7.1 Changes in Applicable Regulations or BLM Policies

BLM developed guidance for recreation and visitor services in the form of BLM Manual Section MS-8320 – *Planning for Recreation and Visitor Services* (BLM 2011) and BLM Handbook

H-8320-1 – *Planning for Recreation and Visitor Services* (BLM 2014a). These documents provide direction and new policy for incorporating outcome-focused management within the recreation and visitor services program at the land use planning and implementation levels.

Secretarial Order (SO) 3347 *Conservation Stewardship and Outdoor Recreation* (03/2/2017). This SO required the completion of two reports so that the U.S. Department of the Interior could identify specific actions to expand access for hunting, fishing, and recreational shooting activities; improve coordination with States; improve habitat for fish and wildlife; manage predators effectively; and facilitate greater public access to U.S. Department of the Interior lands. SO 3347 is considered for the recreation and access analysis, particularly in understanding how public motorized routes may be impacted.

SO 3356 *Hunting, Fishing, Recreational Shooting and Wildlife Conservation Opportunities and Coordination with States, Tribes and Territories* (01/15/17). This SO directs bureaus and offices within the U.S. Department of the Interior, in collaboration with States, Tribes, and territorial partners, to implement programs to enhance hunting, fishing, and recreational shooting opportunities on U.S. Department of the Interior–managed lands and waters, while also promoting conservation activities. SO 3356 is considered for the recreation and access analysis, particularly in understanding how hunting may be affected by the land exchange.

SO 3366 *Increasing Recreational Opportunities on Lands and Waters Managed by the U.S. Department of the Interior* (04/18/18). This SO directs certain agencies to create a plan that develops new, or increases and expands existing, recreational opportunities that are consistent and comply with all applicable laws and regulations and provides recommendations for improving and streamlining relevant permitting requirements for guides and outfitters and facilitated outdoor recreation providers.

Middle Gila Canyons Transportation and Travel Management Plan. The BLM Tucson Field Office manages transportation and travel within the **Selected Lands** under the *Middle Gila Canyons Transportation and Travel Management Plan* (Middle Gila Canyons TMP) (BLM 2010b), which did not exist in 1999. The Middle Gila Canyons TMP is limited to recreational and transportation use decisions. The Middle Gila Canyons TMP identifies the travel routes essential for access to public lands for administrative purposes and public use and establishes route designations for motorized vehicle use pursuant public land regulations at 43 CFR § 8340, BLM Manual Section MS-1626, and Handbook H-8342.

The Middle Gila Canyons TMP states: “Access routes across BLM-administered lands planned to be conveyed to ASARCO will be closed to public use at the time the land exchange is implemented, except for Battle Axe and Rincon Roads” (BLM 2010b: Map3).

Arizona National Scenic Trail. The Arizona Trail was designated as a National Scenic Trail on March 30, 2009, by the Omnibus Public Land Management Act of 2009. Since 1999, the Arizona Trail has been developed through the project area. The Arizona Trail is both a recreation resource and a special management area and is discussed in more detail in Section 3.8 Wilderness Resources/Special Management Areas.

3.7.2 Changes in Environmental Conditions since the FEIS

While recreation opportunities and legal public access to and across the **Selected Lands** have not changed, public use has increased since the issuance of the FEIS.

BLM conducted traffic counts at three different areas along Battle Axe Road: 1) Battle Axe Road at SR 177, 2) Battle Axe Corral, and 3) Rincon Road. All traffic counts were conducted during multiple intervals, except for Battle Axe Corral, which was only conducted once. The traffic counts were conducted between December 2008 and April 2012 to determine the levels of use. These traffic counts are summarized in Table 3.7-1 *BLM Traffic Counter Sampling along Battle Axe Road* in Appendix G. Based on the total counts provided in Table 3.7-1 in Appendix G, use of Battle Axe Road has increased since 1999. The recreation experiences and opportunities have expanded with the increase in OHV use along Battle Axe Road.

Table 3.7-2, below, describes the BLM routes that intersect with the **Selected Lands**.

Figure 3.7-1 *Recreation in the vicinity of Copper Butte/Buckeye Selected Lands* (in Appendix F) shows the BLM routes that intersect with the **Selected Lands**.

Table 3.7-2. BLM Routes Intersecting with Selected Lands

Route No.	Total Distance (miles)	Use Level			Surface Material				Observed Uses
		Light	Heavy	Non-Existent	Soil	Sand	Graveled/Rock	Unspecified	
Unnamed routes	11.2	4.9	4.4	1.9	2	0.9	6.8	1.5	4WD, ATV, motorcycle, equestrian
6174	0.8	0.8	0	0	0.8	0	0	0	4WD, ATV
6180 (Battle Axe Road)	10.0	8.4	1.6	0	0.5	0	6.3	3.2	2WD, 4WD, equestrian, hiking, motorcycle
6181	6.4	6.2	0.2	0	0	0	4.8	1.6	4WD, ATV, Equestrian
6182	2	1.7	0.1	0.2	0	0	1.5	0.5	4WD, ATV, equestrian, motorcycle
6183	0.4	0.4	0	0	0	0	0.4	0	4WD, ATV, motorcycle
Total	30.8	22.4	6.3	2.1	3.3	0.9	19.8	6.8	

Source: BLM Middle Gila Canyons TMP (2010b)

Ray Mine Complex. Since parcel RM-18 is no longer proposed for tailings but is now designated Buffer, implementation of foreseeable mining use on parcel RM-18 may not alter the physical public access to this parcel and to adjacent public lands (as stated in the FEIS). The existing Kane Canyon Spring Road crosses private land and lacks legal public access. There are no visitation data available for Kane Springs Canyon. No designated recreation sites or designated trailheads exist at Kane Springs Canyon. No other changes to the Ray Mine Complex parcels that pertain to access and recreation issues have occurred.

Copper Butte/Buckeye. Recreation use in the Copper Butte/Buckeye area has intensified since the issuance of the FEIS. The recreation experiences that are pursued on the public lands surrounding the Copper Butte/Buckeye parcels include backcountry driving for pleasure, OHV use, hiking, backpacking, camping, hunting, picnicking, wildlife viewing, and geology student field study trips. Dispersed recreation in the Copper Butte/Buckeye area is highly dependent on access via Battle Axe Road and a network of unimproved roads.

The **Arizona Trail** Passage #16 is located south and west of the Copper Butte/Buckeye parcels, and is illustrated in Figure 3.7-1 *Recreation in the vicinity of Copper Butte/Buckeye Selected Lands* in Appendix F.

Access at the Copper Butte/Buckeye parcels has not changed from the issuance of the FEIS. ASARCO controls access on Walnut Canyon Road, which connects Battle Axe Road and Rincon Road, and there is no legal public access on a short section north of the Pinal County ROW west of the Battle Axe corrals, approximately 2 miles from SR 177. Legal access can be gained from Battle Axe Road to the eastern part of the White Canyon Wilderness using an OHV route that bypasses the section of Rincon Road across ASARCO property. The FEIS assumes that there would be changes to the recreation opportunities on parcels CB-1, CB-2, CB-3, CB-4, and CB-5 since access and dispersed recreation would no longer be available in some areas of the White Canyon RCA, depending on the configuration of mining operations. Since 1999, ASARCO has purchased the surface estate from the on the ASLD.

The Walnut Canyon Road segment across ASARCO's private land in Walnut Canyon lacks legal public access (adjacent to **Selected Lands** parcel CB-3). However, users continue to utilize this road. Walnut Canyon Road provides the most direct motorized route to the White Canyon Trail, but there is no legal access across ASARCO's private land in Walnut Canyon. Users in these areas include primarily 4-wheel-drive (4WD) trucks and sport-utility vehicles (SUVs), high-clearance and modified 4WD vehicles, all-terrain vehicles (ATVs) and utility terrain vehicles (UTVs), and off-road motorcycles. From SR 177 to the Battle Axe corrals, users may include trailer combination vehicles, towing ATVs and UTVs, and non-highway licensed modified vehicles. The BLM constructed a small staging area along Battle Axe Road near the SR 177 intersection to provide temporary parking for accommodating recreational visitors' staging activities (trailer loading/unloading) and visitor information. Traffic levels overall have been increasing over the past 10 years (BLM 2012d). No other changes to the Copper Butte parcels that would result in different access and recreation issues from those described in the FEIS have occurred.

Offered Lands. The BLM has maintained two public parking areas and one trailhead on the western, northern, and eastern boundaries of the Mount Tipton Wilderness since 1999 (personal communication, A. Deeds, BLM Outdoor Recreation Planner, 2012). Each of these three public access points provides a visitor registry kiosk that BLM Kingman Field Office staff use for annual visitation numbers. Public access is not permitted on the privately owned Knisely Ranch parcels; nonetheless, the visitation data to the Mount Tipton Wilderness represent the only available access data to lands adjacent to the Mount Tipton Wilderness (see Table 3.7-3 *Mount Tipton Wilderness Visitation Data since 1997* in Appendix G).

3.8 WILDERNESS RESOURCES/SPECIAL MANAGEMENT AREAS

The FEIS discusses wilderness resources/special management areas in Section 3.2.4.7, page 3-58 to 3-59 (**Selected Lands**) and Sections 3.3.4.1 through 3.3.4.5, pages 3-79 to 3-84. Wilderness characteristics are discussed below in Section 3.9.

Wilderness resources include designated wilderness areas and Wilderness Study Areas (WSAs). Wilderness resources, for the purposes of this Final SEIS, include the areas that have been Congressionally-designated as Wilderness: the White Canyon Wilderness adjacent to the **Selected Lands**, and the Mount Tipton Wilderness and Warm Springs Wilderness adjacent to the **Offered Lands**. The Knisely Ranch parcels are inholdings within the Mount Tipton Wilderness.

Special Management Areas (SMAs) include public lands that have been identified in BLM's National Landscape Conservation System, including national monuments, national conservation areas, wilderness areas, WSAs, Wild and Scenic Rivers, and national historic or scenic trails. There are no national monuments, national conservation areas, WSAs, or Wild and Scenic Rivers included in the proposed land exchange. SMAs not part of the National Landscape Conservation System include ACECs, Resource Management Areas, and other administrative designations established by BLM District or Field Office decisions. ACECs within the affected environment include the White Mountain ACEC and the McCracken Desert Tortoise Habitat ACEC. The Gila River at Cochran parcel is within the Middle Gila River Cultural Resource Management Area. The McCracken parcels are inholdings within the McCracken Desert Tortoise Habitat ACEC.

3.8.1 *Changes in Applicable Regulations or BLM Policies*

Wilderness Management. New policies have been developed for wilderness and SMAs since the issuance of the FEIS. In 2000, the BLM released the Wilderness Management Final Rule at 43 CFR §§ 6300 and 8560 (BLM 2000b). These regulations explain 1) what wilderness areas are, 2) how BLM manages them, and 3) how the public can use them. The regulations also explained what activities BLM would not allow in wilderness areas, the penalties for doing prohibited acts, and the special provisions for some uses and access. In 2012, the BLM released manuals for management of wilderness and WSAs (BLM 2012e).

Arizona Trail. A statewide trail corridor management plan is being prepared to define the nature and purposes for trail segments. The plan also specifies that no federal lands within the 1-mile-wide Arizona Trail planning corridor would leave federal ownership, and no lands within the corridor would be reconveyed (U.S. Forest Service 2017). In 2012, the BLM released manuals for the management of national trails (BLM 2012c, 2012f, 2012g).

3.8.2 *Changes in Environmental Conditions since the FEIS*

No new wilderness areas, WSAs, or SMAs have been designated within or adjacent to either the **Selected Lands** or the **Offered Lands** since the issuance of the FEIS.

Arizona Trail. The BLM is the trail manager for Arizona Trail Passage #16. Since the FEIS, construction of Passage #16 was completed, avoiding all the **Selected Lands** parcels.

3.9 WILDERNESS CHARACTERISTICS

The FEIS did not describe wilderness characteristics. Federal lands that possess the tangible qualities of a wilderness but that have not been designated a wilderness by an act of Congress may be managed to maintain the wilderness characteristics.

3.9.1 *Changes in Applicable Regulations or BLM Policies*

BLM is required to maintain wilderness resource inventories on a regular and continuing basis for public lands under its jurisdiction. FLPMA Section 201 directs the BLM to maintain an inventory of lands that may contain wilderness characteristics, and to protect wilderness characteristics through land use planning and project-level decisions, unless the BLM determines that projects within lands managed to maintain wilderness characteristics are appropriate and consistent with other applicable requirements of law and other resource management considerations. In 2012, the BLM released manuals for inventory and management of wilderness characteristics (BLM 2012h, 2012i).

3.9.2 *Changes in Environmental Conditions since the FEIS*

No lands with wilderness characteristics had been identified in the project area prior to the FEIS. BLM-administered lands that surround the Ray Mine Complex including the **Selected Lands** were inventoried for potential wilderness characteristics in 2013 and 2014 (BLM 2014b). These inventoried areas are referred to as wilderness characteristics inventory units. Only BLM lands were inventoried for lands with wilderness characteristics.

The wilderness inventory resulted in the identification of one new wilderness characteristics inventory unit: the 5,287-acre Granite Mountain unit. The Granite Mountain unit consists of BLM lands bounded by SR 177 on the east, Battle Axe Road on the north, the Arizona Public Service transmission line ROW on the west, and the Copper Basin Railway on the south (see Appendix F, Figure 3.7-1 *Recreation in the vicinity of Copper Butte/Buckeye Selected Lands*). The **Selected Lands** comprise 22% of the unit, including approximately 1,293 acres out of the total 1,309 acres of parcel RM-17 and approximately 316 acres out of the total 612 acres of parcel CB-2.

The wilderness characteristics inventory unit was found to possess the wilderness characteristics of naturalness; outstanding opportunities for solitude and primitive, unconfined recreation (for example, hunting, camping, hiking, wildlife viewing, water-based recreation, and equestrian recreation opportunities); and contains supplemental values such as the Arizona Trail (located in the southern portion of the unit, the Gila River riparian and aquatic habitat, cultural resources related to historic mining, and the natural character of the unit. However, the opportunities for solitude and wilderness were noted as being reduced on the southern part of the unit due to the use and activity of the Arizona Trail, the ranching and residential activity on adjacent lands, train traffic on the Copper Basin Railway, and the vehicle traffic on the Florence-Kelvin Highway. Additional reductions in the wilderness characteristics of the unit include the presence of a nearby power line and ASARCO's Ray Mine (BLM 2014b).

There have not been any inventories for wilderness characteristics on the **Offered Lands** since they are not administered by the BLM.

3.10 CULTURAL AND HERITAGE RESOURCES

The FEIS discusses cultural resources in Section 3.2.5, pages 3-59 through 3-62 (**Selected Lands**) and Section 3.3.5, pages 3-85 to 3-86 (**Offered Lands**). Cultural resources found in the analysis area include historic properties (archaeological sites and traditional cultural properties) and places of traditional importance to American Indians. Archaeological sites may include prehistoric, historic, or contemporary activity.

3.10.1 *Changes in Applicable Regulations or BLM Policies*

3.10.1.1 NATIONAL HISTORIC PRESERVATION ACT

Title 36 CFR Part 800, Protection of Historic Properties, guides federal agencies' compliance with the National Historic Preservation Act (NHPA). The NHPA Section 106 establishes a process for assessing and mitigating adverse effects to "historic properties" from federal undertakings. Historic properties have a legal definition that is narrower than "cultural resources." Historic properties are any prehistoric or historic district, site, buildings, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places (NRHP). Under Section 106, if adverse effects to historic properties cannot be avoided, the lead federal agency enters into an agreement with potentially affected and interested parties describing how the adverse effects will be addressed. When adverse effects to historic properties have been "resolved" by avoidance, minimization, or mitigation, NHPA Section 106 compliance is concluded.

The regulations were revised in 2000 and 2004. The 2000 revisions were intended to "remove operational impediments in the process," emphasized the importance of public involvement, determined that data recovery is an adverse effect, and clarified terms and provisions. The 2004 revisions were intended to clarify the role of the Advisory Council on Historic Preservation (ACHP 2004). In 2014, the NHPA's provisions were moved from USC title 16 to USC title 54. This move included non-substantive text changes and some re-ordering of provisions. Details of these revisions are provided in Appendix H.

3.10.1.2 BUREAU OF LAND MANAGEMENT POLICIES

In 2004, the BLM issued a series of revised manual sections detailing BLM policies and procedures regarding cultural resources:

- MS-8100 – *The Foundations for Managing Cultural Resources* (BLM 2004a) provides general information for managing cultural resources to establish a uniform BLM process for meeting the requirements of applicable laws, regulations, and policies.
- MS-8110 – *Identifying and Evaluating Cultural Resources* (BLM 2004b) provides direction for identifying, categorizing, and allocating cultural resources on BLM land.
- MS-8120 – *Tribal Consultation under Cultural Resources* (BLM 2004c) provides policy direction regarding American Indians and Alaska Natives under the applicable cultural resources laws, regulations, and policies.
- MS-8130 – *Planning for Uses of Cultural Resources* (BLM 2004d) addresses the amount of information that is needed to craft land use plans that deal with cultural resources.

- MS-8140 – *Protecting Cultural Resources* (BLM 2004e) provides direction for the protection of cultural resources from natural and human-caused deterioration and inadvertent adverse effects, for decision-making regarding the management of threatened resources, and for managing unauthorized access to resources.
- MS-8150 – *Permitting Uses of Cultural Resources* (BLM 2004f) gives procedures for authorizing the use of cultural resources and on administering permits for accessing or identifying cultural resources.
- MS-8170 – *Interpreting Cultural Resources for the Public* (BLM 2004g) provides guidance for public outreach and interpretation of cultural resources.

3.10.1.3 NATIVE AMERICAN GRAVES PROTECTION AND REPATRIATION ACT

Title 43 CFR § 10 Subpart B, Human Remains, Funerary Objects, Sacred Objects, or Objects of Cultural Patrimony from Federal or Tribal Lands, guides federal agencies' compliance with the Native American Graves Protection and Repatriation Act (NAGPRA). NAGPRA Section 10.4 establishes the process that a federal agency must comply with should human remains, funerary objects, sacred objects, or objects of cultural patrimony be inadvertently discovered. All federal authorizations must include a requirement that the holder of an authorization must immediately notify the appropriate federal official, who will then execute a NAGPRA action plan that complies with Sections 10.4–10.7. An action plan will include provisions to cease activity, secure the discovery, contact appropriate tribal officials, establish tribal consultation, and transfer custody of discovered remains or objects or dispose of unclaimed remains and objects.

ARS § 41-865, Disturbing human remains or funerary objects; rules; violation; classification; definitions, guide private landowners' compliance with human remains and funerary objects. Private landowners in the state of Arizona are required to follow State requirements for the protection of Native American human remains and funerary objects. Landowners conducting activities with a reasonable expectation that human remains may be discovered are required to work with the Arizona State Museum Repatriation Office on the creation of a Burial Agreement to respectfully treat discoveries and define a process to determine custody, repatriation, and ultimate disposition of the discovery. Landowners who inadvertently discover remains must notify the Director of the Arizona State Museum, who will oversee a consultation with appropriate cultural groups and the scientific community to determine status and disposition of the discovery. These inadvertent discoveries are not allowed to be moved or otherwise disturbed without written permission of the Director of the Arizona State Museum.

3.10.2 Changes in Environmental Conditions since the FEIS

3.10.2.1 SELECTED LANDS

Archaeological Resources

The **Selected Lands** were surveyed for the FEIS in the 1990s. BLM recommends, and Arizona State Historic Preservation Office (SHPO) policy requires, archaeological work completed over 10 years ago to be reviewed to determine if the work is still valid. In 2014, the **Selected Lands** survey was reviewed, including a sample survey and re-evaluation of all previously identified NRHP-eligible sites, rock art sites, and selected NRHP-ineligible sites. The sample survey

identified additional sites, could not locate other sites, and recommended additional review of the NRHP status of several sites. In addition, it was found that two sites had been unintentionally destroyed as a result of mining or ranching activity. The review deemed the majority of the data reliable. However, four parcels (CB-1, CB-2, CB-3, and CH-5) were recommended for complete resurvey. After the resurvey was complete, SHPO requested that any “undetermined” sites be subjected to NRHP-eligibility testing in order to resolve any issues with their NRHP eligibility recommendations.

As a result of the fieldwork, 40 previously unrecorded archaeological sites were identified, three sites which were previously not eligible were determined eligible for the NRHP, two sites which were previously eligible were determined not eligible for the NRHP, one previously not eligible site was determined to not be a site at all, and one eligible site could not be found. The 40 newly identified sites may not have been recorded during the 1990s surveys because:

- several would not have been defined as sites under 1990s survey standards, but are defined as sites under current survey standards;
- some date to the mid-twentieth century and would not have met the 50-year-old age cut-off for historic sites; and
- some are located in a parcel that may not have actually been surveyed due to the difficulty of locating the parcel in a large open bajada without GPS technology.

In total, 92 sites have been recorded on the **Selected Lands**. Of these, the BLM determined 57 sites eligible for the NRHP (that is, are historic properties), with concurrence from the SHPO. Recorded sites included prehistoric habitations (open air, caves, and rockshelters), prehistoric artifact scatters, prehistoric agricultural sites, prehistoric rock art sites, historic mining sites, historic ranching sites, and historic roads and trails. Table 3.10-1 below provides a comparison of the fieldwork findings from the FEIS and Final SEIS.

Table 3.10-1. Cultural Resources Fieldwork Comparison of Findings, FEIS and Final SEIS

Parcel Group	Number of Sites Recorded		Number of NRHP-eligible Sites	
	FEIS	Final SEIS	FEIS	Final SEIS
Ray Mine	30	34	21	19
Copper Butte	23	53	20	35
Chilito/Hayden	0	4	0	3
Case Grande	1	1	0	0
Total	54	92	41	57

Places of Traditional Cultural Significance

For American Indians, the landscape is composed of places that are of “traditional religious or cultural importance” (NHPA [15 USC 306108]). Some of these places are considered by tribes and federal agencies to be traditional cultural properties (TCPs), which may be eligible for the NRHP. TCPs are places that are connected to “those beliefs, customs, and practices of a living community of people” (Parker and King 1998). TCPs generally embody values, beliefs, or

practices that are widely shared within the group and have been passed down through generations. In addition, as part of the tribal consultation process, the BLM and other federal agencies routinely seek to determine whether any areas of natural resources important to Native peoples are present in the analysis area.

During consultation, the following tribes expressed ancestral ties to the area: the Four Southern Tribes (Tohono O'odham Nation, Gila River Indian Community, Salt River Pima-Maricopa Indian Community, and Ak-Chin Indian Community), The Hopi Tribe, White Mountain Apache Tribe, San Carlos Apache Tribe, Tonto Apache Tribe, Hualapai Tribe, and Yavapai-Prescott Indian Tribe.

Traditional Cultural Properties

The Four Southern Tribes have identified two rock art sites in parcel CB-4 as traditional cultural properties.

Places of Traditional Cultural Significance

The Hopi Tribe has identified one isolated occurrence and two archaeological sites in parcel CB-2 as being places of traditional cultural significance.

Natural Resources Important to American Indians

Natural resources important to American Indians include plant, animal, and mineral sources. Travel routes to resources through the general area of the analysis area were mentioned as important during tribal consultation. Natural resources important to American Indians identified within the analysis area include two springs in the Copper Butte area.

3.10.2.2 OFFERED LANDS

Archaeological Resources

On the **Offered Lands** parcels, there are no changes in the affected environment for archaeological resources. The only parcel that has been surveyed is Gila River at Cochran parcel. Eight sites have been recorded on the Gila River at Cochran parcel. Though not officially surveyed, three roasting pits are noted on Tomlin parcel No. 4. The FEIS (page 3-85) notes the presence of permanent springs indicate a likelihood of cultural resources on the Knisely Ranch parcels.

Places of Traditional Cultural Significance

No additional information has been supplied by the consulting tribes; therefore, there are no changes in the affected environment for places of traditional cultural significance.

3.11 SOCIOECONOMIC CONDITIONS

The FEIS discusses socioeconomic conditions in Section 3.2.6, pages 3-62 through 3-65 (**Selected Lands**) and Section 3.3.6, pages 3-86 to 3-87 (**Offered Lands**).

Socioeconomic issues identified during the scoping process for the FEIS (see Table 1-6 of the FEIS) are discussed with updated socioeconomic data and analyzed in terms of any changes to applicable regulations or BLM policies regarding socioeconomics. The study area for socioeconomic conditions includes the counties in which the Proposed Action and action alternatives are located: Gila, Pinal, and Mohave Counties. As in the FEIS, the discussion of socioeconomics is split between the **Selected** and **Offered Lands** when applicable.

3.11.1 *Changes in Applicable Regulations or BLM Policies*

Nonmarket Environmental Values. Since 1999, the BLM has developed guidance for estimating nonmarket environmental values (IM 2013-131 Change 1), which includes “Guidance on Estimating Nonmarket Environmental Values” (BLM 2013a). Nonmarket environmental values reflect the benefits individuals attribute to experiences of the environment, uses of natural resources, or the existence of particular ecological conditions that do not involve market transactions and therefore lack prices. Examples include the perceived benefits from hiking in a wilderness or fishing for subsistence rather than commercial purposes.

3.11.2 *Changes in Environmental Conditions since the FEIS*

The socioeconomic setting for the Proposed Action and action alternatives remains unchanged since the issuance of the FEIS. Within the study area, there are 21 communities: Kearny, Superior, Globe, Miami, Claypool, Central Heights, Midland City, the San Carlos Apache Reservation, Casa Grande, Florence, Apache Junction, the Gila River Indian Reservation, Mammoth, Dudleyville, Oracle, San Manuel, Hayden, Winkelman, Chloride, Kingman, and Lake Havasu City. Socioeconomic data are presented by the county (Gila, Pinal, and Mohave Counties) within which these communities are located.

3.11.2.1 POPULATION AND DEMOGRAPHICS

Updated population and demographic data for the counties within the study area are provided below using the U.S. Census Bureau American Community Survey 5-Year Estimates, 2012–2016 (see Tables 3.11-1 through 3.11-3 below).

Table 3.11-1. Population for Counties within the Study Area (2016)

Geography	2016 Population	% Change from 1999 to 2016
Pinal County	397,604	242%
Gila County	53,179	32%
Mohave County	203,629	118%

Environmental Justice

Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, requires that environmental analyses of federal actions address any disproportionately high and adverse human health or environmental effects on minority, low-income, and Tribal communities. The definition for a *minority* population used in this Final SEIS is similar to the FEIS. However, in the FEIS, low-income populations were

assessed by examining the average residential property value per student for school districts in the study area, which differs from what the U.S. Census Bureau uses to define low-income level. This Final SEIS uses the U.S. Census Bureau's accepted definition for *low-income* population. Updated demographics for the counties within the study area are provided in Tables 3.11-2 and 3.11-3 using the U.S. Census Bureau American Community Survey 5-Year Estimates, 2012–2016.

Table 3.11-2. Racial and Ethnicity Data for the Study Area (2016)

Geography	% Race						% Ethnicity		
	White Alone	Black/African American	American Indian Alone	Asian Alone	Native Hawaiian/Other Pacific Islander	Some Other Race	Two or More Races	Hispanic or Latino	White Alone (Not Hispanic or Latino)
Arizona	77.8%	4.3%	4.4%	3.1%	0.2%	7.0%	3.3%	30.5%	56.1%
Pinal County	80%	4.6%	5.3%	1.8%	0.3%	5.1%	2.9%	29.2%	57.9%
Gila County	78.6%	0.6%	15.5%	0.8%	0.0%	1.9%	2.6%	18.5%	63.2%
Mohave County	89.6%	1.0%	2.1%	1.3%	0.1%	3.2%	2.7%	15.7%	78.3%

Table 3.11-3. Poverty Level Data for the Study Area (2016)

Geography	% Individuals Below Poverty Level
Arizona	17.7%
Pinal County	16.5%
Gila County	21.2%
Mohave County	19.3%

BLM guidance (BLM 2005) states that a minority population is present when 50% or more of the people in a defined geographic area are minorities, or when the minority population of a defined geographic area is “meaningfully greater” than that of the surrounding geographic area (that is, reference area). A low-income population is present if the poverty rate of a defined geographic area is meaningfully greater than the poverty rate of the reference area. The BLM recommends using 10 percentage points as the threshold of “meaningfully greater.”

These counties do not contain more than 50% of a minority population, and no county has greater than 10 percentage points of a minority or low-income population above that of the State of Arizona. Federally recognized Tribes resident in or near a planning area, however, are assumed to be environmental justice populations of concern, regardless of what percentage of the greater population they represent (BLM 2005). Tribes present within the study area include the San Carlos Apache Tribe, the Gila River Indian Community, and the Hualapai. Additional Tribes with interest in the project area include the Tohono O’odham and Hopi Nation. See Appendix I for a description of tribal correspondence.

Local and Regional Economy

The foreseeable uses of the **Selected Lands** for mining, mining support, or as buffer lands are the same under all of the alternatives, including the No Action Alternative, and remain nearly the same as conditions described in the FEIS, with the exception of changes related to the change in foreseeable uses of the Casa Grande parcels (see Section 2.1.12). Therefore, a reevaluation of the existing conditions for employment, income, and mineral output is not necessary in this Final SEIS. However, updated estimates for property taxes and payments in lieu of taxes (PILT) are discussed below.

Property Taxes

State property tax in Arizona, collected by county treasurers, is based on property value (ad valorem). Property tax is calculated on two different bases: the primary, or limited, value (that is, statutorily controlled value) and the secondary, or full cash, value (market value). The primary and secondary calculations for Pinal and Gila Counties and the total property tax for Mohave County are presented in Table 3.11-4 (Arizona Department of Revenue 2017).

Table 3.11-4. Property Taxes for the Study Area for 2017

Geography	Primary Property Tax (dollars)	Secondary Property Tax (dollars)	Total Property Tax (dollars)
Pinal County	86.6 million	6.8 million	93.4 million
Gila County	20.1 million	1.6 million	21.8 million
Mohave County	–	–	194.8 million

For the **Offered Lands**, \$9,626.50 in property taxes was collected for 2018 (\$7,163.06 to Mohave County and \$2,463.44 to Pinal County).

Payments in Lieu of Taxes

In 1976, because federal lands are not subject to the property taxes that support county governments and education,⁵ U.S. Congress directed federal land management agencies to allocate income to states and counties with federal lands by providing a PILT program to help offset missed tax revenues. U.S. Congress appropriates the PILT each year. The formula used to compute the PILT is contained in the Payment in Lieu of Taxes Act and is based on population, receipt sharing payments, and the amount of federal land within an affected county. Each county is subject to a population ceiling limitation on PILT payments (computed per the Payment in Lieu of Taxes Act) (U.S. Department of the Interior 2017).

In fiscal year 2017, Pinal County received \$1.3 million and Gila County received \$3.5 million (U.S. Department of the Interior 2017). This is an increase of more than 248% for Pinal County and more than 360% in Gila County, between 1996 and 2017. The ceiling for PILT payments in Gila County was nearly met in 2017 (approximately \$10,000 shy of the ceiling). Mohave County received \$3.5 million in 2017, a more than 130% increase from 1996. The ceiling for PILT payments in Mohave County was nearly met in 2017 (approximately \$10,000 shy of the ceiling).

⁵ Improvements on federal lands are subject to property taxes.

For the **Selected Lands**, \$17,701 was collected for 2018 by the counties in PILT payments.

Employment

Current employment level at the Ray Mine Complex parcel is approximately 1,400 employees, with the Copper Butte/Buckeye project employing an additional 48 employees (ASARCO 2018). An estimated 4,100 additional jobs are supported by the people that ASARCO employs (Arizona Mining Association 2011).

Income

Estimated annual average income from direct wages and salaries to employees at the Ray Mine Complex parcel is \$3.02 million/year. Business income for local suppliers is an estimated \$8.5 million at the Ray Mine Complex. From existing operations at the Ray Mine, current wage, income, and fringe benefits are estimated at \$140.8 million annually; total material and other local spending are estimated at \$347.5 million (ASARCO 2013).

Grazing and Recreation Economics

Grazing Economics

Section 3.6 and Table 3.6-2 *Status of Grazing for Selected Lands* (see Appendix G) describe grazing allotment acreages and AUMs on the **Selected Lands** that occur in Pinal and Gila Counties. Cattle ranching in Arizona is dependent on the use of public and private rangelands for grazing; these lands make up approximately 86% of 72.7 million acres in Arizona (University of Arizona 2007). Livestock production directly contributes approximately \$1.9 billion to the Arizona economy (Kerna and Frisvold 2014).

Within Pinal County, the total BLM grazing allotment acreage is 7,326 acres, out of the total 2,913,758 acres of grazing acreage available in Pinal County (U.S. Department of Agriculture [USDA] Natural Resources Conservation Service [NRCS] 2018). The market value of livestock, poultry, and their products sold contributed an estimated value of \$612,160,000 to the Pinal County economy (USDA National Agriculture Statistics Service [NASS] 2012).

The amount of grazing allotments within the **Selected Lands** in Gila County is 747 acres, out of the total 835,296 acres of rangeland in Gila County (USDA NRCS 2018). The market value of livestock, poultry, and their products sold contributed an estimated value of \$3,409,000 to the Gila County economy (USDA NASS 2012).

As discussed in Section 3.6, grazing is assumed to occur on the approximately 7,000 acres of **Offered Lands** in Mohave County and the 320 acres of **Offered Lands** in Pinal County. The total acreage of livestock grazing in Mohave County is 8,019,840 acres (USDA NRCS 2018), and the market value of livestock, poultry, and their products sold contributed an estimated value of \$9,394,000 to the Mohave County economy (USDA NASS 2012). Total acreage of livestock grazing and market value of livestock, poultry, and their products sold for Pinal County is discussed above.

Recreation Economics

Section 3.7 describes the existing conditions with respect to recreation on the **Selected Lands**. In general terms, dispersed recreation on public lands generates economic activity in the form of tourist spending. Arizona is a popular destination for outdoor recreation, with activities such as hiking, hunting, fishing, wildlife viewing, and OHV use among the most popular. According to studies by Arizona State University (ASU) and Southwick Associates, outdoor recreation such as fishing and hunting, OHV use, and wildlife viewing contributes millions of dollars to the economies of Arizona. In 2001, fishing and hunting resulted in \$20 million in expenditures in Pinal County and in \$39.4 million in Gila County (ASU 2001). For the same year, wildlife viewing resulted in \$50.9 million in expenditures in Pinal County and in \$11.5 million in Gila County (Southwick Associates 2003). In 2002, OHV use in Pinal County resulted in \$135.3 million in expenditures and in \$120.5 million in Gila County (ASU 2002).

As discussed in Section 3.7, recreation circumstances on the **Offered Lands** remain unchanged since the issuance of the FEIS. These parcels are privately owned, and no recreation uses are authorized on any of the **Offered Lands**. The Knisely Ranch parcels are inholdings within the Mount Tipton Wilderness, and the McCracken Mountains parcels are within the McCracken Desert Tortoise Habitat ACEC. Both the wilderness and ACEC provide opportunities for backcountry, dispersed recreation opportunities such as hunting, camping, and wildlife viewing.

CHAPTER 4

ENVIRONMENTAL EFFECTS

4.1 INTRODUCTION

This chapter discusses the anticipated environmental consequences of each alternative described in Chapter 2. The analysis provides a quantitative or qualitative comparison of impacts between alternatives and establishes the intensity and duration of those impacts in the context of the existing environment.

The analysis is based on resource information presented in Chapter 3 of the FEIS and this Final SEIS, and the foreseeable uses of the **Selected Lands** summarized in Table 4.1-1. The analysis here supplements the analysis in the FEIS. Only impacts that either have changed since the issuance of the FEIS or are not in the FEIS are discussed.

4.1.1 Assumptions

Assumptions listed in the FEIS are applicable to the Final SEIS:

1. Based on the information provided by ASARCO (see Appendix C), the foreseeable uses of the **Selected Lands** would be nearly the same 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 would result from implementation of the foreseeable uses.
4. Copper production rates are driven by market conditions and are independent of the No Action, Proposed, Buckeye Alternative, and Copper Butte Alternative.
5. In the absence of site-specific design criteria, for purposes of this analysis, surface land disturbance impacts are assumed to be as follows for the foreseeable use categories of the **Selected Lands**:
 - a. Production, Operation and Support Areas: 100% surface impacts on 2,213 acres⁶
 - b. Transition Areas: 25% surface impacts on 132 acres⁷
 - c. Long-Range Prospect Areas: surface impacts range from 25% –100%, or 423 to 1,692 acres.⁸

Some authorizations associated with the foreseeable uses, such as an MPO, modification to an existing MPO, or other surface use authorization for the **Selected Lands** under the No Action Alternative, would require additional analysis and disclosure of environmental impacts to all affected resources before a decision is made. As part of any future analysis, the BLM would have

⁶ This number has changed since the FEIS.

⁷ This number has changed since the FEIS

⁸ This number has changed since the FEIS

the opportunity to identify measures to reduce impacts to all affected resources, as well as analyze the effectiveness of such measures. For any discretionary authorizations, the BLM could incorporate such measures as required terms and conditions of the permit. For authorizations under 43 CFR subpart 3809, the BLM could only require additional restoration or reclamation if the agency were to determine that foreseeable mining operations would result in unnecessary or undue degradation to affected resources contrary to specific laws.

ASARCO has not submitted any new applications or proposals for federal or state permits for use on the **Selected Lands** since 2001. Mining operations are currently ongoing under ASARCO's approved MPO (AZA-25674, as amended). For the purposes of the Final SEIS analysis, under the No Action Alternative, BLM assumes that mining may continue on some of the Selected Land parcels, under ASARCO's approved MPO, but that the foreseeable use may require additional surface use authorization, including a new or modified MPO. Depending on the type of authorization sought, BLM may have the authority to require ASARCO to address the effects of the proposed operations as a condition of authorizing the surface use.

All action alternatives generally assume that BLM's regulatory authority for any exchanged lands would cease, with the State of Arizona and/or other federal agencies having regulatory authority as appropriate depending upon the activity.

The analysis relies on the foreseeable land use classifications for the **Selected Lands**, identified by ASARCO in the December 19, 2013 *Ray Land Exchange Existing Mining and Foreseeable Mining Use of Selected Lands* (see Appendix C), to identify potential mining operations or uses on the **Selected Lands**. The identified operations are assumed to be reasonable representations of what ASARCO would develop on the **Selected Lands**.

The BLM's management of the **Offered Lands** would be based upon criteria provided in the BLM Phoenix or Kingman RMPs, and BLM policy and federal regulations regarding the use of public lands.

The analysis uses quantification where possible. Quantification for calculating potential disturbance estimates are based upon the FEIS and Final SEIS assumptions, and ASARCO's reasonably foreseeable uses, summarized below in Table 4.1-1. Most resource analysis provided herein use these assumed disturbance percentages acreages from the reasonably foreseeable mining scenario as the baseline for evaluating potential acreage calculations.

Some resources have distinct calculations with unique assumed disturbance which are described in the appropriate resource section.

Table 4.1-1. Summary of Reasonably Foreseeable Use and Assumed Disturbance Estimates

Reasonably Foreseeable Use			EXIST (acres)	POS (acres)	TRANS (acres)	BUFFER (acres)	LRP (acres)	Unknown (acres)	Mineral Estate Only (acres)
Assumed Disturbance			100%	100%	25%	5%	25%–100%*	0%	0%
Parcel	Name	Total (acres)							
RM-1	Ray Area 1	423.03	<1	73	7	16			
RM-2	Red Bluff	5.23	2						

Reasonably Foreseeable Use		EXIST (acres)	POS (acres)	TRANS (acres)	BUFFER (acres)	LRP (acres)	Unknown (acres)	Mineral Estate Only (acres)
Assumed Disturbance		100%	100%	25%	5%	25%–100%*	0%	0%
Parcel	Name	Total (acres)						
RM-3	Red Hills Fraction	5.15	5					
RM-4	Copper Zone 8/ Combination	2.06	2					
RM-5	Section 10 Fragment	0.02	<1					
RM-6.1–6.3	Copper Era 1 – Tracts A, B, C	0.96	<1					
RM-6.4	Wedge Lode	0.02	<1					
RM-7	Section 35 Fragment	80			4			80
RM-8	Section 9/10 Mineral	482.48	295	90	12	2.5		482
RM-9	Section 11 Fragment	29.97	30					30
RM-10	Limestone Quarry	859.4	61	116	8	163–652		
RM-11	Rustlers Gulch	158.9		16	5	6		159
RM-12	Rustlers Gulch	159.34		159				
RM-13	Rustlers Gulch	118.90		119				
RM-14	East Side	228.75		166	8	8		228
RM-15	Limestone Quarry	286.08	2			71–284		286
RM-16	Limestone Quarry	40				10–40		
RM-17	Tortilla Foothills	1,320		649	15	31		
RM-18	Hackberry Gulch	2,001.06				100		
Ray Mine subtotal		6,323.51	398	1,388	55	167	244–976	1,265
CB-1	Copper Butte 1	1,120				38	91–363	
CB-2	Copper Butte 2	615			28	25		
CB-3	Copper Butte 3	691.97		279	30	15		
CB-4	Copper Butte 4	595.46		64	17	23		
CB-5	Copper Butte 5	160		2	3	7		
Copper Butte/Buckeye subtotal		3,182.43		345	77	108	91–363	
CH-1	Chilito 1	262.72				66–263		
CH-2	Chilito 2	7.55				2–8		
CH-3	Chilito 3	1.91				0.5–2		
CH-4	Administration	80				20–80		
Ch-5	Hayden D	480		480				
Chilito/Hayden subtotal		832.18		480		88–353		
CG-1	Casa Grande 1	156.87					157	
CG-2	Casa Grande 2	160					160	
CG-3	Casa Grande 3	320					320	
Casa Grande subtotal		636.87					637	
Total		10,974.9	398	2,213	132	275	423–1,692	637

Abbreviation Key: EXIST=Existing Mining; POS=Production Operations and Support; TRANS=Transition; BUFFER=Buffer; LRP=Long-Range Prospect; SURF & MIN=surface and subsurface mineral estate; MIN=subsurface mineral estate.

Note: Mineral estate acreages are not included in calculations and therefore totals do not reflect total land exchange acreages.

*: Minimum (25%) and Maximum (100%) disturbance estimate acreage shown.

4.1.2 Impacts of Resource Management Plan Amendments

Plan amendments changing the land tenure status of the **Selected Lands** parcels are proposed for the Lower Sonoran, Safford, and Phoenix RMPs. The amendments, if approved, would identify whether a particular parcel consists of mineral estate only or includes both surface and subsurface estate; specify the Township, Range, and Section for each parcel; and list the acreage of each parcel that is designated as available for disposal.

The resource impact analysis conducted for the FEIS and this Final SEIS has revealed no known impacts attributable to the land tenure status change from “retention” to “available for disposal,” separate from any impacts identified as attributable to the land exchange itself.

The BLM conducted a consistency review with applicable approved federal, tribal, state, and local plans for any conflicts that could arise from the proposed land tenure change. No conflicts or inconsistencies between the proposed RMP amendments and any of the reviewed plans have been identified. See Appendix H for a list of plans considered as part of the plan amendments consistency review.

4.2 BIOLOGICAL RESOURCES

The FEIS discusses impacts on biological resources in Section 4.1, pages 4-1 through 4-13.

This section presents impacts from the land exchange and consequential foreseeable uses on biological resources, including vegetation, wildlife, and special status species. Potential impacts that have not changed since the FEIS are not included in this analysis. The analysis area is largely limited to the **Selected** and **Offered Lands**; however, adjacent lands are also considered if relevant to potential effects. Indicators for measuring the potential impacts to biological resources include changes to vegetation conditions, habitat, and mortality of wildlife species. While the discussion of impacts to biological resources from the FEIS still applies, the actual amount of vegetation/habitat present and potentially impacted on the **Selected Lands** is lower than disclosed in the FEIS. This is due to an error in which the calculations included the mineral estate-only parcels for a total of approximately 10,976 acres, whereas vegetation and wildlife habitat occurs only on the surface estate of a parcel, which totals approximately 8,196 acres. These numbers have been corrected in this document. Additionally, potential impacts to vegetation/habitat are also reduced from the FEIS due to changes to the foreseeable use for parcel RM-18 from “tailings impoundment area” to “buffer.” Indicators for measuring the potential impacts to vegetation include loss of vegetation cover and change in productivity. Impacts to vegetation on surface estate parcels are summarized in Table 4.2-1 *Summary of Potential Impacts on Vegetation Communities on Selected Lands* (see Appendix G).

Wildlife and wildlife habitat conditions and impacts have not changed from those disclosed in the FEIS (pp. 4-5 to 4-7 in the FEIS) except as described above for vegetation/habitat. The impact assessment contained in the FEIS still applies and a qualitative discussion of noise and vibration impacts is included. An analysis of impacts to migratory bird populations protected under the MBTA was not conducted for the FEIS and is discussed below.

For special status species, the majority of species, habitat conditions, and impacts have not changed from the FEIS (pages 4-7 to 4-13 in the FEIS); however, the status of several species has changed (see Section 3.2 for a summary of these changes) and/or new information is available. A discussion of impacts to species and/or habitats not previously analyzed is included. Gila chub, yellow-billed cuckoo, northern Mexican gartersnake, and acuña cactus have been listed under the ESA since the issuance of the FEIS and are included for analysis. Critical habitat for southwestern willow flycatcher has been revised since the issuance of the FEIS and is included for analysis. An updated habitat analysis for lesser long-nosed bat is included. An analysis of impacts to golden eagle, protected under the BGEPA, was not conducted for the FEIS and is discussed. The bald eagle was included for analysis as a species listed as threatened under the ESA, and while the status of the species has changed, the impact analysis still applies. Section 3.2 provides a summary discussion of special status species issues evaluated in the biological assessments. For more detailed information on impacts to ESA-listed species, see the BLM's biological assessments (BLM 2013c, 2018a) and the USFWS's biological opinion (2000).

4.2.1 Impacts of Foreseeable Mining Operations Common to all Alternatives

4.2.1.1 VEGETATION

Foreseeable mining operations on the **Selected Lands** could result in the removal of between 4,078 and 5,347 acres of the 8,196 acres of natural vegetation and soil resources, including approximately 71 acres of previously disturbed upland plant communities on surface estate parcels within the Existing Mining foreseeable use category. The 51 acres of riparian vegetation are not expected to be impacted under the No Action Alternative as they are located in areas not likely to be mined under reasonably foreseeable mining operations. Vegetation outside the anticipated mine footprint may experience indirect effects from mining operations, such as from fugitive dust. Physical effects of windborne fugitive dust on plants may include blockage and damage to stomata and shading and abrasion of the plant surface, leading to reduced photosynthetic activity. This could cause reduced growth rates and depressed vigor of the affected plants; however, conformance with dust control requirements would reduce the potential for adverse impacts from mining operations (see Section 4.4). The introduction or spread of noxious weeds where active mining is anticipated is considered a low risk, as mining vehicles are generally confined to the pit and therefore have a low potential to transport weed seed outside disturbance areas, and disturbed areas have little or no potential to support vegetation of any type. However, there is some potential for transport of introduced noxious weed seeds, seedlings, roots, or other plant parts by means of vehicles traveling to and from the mine site. As noxious weed species have been observed in the project vicinity, their presence may increase the potential for establishment or spread onto the **Selected Lands**.

4.2.1.2 WILDLIFE

As stated in the FEIS (pages 4-5 to 4-7), vegetation removal and habitat fragmentation caused by foreseeable mining operations would affect wildlife and wildlife habitat on the **Selected Lands** (see Appendix G, Table 4.2-1 *Summary of Potential Impacts on Vegetation Communities on Selected Lands* for a quantification of vegetation potentially impacted by the land exchange).

Increased noise, vibration, and dust that could occur from construction of the mine or blasting would disturb animals, likely causing changes in dispersal, reproductive behavior, communication patterns, decreased foraging success, and increased predation (NoiseQuest 2011).

Foreseeable mining operations on the **Selected Lands** would affect migratory birds in a manner similar to general wildlife and would result in a net loss of suitable habitat during mining operations. Any ground-disturbing or vegetation-clearing actions related to foreseeable mining operations could disturb nesting migratory birds or their nesting habitat.

4.2.1.3 SPECIAL STATUS SPECIES

Foreseeable mining operations on the **Selected Lands** are not expected to cause adverse effects to any listed species not previously analyzed in the FEIS, for the reasons described below:

- Not result in significant impacts to Gila chub or designated critical habitat, as no mining operations would occur in the area of designated critical habitat (that is, on parcel RM-7) located on the **Selected Lands**. No impacts to aquatic habitats are anticipated, given that no significant changes in impacts from the land exchange to surface water have been identified outside the range of effects already analyzed in the FEIS.
- Not result in direct impacts to yellow-billed cuckoo, as areas with suitable and/or occupied habitat are within areas to be used as buffer, where no mining is currently planned. As areas of habitat would be used as buffer, the foreseeable mining uses would not remove any riparian vegetation or conduct mining activities in occupied habitat. Indirect impacts from ongoing mining near parcels RM-7 and RM-2 would not change from baseline conditions.
- Not result in direct impacts to southwestern willow flycatcher, as none are known to occur on the **Selected Lands** and because there is no habitat that would support southwestern willow flycatcher on the **Selected Lands**. In addition, there is no southwestern willow flycatcher designated critical habitat within the **Selected Lands**; therefore, there would be no direct impacts to southwestern willow flycatcher designated critical habitat.
- Not result in direct or indirect impacts to northern Mexican garter snake, as the nearest known population (Tonto Creek) is located more than 30 miles from the **Selected Lands** and aquatic habitats necessary to support this species are not present in the foreseeable use areas. In addition, there is no proposed critical habitat within the **Selected Lands**; therefore, there would be no direct impacts to proposed critical habitat. Proposed critical habitat for northern Mexican garter snake is about 1.5 miles from parcel CH-5.
- Not result in direct or indirect impacts to acuña cactus because none are known to occur on the **Selected Lands**; the closest known populations are more than 6 miles from any of the parcels. In addition, there is no acuña cactus designated critical habitat within the **Selected Lands**.

The foreseeable mining operations could result in direct impacts to suitable lesser long-nosed bat foraging habitat in the early to mid-summer range of the species. Direct impacts to individual bats foraging in the area could occur from noise created by mining operations. Disturbance

would result from the foreseeable mining in suitable lesser long-nosed bat habitat (areas with saguaro [*Carnegiea gigantea*] cacti) within the **Selected Lands**.

Golden eagles are protected under the BGEPA, which prohibits the take of bald and golden eagles and/or their parts and nests unless allowed by permit (50 CFR § 22). Any foreseeable mining operations resulting from the land exchange would be required to comply with the BGEPA, and ASARCO would need to acquire permits and abide by applicable permit conditions that would be required for the protection of eagles, eagle populations, and/or breeding habitat.

4.2.2 No Action Alternative

4.2.2.1 VEGETATION

Under the No Action Alternative, any future requests for surface use authorization submitted to BLM would include reclamation or rehabilitation plans that address the effects on vegetation and soil resources and provide for revegetation and controlling soil erosion. The **Selected Lands** would remain under BLM oversight and continue to be subject to federal land management policies and protections. The BLM would have an opportunity to review potential impacts to vegetation during review of any new or modified MPO and could require ASARCO to revise their proposed MPO if the impacts to vegetation constituted unnecessary or undue degradation. BLM may require terms and conditions related to the specific mining and reclamation operations to prevent unnecessary or undue degradation of public lands by applying performance standards found in 43 CFR subpart 3809.415 and subpart 3809.420, as applicable. The BLM's regulations do not generally require that the same vegetation present pre-disturbance be reestablished during reclamation, provided the overall effect of reclamation is in accordance with BLM policy, applicable land use plans, and CFR subpart 3809.420. The exception to this is for riparian vegetation, which the BLM's regulations governing MPOs require, as a condition of approval, must be addressed in a riparian area restoration plan and be fully restored or offset in the case of loss of those resources. Compliance with performance standards found in 43 CFR subparts 3809.415 and 3809.420 would reduce the potential for spread and establishment of noxious weeds.

In addition, other discretionary BLM authorizations may require project design measures or reclamation standards to reduce impacts; these impacts currently cannot be quantified.

Based on the foreseeable uses presented by ASARCO (see Appendix B), there is no indication that ASARCO would propose to mine under the No Action Alternative in a way that would cause unnecessary or undue degradation to vegetation and soils that would require changes to the MPO as a condition of approval. For purposes of this analysis, based on the foreseeable uses presented by ASARCO (see Appendix B) and assuming ASARCO would propose its operations in a manner that would not constitute unnecessary or undue degradation to vegetation and soils, the BLM does not anticipate that the No Action Alternative would include measures that would otherwise limit the foreseeable mining operations.

Management of the upland and riparian plant communities on the **Offered Lands** would not be subject to federal land management policies or protections.

4.2.2.2 WILDLIFE

Under the No Action Alternative, any mine plan of operations or other surface use authorization submitted under the BLM's surface management regulations would include a wildlife rehabilitation plan that addresses the effects of vegetation removal and fragmentation due to foreseeable mining operations on wildlife habitat components and requires that they be reclaimed and restored. Wildlife habitat restoration under such a plan would generally result in the restoration of adequate shelter, habitat, and forage for wildlife species or crucial habitats. The BLM's regulations do not generally require that the same wildlife habitats present pre-disturbance must be reestablished during reclamation. Except for riparian areas, the BLM could only require additional restoration or reclamation under 43 CFR subpart 3809 if the agency were to determine that foreseeable mining operations would result in unnecessary or undue degradation to wildlife or wildlife habitat contrary to specific laws.

Based on the foreseeable uses presented by ASARCO (see Appendix B), however, there is no indication that ASARCO would propose to mine under the No Action Alternative in a way that would cause unnecessary or undue degradation to wildlife and wildlife habitat that would require changes to the MPO as a condition of approval. For purposes of this analysis, based on the foreseeable uses presented by ASARCO (see Appendix B), and assuming ASARCO would propose its operations in a manner that would not constitute unnecessary or undue degradation to wildlife and wildlife habitat, the BLM does not anticipate that the No Action Alternative would include measures that would otherwise limit the foreseeable mining operations.

In addition, ASARCO would be required to comply with the MBTA, including appropriate actions (such as timing activities during non-nesting seasons or requiring pre-construction surveys for migratory birds or their nests) to reduce potential impacts to migratory birds.

The **Offered Lands** would remain under private ownership and impacts to wildlife and wildlife habitat would be the same as those described in the FEIS.

4.2.2.3 SPECIAL STATUS SPECIES

Under the No Action Alternative, any mine plan of operations or other surface use authorization submitted under the BLM's surface management regulations would be evaluated for impacts to species listed as endangered, threatened, or candidate under the ESA and/or critical habitat. BLM would be required to prepare a biological assessment and initiate consultation with the USFWS. The BLM's approval of any new or modified MPO would require that ASARCO follow any reasonable and prudent measures, and associated terms and conditions required to mitigate impacts to listed species and designated critical habitats to avoid unnecessary or undue degradation.

For special status species not listed under the ESA, the BLM could only require protection or reclamation under 43 CFR subpart 3809 if the agency were to determine that foreseeable mining operations would result in unnecessary or undue degradation contrary to specific laws.

Based on the foreseeable uses presented by ASARCO (see Appendix B), there is no indication that ASARCO would propose to mine under the No Action Alternative in a way that would cause unnecessary or undue degradation to special status species and require the imposition of

additional requirements as a condition of approval. For purposes of this analysis, the BLM does not anticipate that the No Action Alternative would include measures that would otherwise limit the foreseeable mining operations.

The **Offered Lands** would remain in private ownership and management of the special status species habitats on the **Offered Lands** would be subject to federal policies for species protection on private lands. No federally listed plant species are known to occur on the **Offered Lands**. Portions of the **Offered Lands** contain valuable wildlife habitat and designated critical habitat for southwestern willow flycatcher (on the Gila River at Cochran parcel), which would remain under ASARCO ownership under the No Action Alternative. While private landowners would require an incidental take permit from the USFWS if activities on private lands would result in take of listed wildlife species individuals, private landowners are not required to protect or mitigate for disturbance of unoccupied designated or proposed critical habitat.

4.2.3 Proposed Action

4.2.3.1 VEGETATION

Under the Proposed Action, any effects on vegetation and soil resources would be managed under state law. Under ARS Title 27 Chapter 5 Article 4, the Arizona State Mine Inspector would require approval of a Mine Reclamation Plan for any mining-related disturbance on private land greater than 5 acres. Arizona law does not require the post-mining land use objective stated in the reclamation plan to be the same use of the land that existed before the mining facility. Unlike the No Action Alternative, the landowner has the opportunity to specify the purpose of use for the future lands. As a result, it is not possible to quantify the difference the Proposed Action would have on vegetation and soils between federal and state regulations, because the applicable laws could have different results.

ARS Title 27 does not have a requirement equivalent to the BLM's requirements for restoration of riparian areas. However, since no loss of riparian vegetation is expected as a result of foreseeable mining operations, the effect would be the same as under the No Action Alternative.

Under the Proposed Action, additional uses of these lands would not require BLM authorization with associated project design, restoration or reclamation standards; however, any potential difference in impacts cannot be quantified.

While the potential for spread of noxious and invasive weeds would be low, operations would not be required under any authority to create or follow weed control practices.

Approximately 7,304 acres of vegetation (7,127 acres of upland and 177 acres of riparian plant communities) on the **Offered Lands** would come under federal management. Management of the parcels would be based upon criteria provided in the applicable RMPs, and vegetation resources on these parcels would be subject to BLM management, policy, oversight, and regulations regarding the use of public lands. Future land use authorizations would be subject to federal regulations regarding impacts to vegetation.

4.2.3.2 WILDLIFE

The impacts to wildlife habitat related to reclamation and discretionary BLM authorizations are the same as described in the Vegetation section of the Proposed Action.

The MBTA would provide protections for migratory birds similar to those described for the No Action Alternative.

Potential impacts to upland and riparian wildlife habitat on **Offered Lands** include increased habitat protection and connectivity. **Offered Lands** that contain areas of identified habitats include:

- Designated critical habitat for southwestern willow flycatcher on the Gila River at Cochran parcel and one of the Tomlin parcels along the Big Sandy River;
- Aquatic and riparian habitat for fish, wildlife, and migratory birds on the Gila River at Cochran parcel and one of the Tomlin parcels along the Big Sandy River;
- Bighorn sheep habitat adjacent to Warm Springs Wilderness on the Sacramento Valley parcel; and
- Desert tortoise habitat within the McCracken Desert Tortoise Habitat ACEC on the McCracken Mountains parcels.

4.2.3.3 SPECIAL STATUS SPECIES

The Biological Opinion (USFWS 2000) and analysis of listed, threatened, and endangered species still applies for the species covered. In 2013, the BLM reinitiated consultation (*Re-initiation of Consultation of the Proposed Ray Land Exchange, Pinal and Gila Counties, Arizona*; BLM 2013b) determining that the Proposed Action may affect, is not likely to adversely affect the acuña cactus and would have no effect on proposed critical habitat for the species; and the Proposed Action may affect, is not likely to adversely affect the Gila chub. The USFWS concurred with the above BLM effect determinations on August 7, 2013 (USFWS 2013b). In 2018, the BLM submitted another document, titled *Updated Biological Assessment for the Re-initiation of Section 7 Consultation for the Proposed Ray Land Exchange, Pinal and Gila Counties, Arizona* to the USFWS (received by the USFWS on August 3, 2018) (BLM 2018a) determining that the Proposed Action may affect, is not likely to adversely affect the yellow-billed cuckoo and proposed critical habitat for the species. In addition, BLM determined that the Proposed Action would have no effect on northern Mexican gartersnake or proposed critical habitat. The USFWS concurred with the BLM effect determinations on August 14, 2018 (USFWS 2018).

The **Selected Lands** would be subject to federal and state laws that pertain to privately held lands. Impacts to BLM sensitive species from foreseeable mining operations resulting from the land exchange would not be assessed under laws applicable to the management of public lands. While the presence of ESA-listed species would not preclude foreseeable mining activities on private lands, it would require coordination and permitting through the USFWS. Incidental take permits are required when non-federal activities will result in take of endangered or threatened species. Issuance criteria (contained at Section 10(a)(2)(B) of the ESA) would ensure that any permitted take would not appreciably reduce the likelihood of the survival and recovery of the

species, along with other required conditions. Private landowners are not required to protect or mitigate for disturbance of unoccupied designated or proposed critical habitat; therefore, protective measures for critical habitat on the **Selected Lands** would be reduced without federal management.

On the **Offered Lands**, should impacts to species listed as endangered, threatened, or candidate under the ESA and/or critical habitat be anticipated as a result of any future proposed federal action, BLM would be required to prepare a biological assessment and initiate consultation with the USFWS. Federal management of the McCracken Mountains parcels would provide protections for Sonoran Desert tortoise habitat in the McCracken Desert Tortoise Habitat ACEC.

4.2.4 Buckeye Alternative

4.2.4.1 VEGETATION

Under this alternative, ASARCO would acquire approximately 7,395 acres of upland plant communities, approximately 71 acres (1.0%) of which is already disturbed. Under this alternative BLM would retain 17 acres of riparian vegetation. Although there is a difference in federal and state regulations for reclamation of riparian areas, under the reasonably foreseeable mining use there is no impact to riparian areas.

Impacts to other vegetation on the **Selected** and **Offered Lands** resulting from the land exchange would be the same as those described for the Proposed Action, except the acreages transferred to private ownership and coming into federal ownership would be reduced.

On the **Selected Lands** that would be retained in federal ownership (a portion of CB-1), the vegetation restoration and reclamation requirements would be the same as under the No Action Alternative.

Approximately 6,659 acres of vegetation (6,482 acres of upland and 177 acres of riparian plant communities) on the **Offered Lands** would come under BLM administration (see Appendix G, Table 4.2-2 *Offered Lands within Boundaries of Existing Areas with Protective Designations*).

4.2.4.2 WILDLIFE

Impacts to wildlife habitat and migratory birds on the **Selected Lands** resulting from the land exchange would be similar to those described for the Proposed Action except for the portion of parcel CB-1 (800 acres) that would remain under BLM management. Impacts on this portion of CB-1 would be similar to those described for the No Action Alternative.

Impacts to wildlife habitat and migratory birds on the **Offered Lands** resulting from the land exchange would be the same as those described for the Proposed Action, except for impacts pertaining to Section 9 of the McCracken Mountains parcels (640 acres) that would not be transferred into BLM administration.

4.2.4.3 SPECIAL STATUS SPECIES

Impacts to special status species on the **Selected Lands** resulting from the land exchange would be similar to those described for the Proposed Action except for the portion of parcel CB-1

(800 acres) that would remain under BLM management. Impacts on this portion of CB-1 would be similar to those described for the No Action Alternative.

Potential impacts to special status species on the **Offered Lands** resulting from the land exchange would be the same as those described for the Proposed Action except for impacts pertaining to Section 9 of the McCracken Mountains parcels. Six hundred-forty acres of the McCracken Mountains **Offered Lands** parcels would not be included and therefore would not provide additional protection for Sonoran Desert tortoise habitat in the McCracken Desert Tortoise Habitat ACEC.

4.2.5 Copper Butte Alternative

4.2.5.1 VEGETATION

Under this alternative, ASARCO would acquire approximately 6,600 acres of upland plant communities, approximately 71 acres (1.1%) of which is already disturbed. Under this alternative BLM would retain 17 acres of riparian vegetation. Although there is a difference in federal and state regulations for reclamation of riparian areas, under the reasonably foreseeable mining use there is no impact to riparian areas.

Impacts to other vegetation on the **Selected** and **Offered Lands** resulting from the land exchange would be the same as those described for the Proposed Action, except the acreages transferred to private ownership and coming into federal ownership would be reduced.

On the **Selected Lands** that would be retained in federal ownership (CB-1, CB-2, and a portion of CB-3), the vegetation restoration and reclamation requirements would be the same as under the No Action Alternative.

Approximately 5,606 acres of vegetation (5,424 acres of upland and 177 acres of riparian plant communities) on the **Offered Lands** would come under BLM administration (see Appendix G, Table 4.2-2 *Offered Lands within Boundaries of Existing Areas with Protective Designations*). The McCracken Mountains parcels not included would not provide additional protection for Sonoran Desert tortoise habitat in the McCracken Desert Tortoise Habitat ACEC.

4.2.5.2 WILDLIFE

Impacts to wildlife habitat and migratory birds on the **Selected Lands** resulting from the land exchange would be similar to those described for the Proposed Action, except for the portions of 1,815 acres excluded from the exchange. Those areas would have impacts similar to those described for the No Action except that BLM would retain 17 acres of riparian vegetation.

Impacts to wildlife habitat on the **Offered Lands** resulting from the land exchange would be the same as those described for the Buckeye Alternative, except for impacts pertaining to the 1,698 acres of the McCracken Mountains parcels that would not be transferred into BLM administration.

4.2.5.3 SPECIAL STATUS SPECIES

Impacts to special status species on the **Selected Lands** resulting from the land exchange under the Copper Butte Alternative would be similar to those described for the Proposed Action except for impacts pertaining to parcel CB-1 (1,120 acres), parcel CB-2 (615 acres), and portions of parcel CB-3 (80 acres), which would remain under BLM management. Impacts to those parcels would be similar to those described for the No Action Alternative.

Potential impacts to special status species on the **Offered Lands** resulting from the land exchange would be the same as those described for the Proposed Action except for impacts pertaining to the 1,698 acres of the McCracken Mountains parcels not included. These acres would not be provided additional protection for Sonoran Desert tortoise habitat in the McCracken Desert Tortoise Habitat ACEC.

4.3 WATER RESOURCES

The FEIS discusses water resources in Sections 4.2.1, 4.2.2, and 4.2.3, pages 4-13 through 4-18.

The following section provides an analysis of potential impacts to surface water and groundwater resources, including federal reserved water rights (FRWR), which may result from the various alternatives. The area of analysis for surface water resources includes the watersheds in which the **Selected** or **Offered Lands** parcels are located. For groundwater resources, the area of analysis includes the groundwater basins in which each parcel is located, as well as the groundwater basin from which the water for future land uses would be withdrawn.

4.3.1 *Impacts of Foreseeable Mining Operations Common to all Alternatives*

Foreseeable mining operations may affect surface and groundwater resources on the **Selected Lands** to some degree, as discussed in the FEIS. Impacts would be quantified using the water permitting mechanisms available through the CWA, and other applicable laws, as administered by the appropriate federal and state regulatory agencies. Quantification of water resource impacts requires detailed descriptions of the proposed extent of mining operations. Although ASARCO has provided general information about its future mining operations, it has not submitted any permit applications or provided sufficient details regarding exploration, mine development, operations, and closure/reclamation to provide a quantification of impacts resulting from the foreseeable mining operations.

Prior to conducting foreseeable mining operations on the **Selected Lands**, ASARCO would obtain all water resource authorizations from state and local agencies that administer laws and regulations applicable to water quality and quantity, regardless of land ownership. ASARCO is required by Arizona law to develop an APP and to obtain any new or applicable CWA 402/404 permits for any unpermitted and proposed mining-related foreseeable use of the **Selected Lands**. Since any new APP or permits cannot be developed until the associated mining-related use is proposed, for the purposes of this analysis, it is assumed that any future APP or permits would be similar to those for the existing ASARCO facilities.

For purposes of analysis, the BLM developed a rudimentary two-dimensional groundwater model was developed (using the computer software program THWELLS) to provide a preliminary assessment of potential impacts of the foreseeable mining operations to water supply. There are not enough detailed data currently available to create a more reliable model. As part of any future APP process, depending on the activity being permitted, ASARCO could be expected to develop a more detailed groundwater model. A summary of the THWELLS modeling inputs and model outputs is provided in Appendix E. There are 284 water wells (excludes monitoring, piezometers, and cathodic protection wells) within 6 miles of the assumed pumping well, 58 of which are owned by ASARCO (see Appendix F, Figure 4.3-1 *Order-of-magnitude assessment of drawdown from additional groundwater production* and Table 4.3-1 *Wells Located within 6 Miles of Assumed Pumping Wells* in Appendix G). Of the remaining 226 wells, 176 are less than 100 feet deep and are likely drawing water from the recent stream alluvium aquifer. The foreseeable mining operations on the **Selected Lands** indicate that most of the affected springs lie in a mining Buffer area (RM-18), with one spring in Long Range Prospect areas (CB-1). Five springs were identified within 6 miles of the modeled pumping well (see Table 4.3-2 *Springs Located within 6 Miles of Assumed Pumping Wells* in Appendix G). Only springs producing from the recent alluvial aquifer and within the cone of depression modeled have the potential to be impacted by foreseeable mining operations. There is one unnamed spring along the banks of the San Pedro River that may fit this description. The remaining springs are located in uplands at elevations where the impacts from groundwater drawdown associated with foreseeable mining operations would be negligible or much diminished. In any case, the quantity and quality of water needed for development and operations would remain the same across all alternatives.

4.3.2 No Action Alternative

Under the No Action Alternative, any future requests for surface use authorization on the **Selected Lands** would include required management plans or other measures that address the effects on water resources. Under the No Action Alternative, the BLM would analyze potential impacts to water resources during review of a new or modified MPO. Because the BLM does not regulate water quality or quantity, the BLM would only be able to require additional measures to reduce impacts to water resources if the foreseeable mining operations analyzed would cause unnecessary or undue degradation, even when conducted in compliance with state and local permitting or other state and federal requirements. Based on the foreseeable uses presented by ASARCO (see Appendix B), however, there is no indication that ASARCO would propose to mine under the No Action Alternative in a way that would cause unnecessary or undue degradation of water resources.

All 7,304 acres of the **Offered Lands** would remain under ASARCO ownership. The water resources of the **Offered Lands** would be managed under applicable federal (such as the CWA), or state law (such as the Arizona Groundwater Code and Arizona State water quality standards and requirements).

Land withdrawals associated with the PWR 107 executive order would remain in place for the 18 FRWR on **Selected Lands** under the No Action Alternative. Under the No Action Alternative, any future requests for discretionary surface use authorization on the **Selected Lands** would be required to avoid the withdrawal and the associated FRWR. This withdrawal

does not prohibit the development of metalliferous minerals. Therefore, the BLM would not require any measures to address impacts to the FRWR under 43 CFR subpart 3809.

4.3.3 Proposed Action

There will be no impacts to the water quality or quantity on the **Selected Lands** from the land exchange because water quality and quantity will continue to be regulated by other federal and state agencies. Impacts to water resources are not contingent on land ownership, but on land use.

Prior to conveyance of the **Selected Lands**, BLM would revoke the withdrawal associated with the 18 springs and water holes reserved under PWR 107 and relinquish the associated FRWR. As a result, the 0.25-mile area around any spring or water hole and the water found there, would be in private ownership upon exchange. Users of surface waters formerly claimed under PWR 107 would be subject to State water rights laws.

The water resources of the **Offered Lands** would be managed in accordance with the prevailing land use plans and plan amendments. FRWR may be acquired on those lands, with a priority date of when they were reserved for a public purpose or came into federal ownership. BLM may also need to file State-based water rights, if applicable.

4.3.4 Buckeye Alternative

The Buckeye Alternative would have the same impacts to **Selected** and **Offered Lands** as the Proposed Action with the exception that three FRWR would be retained.

4.3.5 Copper Butte Alternative

The Copper Butte Alternative would have the same impacts to **Selected** and **Offered Lands** as the Proposed Action with the exception that four FRWR would be retained.

4.4 AIR QUALITY

The FEIS discusses air quality impacts in Section 4.2.4, pages 4-18 through 4-19.

4.4.1 Impacts of Foreseeable Mining Operations Common to all Alternatives

Foreseeable mining operations on the **Selected Lands** would affect air quality, as quantified using the air permitting mechanisms available through the Clean Air Act (CAA). Quantification of air quality impacts requires detailed descriptions of the proposed extent of mining operations, including, for example, a roster of equipment and ore production rates. Although ASARCO has provided general information about its future mining operations, it has not submitted any permit applications or provided sufficient details regarding exploration, mine development, operations, and closure/reclamation to provide a quantification of emissions resulting from the foreseeable mining operations at this time.

Prior to conducting foreseeable mining operations on the **Selected Lands**, ASARCO would obtain all air quality permits from state and local agencies that administer the CAA requirements, regardless of land ownership. Copper mining facilities in Gila County would submit an air permit application to the ADEQ and copper mining facilities in Pinal County would submit an air permit application to the PCAQCD.

4.4.2 No Action Alternative

Under the No Action Alternative, the BLM would analyze potential impacts to air quality during review of a new or modified MPO. Because the BLM does not administer air quality standards, the BLM would only be able to require additional measures to reduce impacts to air quality if the foreseeable mining operations analyzed would cause unnecessary or undue degradation, even when conducted in compliance with state and local permitting or other state and federal requirements. If the BLM were to determine that unnecessary or undue degradation to air quality would occur, it could, as a condition of approval, require ASARCO to adopt other requirements or specific reclamation activities.

Based on the foreseeable uses presented by ASARCO (see Appendix B), however, there is no indication that ASARCO would propose to mine under the No Action Alternative in a way that would comply with state and federal air quality permitting requirements but still cause unnecessary or undue degradation and thus cause BLM to impose additional requirements or reclamation requirements as a condition of approval. Based on the foreseeable uses presented by ASARCO (see Appendix B), and assuming ASARCO would obtain and operate in compliance with all applicable permits and laws, the No Action Alternative is not expected to impact air quality.

No impacts to air quality on the **Offered Lands** are anticipated.

4.4.3 Proposed Action

There will be no impacts to the air quality on the **Selected Lands** from the land exchange because air quality will continue to be regulated by other federal and state agencies. Impacts to air quality are not contingent on land ownership, but on land use. No impacts to air quality on the **Offered Lands** are anticipated.

4.4.4 Buckeye and Copper Butte Alternatives

There will be no impacts to the air quality on the **Selected Lands** from the land exchange because air quality will continue to be regulated by other federal and state agencies. Impacts to air quality are not contingent on land ownership, but on land use. No impacts to air quality on the **Offered Lands** are anticipated.

4.5 MINERAL RESOURCES

The FEIS discusses impacts to mineral resources in Section 4.3, pages 4-20 through 4-21. This analysis of the environmental impacts of the proposed land exchange on geology and mineral resources relies on the BLM mineral resource potential reports (BLM 1997, 2012b) and

ASARCO's foreseeable uses, which describe the occurrence of mineral deposits in the **Selected Lands**. Mineral potential of the **Offered Lands** has not changed since the FEIS.

The mineral potential for occurrence of the **Selected Lands** is the same under all alternatives, including the No Action Alternative. The mineral potential for development of locatable minerals in the **Selected Lands** is also the same under all alternatives given ASARCO's stated intention to pursue copper mining and related mining uses through an expansion of the Ray Mine Complex and development of the Long Range Prospects on the **Selected Lands** regardless of whether the plan amendments or land exchange occurs. The timing of that development is unknown.

4.5.1 Impacts of Foreseeable Mining Operations Common to all Alternatives

Foreseeable mining operations are expected to result in exploration for, and development of, locatable minerals on the **Selected Lands**, including copper and metallurgical-grade limestone.

4.5.2 No Action Alternative

Under the No Action Alternative, the BLM would continue to manage the mineral resources of the **Selected Lands** consistent with laws governing the disposal of federal minerals, including the BLM's regulations at 43 CFR subpart 3809. Based on the mineral potential reports, the applicable disposal authorities would be the Mining Law of 1872 and the Materials Act of 1947.

The **Selected Lands** would continue to be open to location and entry under the Mining Law. Based on the foreseeable uses presented by ASARCO (see Appendix B), locatable minerals (primarily copper and metallurgical-grade limestone) would continue to be developed from the **Selected Lands** in compliance with all applicable state and federal laws, including the BLM's regulations. Development of mineral resources under the Mining Law would be subject to approval under a new or modified MPO under the No Action Alternative, as well as compliance with all applicable state and federal laws. ASARCO would continue to conduct mining operations under its existing approved MPO, AZA-25674, as amended.

Under the No Action Alternative, mineral materials on the **Selected Lands** would be available for disposal under the Materials Act. However, no deposits of mineral materials on the **Selected Lands** are identified in Chapter 3, so the potential for development of mineral materials on the **Selected Lands** is low.

Offered Lands. ASARCO or a subsequent owner could develop any mineral resources, subject to applicable laws and regulations. Because mineral potential for occurrence and potential for development on the **Offered Lands** have not been assessed, the impact on the mineral resources in the **Offered Lands** under the No Action Alternative is unknown.

4.5.3 Proposed Action

Under the Proposed Action, ASARCO would have exclusive rights to, and control development of, all mineral resources in the **Selected Lands**. Under the Proposed Action, the land exchange

would convey the federal mineral interest to ASARCO wherein ASARCO could pursue the extraction of mineral resources subject to state mining law and other federal and state regulations.

The **Offered Lands** have not been assessed for mineral potential, and no mineral development plans exist. Of these lands, the 6,384-acre McCracken Parcels have a Special Warranty Deed restricting mining and the 160-acre Knisely Ranch parcel group is located in the Mount Tipton Wilderness and thus would not be available for mining.

Of the 7,304 acres included in the **Offered Lands**, mineral development could potentially occur on the 320-acre Gila River at Cochran parcel, the 320-acre Tomlin parcel group, and on the 120-acre Sacramento Valley parcel. Any potential development on the lands transferred into federal ownership would be required to follow applicable laws and regulations. Impacts from potential development of mineral estate have not changed since the FEIS.

4.5.4 Buckeye Alternative

The impacts to mineral resources would be the same as under the Proposed Action, except that the portion of CB-1 retained in federal ownership would continue to be managed consistent with laws governing disposal of federal minerals.

Impacts to the **Offered Lands** would be similar as described for the Proposed Action. The 640 acres which would remain privately owned under this alternative have a deed restricting future mining uses.

4.5.5 Copper Butte Alternative

The impacts to mineral resources would be the same as under the Proposed Action, except that parcels CB-1, CB-2, and that portion of CB-3 retained in federal ownership would continue to be managed consistent with laws governing disposal of federal minerals.

Impacts to the **Offered Lands** would be similar as described for the Proposed Action. The 1,815 acres which would remain privately owned under this alternative have a deed restricting future mining uses.

4.6 LAND USE

The FEIS discusses land use impacts in Section 4.4, pages 4-22 through 4-34. This section presents the analysis of environmental impacts to land use under the various alternatives, including those to land ownership, management of public lands, ROWs, grazing, and visual quality. The impacts are determined through the potential changes in existing resource conditions that were described in Chapter 3. Potential impacts that have not changed from the FEIS are not included in this analysis.

4.6.1 ***Impacts of Foreseeable Mining Operations Common to all Alternatives***

There are no impacts of foreseeable mining operations common to all alternatives in regard to Land Ownership, Management of Public Lands or Rights of Way.

4.6.1.1 **GRAZING**

Foreseeable mining operations could result in the loss of up to 7,326 acres of public rangeland for grazing in Pinal County and 747 acres in Gila County, and a loss of up to 1,151 AUMs. Table 4.6-1 *Loss of Public Lands (acres) and AUMs by Allotment* summarizes these findings (see Appendix G).

Grazing lessees, subject to Section 15 of the Taylor Grazing Act, with cooperative agreements with BLM, would not recoup salvage value or labor invested in range improvements. Seeps and springs reserved for grazing under PWR 107 would continue to be legally available for grazing unless specifically revoked.

4.6.1.2 **VISUAL QUALITY**

Foreseeable mining operations would change the visual quality of portions of the **Selected Lands** from natural appearance and undeveloped scenic quality, to actively mined—including potentially high visual contrast to natural landforms and vegetation visible in the foreground-middle ground distance zones from key viewing areas. Visual conditions on the **Selected Lands** would change substantially over time as a result of foreseeable mining operations and, in most cases, be permanently altered. Vegetation clearing, alteration of topography, stockpiling of material, road construction, dust, placement of structures, and other mining operations would also affect visual conditions. General impacts to visual quality of the **Selected Lands** from foreseeable mining operations are described below. In addition, Table 4.6-2 *Measures under an MPO for Visual Resources* (see Appendix G) provides examples of measures for visual resources that operators can incorporate into their mine plans to preserve visual quality and alleviate impacts to the viewshed during and after active mining.

Ray Mine. A majority of the lands are designated as “buffer” in the foreseeable use plans and generally would not be used for mining operations. A portion of CB-1 is designated as “long range prospect;” these parcels are inventoried as having high visual resource value (VRI Class II) due to their high scenic quality, moderate to high visual sensitivity, and high visibility in the foreground from the Battle Axe Road, Rincon Road, and SR 177, and from travel routes in the White Canyon Wilderness.

From KOP 1 (view from SR 177, facing southeasterly toward the active Ray Mine Complex), existing views are of a highly modified landscape. Views of this landscape would include additional visual contrast and views of landscape disturbance from active mining.

Copper Butte/Buckeye. Based on the foreseeable uses presented by ASARCO (see Appendix B), foreseeable mining operations associated with parcels CB-1 through CB-5 would result in diminishment of visual resource values due to potentially strong visual contrast to landform, vegetation, and structural landscape elements. These changes would attract the attention of

viewers from Battle Axe Road, Rincon Road, and SR 177, and from the Arizona Trail. The majority of foreseeable use of CB-3 for active copper mining would be noticeable and impact views from Battle Axe Road.

The foreseeable use of the southwest corner of CB-1 for mine development and associated support facilities could result in visual impacts noticeable from the Rincon Road and adjacent lands. The other future land uses within the Copper Butte parcels would result in few changes to the viewshed, as depicted in KOP 2. Changes to the viewshed could remain minor and be mitigated through design and placement of proposed mining features.

Chilito/Hayden. Based on the foreseeable uses presented by ASARCO (see Appendix B), foreseeable mining operations on these parcels would be within Class III VRM objectives for views from the viewing corridors analyzed. Parcel CH-5 is of low visual resource value even though it inventoried as VRI Class III due to its relatively low scenic quality, low visual sensitivity, and modified landscape on adjacent lands. Foreseeable mining operations on this parcel could impact views from SR 77 and SR 177, by expanding the visual impact of the adjacent tailings storage/disposal area.

The **Casa Grande** parcels are all currently managed as VRM Class IV. This classification allows for modification of the natural condition. These parcels are retired agricultural lands that have been modified to a large degree. Future uses of these lands and visual disturbances are unknown at this time.

Foreseeable mining operations on the **Selected Lands** could affect views from the Arizona Trail. A viewshed analysis of potential views from the Arizona Trail corridor in the vicinity was created using a geographic information system (GIS) elevation model. Multiple viewpoints were located along the Arizona Trail and the “seen area” from each of these points was combined to create a potential viewshed from the trail corridor (see Figure 4.6-1 *Arizona Trail viewshed analysis* in Appendix F). This theoretical view is based solely upon elevation and landform.

A majority of the **Selected Land** parcels near the Arizona Trail and within the viewshed (RM-18, RM-17, CB-4, and CB-5) are identified as the foreseeable use Buffer (see Figure 4.6-1 *Arizona Trail viewshed analysis* in Appendix F). These buffer lands would not be subject to direct mining operations, and therefore views of these lands from the trail would not be impacted. The portion of CB-1 identified as “Long-Range Prospect” is within approximately 1.25 miles of the trail. If this parcel is developed for active mining, it could be visible from the trail. Other Long-Range Prospect parcels within the trail corridor viewshed include RM-10, RM-15, and RM-16. However, because they are greater than 4 miles from the trail, potential mineral development on these lands is not expected to impact views from the trail corridor.

4.6.2 No Action Alternative

4.6.2.1 LAND OWNERSHIP

Selected Lands. No changes in land ownership would occur.

Offered Lands. As stated in ASARCO’s plans for disposition of the parcels, if the exchange does not occur (see Table 2.1-3 *Potential Disposition of the Offered Lands by ASARCO Under*

the No Action Alternative in Appendix G), ASARCO would be able to retain or sell these lands at their discretion.

4.6.2.2 MANAGEMENT OF PUBLIC LANDS

The BLM would continue to manage the **Selected Lands**, under the management prescriptions in the Lower Sonoran, Phoenix, and Safford RMPs. The lands would continue to be available for mineral extraction and mining use as well as recreational pursuits such as hiking, camping, and hunting. In addition, the **Selected Lands** that are currently open to mineral location and entry will continue to be managed by the BLM in accordance with applicable mining regulations.

The BLM would have no jurisdiction over the management of the **Offered Lands**.

4.6.2.3 RIGHTS-OF-WAY

There will be no immediate impacts to the 12 existing authorized ROWs on the **Selected Lands** under the No Action Alternative. These existing ROWs would continue to be administered by the BLM and any impacts to them due to the foreseeable uses would be addressed through applicable federal regulations.

There are nine existing ROWs on the **Offered Lands**. ASARCO would continue to manage the existing ROWs and consideration of new ROWs would be at ASARCO's discretion.

4.6.2.4 GRAZING

Under the No Action Alternative, current grazing use and restrictions would remain in place until such time as a surface use authorization which might impact such grazing is approved. If any new surface use authorization results in restrictions on grazing, BLM grazing leases would be adjusted to reflect the reduction in acres and available AUMs.

Currently, grazing may occur on the **Offered Lands**, subject to private-use agreements. The No Action Alternative would have no effect on potential grazing on the **Offered Lands**.

4.6.2.5 VISUAL QUALITY

Under the No Action Alternative, BLM visual resource management standards and policies would be used to evaluate any potential surface use authorization which might impact visual quality. BLM may require measures to reduce impacts to visual quality from discretionary surface use authorizations.

For authorizations under 43 CFR subpart 3809, the BLM could only require additional measures as a condition of approval if the agency were to determine that unnecessary or undue degradation to visual quality would occur from the proposed mining operations. Based on the foreseeable uses presented by ASARCO (see Appendix B), however, there is no indication that ASARCO would propose to mine under the No Action Alternative in a way that would cause unnecessary or undue degradation to visual quality and require the imposition of additional requirements as a condition of approval. For purposes of this analysis, based on the foreseeable uses presented by ASARCO and assuming ASARCO would propose its operations in a manner that would not constitute unnecessary or undue degradation to visual quality, the BLM does not anticipate any

change to the effects of foreseeable mining operations on visual quality as a direct or indirect impact of selecting the No Action Alternative.

The **Offered Lands** would not be subject to BLM VRM standards.

4.6.3 Proposed Action

4.6.3.1 LAND OWNERSHIP

Under the Proposed Action, up to 10,976 acres of the **Selected Lands** would be conveyed to ASARCO and become privately owned.

The 7,304 acres of **Offered Lands** would transfer from ASARCO ownership to public ownership, managed by BLM.

4.6.3.2 MANAGEMENT OF PUBLIC LANDS

The management boundaries and prescriptions for the **Selected Lands** as stated in the Lower Sonoran, Phoenix and Safford RMPs would no longer apply. ASARCO would own and manage the **Selected Lands** as described in Appendix C.

Transfer of the **Offered Lands** would create larger, continuous, areas of land to be administered by BLM in accordance with the relevant RMP.

4.6.3.3 RIGHTS-OF-WAY

Under the Proposed Action, ASARCO would acquire the lands subject to the 12 existing ROWs, including ROWs for Battle Axe Road (AZA 21389), an electric power line (AZA 2146), and SR 177 (AZAR 024241). If any ROWs need to be removed/relocated, ASARCO would negotiate an agreement with the ROW holders after the lands have left BLM ownership. The holders of existing ROWs would work with ASARCO directly to determine the level of compensation, relocation, or coordination required to maintain the purpose of their ROW grant. New ROWs would be considered at the discretion of ASARCO.

BLM would acquire title to these lands subject to the nine existing ROWs on the **Offered Lands**. Any changes in these ROWs would require negotiation between the ROW holders and BLM.

4.6.3.4 GRAZING

Under the Proposed Action, impacts to grazing on the **Selected Lands** would be related to the timing of impacts to the lessees. BLM would be required to provide the lessees a 2-year notification prior to termination of the grazing authorization. Under the Proposed Action, ASARCO could, after the 2-year notification expires, choose to terminate the grazing leases immediately or could allow grazing under different terms and conditions at its discretion.

The 7,304 acres of **Offered Lands** could become available for grazing, with approximately 7,000 acres of livestock grazing in Mohave County and 300 acres of livestock grazing in Pinal

County. Future authorizations would be analyzed under NEPA and in accordance with BLM grazing regulations.

4.6.3.5 VISUAL QUALITY

The BLM's visual resource management standards would no longer apply on the **Selected Lands**. There are no relevant state standards for visual resource management, therefore the impacts from foreseeable mining on visual quality would occur.

The BLM would designate VRM classifications on the **Offered Lands**, indicating the level of acceptable change permissible. The **Offered Lands** would be managed for visual resources consistent with applicable RMPs and BLM visual resource standards.

4.6.4 Buckeye Alternative

4.6.4.1 LAND OWNERSHIP

Under the Buckeye Alternative, approximately 10,176 acres of **Selected Lands** would be conveyed to ASARCO. This alternative retains approximately 800 acres in parcel CB-1 (640 acres in Section 25 and 160 acres in Section 26) in federal ownership under BLM administration.

Land ownership would be similar for the **Offered Lands** as described under the Proposed Action, except the amount of offered land would be reduced to 6,659 acres by excluding Section 9 of the McCracken Mountains parcels (640 acres). These 640 acres would remain under ASARCO ownership.

4.6.4.2 MANAGEMENT OF PUBLIC LANDS

The management of the **Selected Lands** conveyed under this alternative would be the same as described under the Proposed Action, except that parcel CB-1 would be retained in federal ownership and managed by the BLM under the Phoenix RMP. This parcel would continue to be available for mineral extraction and mining use as well as recreational pursuits such as hiking, camping, and hunting.

The management of the **Offered Lands** would be similar as described under the Proposed Action, except that Section 9 of the McCracken Mountains parcels (640 acres) would continue to be owned and managed by ASARCO. The habitat on the parcel would not be protected as part of the McCracken Desert Tortoise Habitat ACEC.

4.6.4.3 RIGHTS-OF-WAY

Under the Buckeye Alternative, the **Selected Lands** conveyed to ASARCO would be subject to 12 existing ROWs. The impacts to these ROWs would be the same as described under the Proposed Action.

Parcel CB-1, which would be retained in federal ownership, would not experience impacts to existing ROWs because none of the existing ROWs cross the portion of parcel CB-1 included in

the Buckeye Alternative. New discretionary authorizations could be sought on this parcel under the BLM's regulations.

The ROW activities on the **Offered Lands** would be the same as described in the Proposed Action. There are no existing ROWs across Section 9 of the McCracken Mountains parcels which would continue to be owned and managed by ASARCO.

4.6.4.4 GRAZING

Impacts to grazing on the **Selected Lands** would be the same as described for the Proposed Action, except that portion of the grazing allotments on parcel CB-1 (LEN and Battle Axe) would be retained under federal management. BLM grazing leases would be adjusted to reflect the reduction in acres and available AUMs.

Approximately 6,659 acres of the **Offered Lands** could become available for grazing. Future authorizations would be analyzed under NEPA and in accordance with BLM grazing regulations.

4.6.4.5 VISUAL QUALITY

The BLM's visual resource management standards would no longer apply on the **Selected Lands**, the same as described under the Proposed Action. The standards would apply on the portion of parcel CB-1 retained in federal ownership, as described under the No Action Alternative.

The BLM would manage visual quality on the **Offered Lands**, as described under the Proposed Action. Six-hundred-forty acres of the McCracken Mountains parcels would not be included in the exchange and thus not subject to BLM standards.

4.6.5 Copper Butte Alternative

4.6.5.1 LAND OWNERSHIP

Under the Copper Butte Alternative, approximately 9,161 acres of **Selected Lands** would be conveyed to ASARCO. This alternative excludes parcel CB-1 (1,120 acres), parcel CB-2 (615 acres), and portions of parcel CB-3 (80 acres). These 1,815 acres would remain in federal ownership and under BLM administration.

Land ownership for the **Offered Lands** would be the same as described under the Proposed Action, except the amount of offered land would be reduced to 5,606 acres by excluding Section 9 (640 acres, T14N, R15W), Section 3 (638 acres, T14N, R15W), and a portion of Section 19 (420 acres, T14N, R14W) of the McCracken Mountains parcels. These 1,698 acres would remain under ASARCO ownership, and could be sold.

4.6.5.2 MANAGEMENT OF PUBLIC LANDS

The management of the **Selected Lands** conveyed under this alternative would be the same as described under the Proposed Action, except that parcel CB-1, parcel CB-2, and portions of parcel CB-3 would be retained in federal ownership and be managed by the BLM under the

Phoenix RMP. These parcels would continue to be available for mineral extraction and mining use as well as recreational pursuits such as hiking, camping, and hunting.

The management of the **Offered Lands** would be the same as described under the Proposed Action, except that 1,698 acres of the McCracken Mountains parcels would continue to be owned and managed by ASARCO. This alternative would result in the least amount of vegetation that would be protected for the McCracken Desert Tortoise Habitat ACEC.

4.6.5.3 RIGHTS-OF-WAY

Under the Copper Butte Alternative, the lands conveyed to ASARCO would be subject to nine existing ROWs. The impacts to these ROWs would be the same as described under the Proposed Action.

Holders of the three existing ROW on parcel CB-1, parcel CB-2, and portions of parcel CB-3 would not experience impacts from this alternative since these parcels would remain in federal ownership and would continue to be managed by the BLM. New discretionary authorizations could be sought on this parcel under the BLM's regulations.

The ROW activities on the **Offered Lands** would be the same as described in the Proposed Action, except the one ROW retained in private ownership would be the same as the No Action.

4.6.5.4 GRAZING

Impacts to grazing on the **Selected Lands** would be the same as those described for the Proposed Action and Buckeye Alternative, except those portions of the grazing allotments on parcel CB-1, parcel CB-2, and portions of parcel CB-3 (LEN and Battle Axe) would be retained under federal management. BLM grazing leases would be adjusted to reflect the reduction in acres and available AUMs.

Approximately 5,606 acres of the **Offered Lands** could become available for grazing. Future authorizations would be analyzed under NEPA and in accordance with BLM grazing regulations.

4.6.5.5 VISUAL QUALITY

The BLM's visual resource management standards would no longer apply on the **Selected Lands**, the same as described under the Proposed Action. The standards would apply on parcel CB-1, CB-2, and the portion of parcel CB-3 retained in federal ownership, as described under the No Action Alternative.

The BLM would manage visual quality on the **Offered Lands**, as described under the Proposed Action. The McCracken Mountains parcels (1,698 acres) would not be included in the exchange and thus not subject to BLM visual resource management standards.

4.7 ACCESS AND RECREATION

The FEIS discusses access and recreation impacts in Section 4.4.3, pages 4-27 through 4-28.

This section presents the potential impacts of the No Action and alternatives to access and recreation resources. The impacts are determined through the potential changes in access and recreation resource conditions described in Chapter 3 that would result from the conveyance of the **Selected Lands** out of federal ownership. Access and recreation resources are interrelated and connected to other natural resources and resource uses; therefore, changes in allowable uses and restrictions on other resources can have a direct influence on access and recreation resources. Indicators for measuring the potential impacts to access include the timing of any changes as well as changes to the miles or number of roads that provide existing access to recreation opportunities and changes to the existing recreation setting. Potential impacts of the No Action and alternatives that have not changed since the issuance of the FEIS are not included in this analysis.

Management actions that would alter the settings or opportunities in a particular area could affect recreational experiences and the potential attainment of a variety of beneficial outcomes. A land exchange is such an action, as it could make certain lands available or unavailable to the public.

To assess changes to access and recreation resources resulting from the implementation of No Action and alternatives, this analysis uses information from the Middle Gila Canyons TMP and input from BLM recreation resource specialists. This analysis assumes that indirect impacts to recreation setting values occur in the areas outside the proposed land exchange, such as the Arizona Trail or White Canyon Wilderness, and other areas currently visited by the public. Indirect impacts to access and recreation may occur outside the lands proposed for exchange as a result of direct impacts to routes within the **Selected Lands**.

The geographic extent of the analysis area for access and recreation is the **Selected** and **Offered Lands** parcels, as described in Chapter 2, as well as adjacent SMAs, including White Canyon Wilderness, Mount Tipton Wilderness, Warm Springs Wilderness, and White Canyon ACEC.

4.7.1 Impacts of Foreseeable Mining Operations Common to all Alternatives

Those routes that cross private lands do not provide legal public access and could be closed at any time by the private landowner, which would make any routes on public land beyond those private lands also inaccessible to motorized public access.

As a result of foreseeable mining operations on the **Selected Lands**, the public could lose non-motorized recreation opportunities on between 4,078 and 5,347 acres of public land and would lose motorized access and recreation on approximately 30.8 miles of existing routes. The impacts to the existing public routes are illustrated on Figure 4.7-1 *Public access routes impacts overview* (see Appendix F). The existing routes (30.8 miles) within the **Selected Lands** that could be lost as a result of foreseeable mining operations represent less than 1% of the total inventoried routes (3,568 miles) within the Middle Gila Canyons TMP. A less than 1% impact also occurs when compared by use levels, surface material, and impacted users.

Motorized access to the White Canyon Wilderness trailhead via Rincon and Battle Axe Road and associated recreational opportunities would be lost or impaired as a result of foreseeable mining operations. Only Battle Axe Road is maintained for standard low-clearance vehicles and access beyond the private lands from this route would be lost.

Foreseeable mining operations would also close other routes surrounding the White Canyon Wilderness that are on the **Selected Lands** to public access. There is legal public access to the White Canyon Wilderness via Battle Axe Road and existing OHV routes that bypass ASARCO's private land; however, there is no legal access across ASARCO's Walnut Canyon parcel to the White Canyon Wilderness, including the White Canyon trailhead and Rincon Road.

Recreational opportunities on the White Canyon ACEC parcels adjacent to parcel CB-1 would be lost as foreseeable mining operations would likely close routes leading into the ACEC to public use. No alternative route exists to access the ACEC.

Foreseeable mining operations are also anticipated to result in closure of legal public access to public land along a transmission line service road, a route that bypasses ASARCO private property. The anticipated closure of Battle Axe Road would also eliminate access to the historic coke ovens and portions of the Gila River via SR 177. While these destinations would be accessible via routes outside of the analysis area, this disruption in access would be significant as the alternate access options would take many more hours to reach the destination, would require completely different access points, and may be limited to highly-capable off-road vehicles.

Foreseeable mining operations would significantly decrease opportunities for dispersed recreation, including hunting, OHV driving, and sport climbing, along the Dripping Springs ridge and Tam O'Shanter Peak areas. These areas are accessed via the routes through the Chilito parcels from SR177. The route has been open to public use but lack legal public access where they cross private land near the highway.

4.7.2 No Action Alternative

Those routes that cross private lands do not provide legal public access and could be closed at any time by the private landowner, which would make any routes on public land beyond those private lands also inaccessible to motorized public access.

Under the No Action Alternative, any future requests for surface use authorization on the **Selected Lands** could include measures to address effects on access and recreation. The BLM could only require measures to address effects to access and recreation under 43 CFR subpart 3809 if the agency were to determine that foreseeable mining operations would result in unnecessary or undue degradation.

The information provided by ASARCO is not sufficiently detailed to determine with certainty which, if any, lands might remain available for public access and recreation after surface use authorization. It is also not possible to determine the length of time that access routes identified above will remain available for public access and recreation after selection of the No Action Alternative. For purposes of comparison between alternatives and based on the foreseeable uses presented by ASARCO (see Appendix B), the No Action Alternative would likely result in additional time before impacts to public access and recreation occurred and could result in retention or relocation of some access routes.

The **Offered Lands** would remain under ASARCO ownership.

4.7.3 *Proposed Action*

The Proposed Action differs from the No Action Alternative in that upon completion of the land exchange, ASARCO would determine when and how much public access would be limited or eliminated, including immediate loss of all access and recreational opportunities on the **Selected Lands**, with the exception of the Battle Axe Road which has a county ROW.

No changes to the **Offered Lands** have occurred that would result in impacts to access or recreation management different from those of the FEIS. The **Offered Lands** would be incorporated in the applicable RMPs and, at a minimum, would provide new opportunities for immediate public access to dispersed recreation including hunting opportunities on 7,304 acres. Additionally, the location of the **Offered Lands** would increase access to, and recreational opportunities in, the 30,760-acre Mount Tipton Wilderness, the 112,400-acre Warm Springs Wilderness, the 244,000-acre Big Sandy Herd Management Area, public waters of the Gila River, and the McCracken Mountains. An equivalent increase in recreational use would be expected to these areas.

4.7.4 *Buckeye Alternative*

Impacts to access and recreation to the **Selected Lands** conveyed under this alternative would be the same as described under the Proposed Action with respect to timing and elimination of access. On parcel CB-1, which would be retained in federal ownership, the impacts would be the same as described under the No Action Alternative with respect to timing and possible retention of access, including retaining public access on the portion of Rincon Road crossing CB-1.

Impacts to the **Offered Lands** would be the same as described under the Proposed Action, except the amount of offered land available for immediate public access to public lands and dispersed recreation would be reduced by 640 acres.

4.7.5 *Copper Butte Alternative*

Impacts to access and recreation to the **Selected Lands** conveyed under this alternative would be the same as described under the Proposed Action with respect to timing and elimination of access. On the 1,815 acres comprised by parcel CB-1, parcel CB-2, and portions of parcel CB-3, which would be retained in federal ownership, the impacts would be the same as described under the No Action Alternative with respect to timing and possible retention of access. This includes retaining public access on the portion of Rincon Road crossing CB-1, and the portion of Battle Axe Road and other access routes crossing CB-2 and the portion of CB-3 retained in federal ownership.

Impacts to the **Offered Lands** would be the same as described under the Proposed Action, except the amount of offered land available for immediate public access to public lands and dispersed recreation would be reduced by 1,698 acres.

4.8 WILDERNESS RESOURCES/SPECIAL MANAGEMENT AREAS

The FEIS discusses wilderness resources/SMAs impacts in Section 4.4.7, pages 4-36 through 4-37.

SMAs, and the resources they are intended to protect, are interrelated and connected to other natural resources and resource uses; where appropriate, this Final SEIS refers the reader to other sections that discuss those other resources and uses. The impacts discussed are determined through potential changes in the wilderness resources and other SMA conditions described in Chapter 3.

Analysis of impacts to wilderness areas involves determining whether the potential impacts of the proposed land exchange would change any of the four defining qualities of wilderness (as defined in the Wilderness Act of 1964 [Public Law 88-577; 16 USC 1131–1136]). Effects are quantified where possible. In the absence of quantitative data, the best professional judgment is used. To analyze potential impacts to wilderness resources and SMAs, reasonably foreseeable development scenarios of ASARCO mining operations provide the basis for determining what level of development would occur under each alternative.

The change described in Section 3.8 (new BLM policy on wilderness and WSA management [BLM 2012e]) does not result in changes to the FEIS analysis; however, the change described for National Trails (new BLM policy on National Trails management [BLM 2012c, 2012f, 2012g]) resulted in new analysis not covered under the FEIS. These changes are applicable to the **Selected Lands**.

The geographic extent of the analysis area for wilderness and SMAs is the same as that described for recreation and access in Section 4.7.

4.8.1 *Impacts of Foreseeable Mining Operations Common to all Alternatives*

Reasonably foreseeable future mining operations would create new noise, visible surface disturbances, and other environmental disruptions on the adjacent BLM lands, including White Canyon ACEC and White Canyon Wilderness. These impacts may affect the “solitude” characteristics of the White Canyon Wilderness and White Canyon ACEC.

ASARCO has identified the portions of parcels CB-1, CB-3, and CB-5 that would be adjacent to the White Canyon ACEC as Buffer lands. No major mining operations that are foreseeable uses resulting from the land exchange would occur on buffer lands (ASARCO 2013). Therefore, the likelihood of adverse direct impacts to the ACEC’s relevant and important scenic, wildlife, and cultural values is low.

The Arizona Trail does not intersect the **Selected Lands**. At its closest, Passage #16 of the Arizona Trail passes approximately 1.5 miles south of the Copper Butte parcels (see Figure 3.7-1 *Recreation in the vicinity of Copper Butte/Buckeye Selected Lands* in Appendix F).

The foreseeable mining operations would not impact the nature and purposes (see Section 3.8) of the Arizona Trail Passage #16, because neither the trail nor the trail planning corridor cross the **Selected Lands**. Foreseeable mining operations would impact recreation settings (including visual resources, noise, and other environmental conditions) in the trail vicinity, which may affect a visitor’s recreation experience.

4.8.2 *No Action Alternative*

Under the No Action Alternative, any future requests for discretionary surface use authorization on the **Selected Lands** could include measures to address any noise or visual effects on the White Canyon Wilderness, White Canyon ACEC, and Arizona Trail. The BLM could only require measures to address noise or visual effects under 43 CFR subpart 3809 if the agency were to determine that foreseeable mining operations would result in unnecessary or undue degradation to wilderness or special management areas. Based on the foreseeable uses presented by ASARCO (see Appendix B), and assuming ASARCO would propose its operations in a manner that would not constitute unnecessary or undue degradation to wilderness resources or SMAs, the BLM does not anticipate any change to the effects of foreseeable mining operations on wilderness resources or SMAs as a direct or indirect impact of selecting the No Action Alternative.

The **Offered Lands** would remain under ASARCO ownership. No changes to the **Offered Lands** have occurred that would result in impacts different from those described in the FEIS. The **Offered Lands** would remain in private ownership, and thus development and potential impacts to adjacent wilderness areas would remain possible.

4.8.3 *Proposed Action*

On the **Selected Lands**, the private landowner would have no requirement to mitigate noise and visual impacts to the White Canyon Wilderness, White Canyon ACEC, and the Arizona Trail.

The **Offered Lands** would be managed in accordance with the objectives in the applicable RMPs to protect the resources identified in the associated special management areas:

- The Gila River at Cochran parcel (320 acres) in the Gila River Riparian Management Area, Middle Gila Cultural Resource Management Area, and White Canyon RCA; would add to the land base available for public use and management of wildlife habitat along the river.
- The Sacramento Valley parcel (120 acres) in the Black Mountain Herd Management Area; would add to the land base available to manage the free-roaming wild horses and burros in that area.
- The Tomlin parcel group (320 acres) in the Big Sandy Herd Management Area; would add to the land base available to manage the free-roaming wild horses and burros in that area.
- The McCracken Mountains parcel group (6,384 acres) in the McCracken Desert Tortoise Habitat ACEC (per 43 CFR § 2200.0-6); would add to the land base available to manage excellent habitat for desert tortoise, scenic values, and important backcountry recreation opportunities.
- The Knisely Ranch Parcel Group (160 acres) in the Mount Tipton Wilderness (as specified in 43 CFR § 2200.0-6(f)); would add to the land base available for public use.

4.8.4 *Buckeye Alternative*

Impacts to wilderness and SMAs in the vicinity of the **Selected Lands** would be the same as described under the Proposed Action, except impacts to the portion of parcel CB-1 retained in public ownership would be the same as described under the No Action Alternative.

Impacts to the wilderness and SMAs in the vicinity of the **Offered Lands** would be the same as described under the Proposed Action, except that Section 9 of the McCracken Mountains parcels (640 acres) would remain under ASARCO ownership. BLM would not add this acreage to the McCracken Desert Tortoise Habitat ACEC.

4.8.5 *Copper Butte Alternative*

Impacts to wilderness and SMAs in the vicinity of the **Selected Lands** would be the same as described under the Proposed Action, except impacts to parcel CB-1, CB-2 and the portion of parcel CB-3 retained in public ownership would be the same as described under the No Action Alternative.

Impacts to the wilderness and SMAs in the vicinity of the **Offered Lands** would be the same as described under the Proposed Action, except that the amount of offered land would be reduced to 5,606 acres by excluding portions of the McCracken Mountains parcels. These 1,698 acres would remain under ASARCO ownership, and BLM would not be able to include this acreage in the McCracken Desert Tortoise Habitat ACEC.

4.9 WILDERNESS CHARACTERISTICS

The FEIS does not include a wilderness characteristics analysis.

The criteria for the four qualities of a wilderness area, used to characterize the potential impacts to wilderness characteristics, are as follows:

- whether the proposed project would reduce acreage within any wilderness characteristics inventory units (that is, reduce the acreage of a unit that might be designated as lands with wilderness character, regardless if the reduction renders a unit below 5,000 acres);
- whether the proposed project would affect the degree of naturalness;
- whether the proposed project would affect outstanding opportunities for solitude or outstanding opportunities for primitive and unconfined types of recreation; and,
- whether the proposed project would affect any supplemental values, within any areas determined to have requisite wilderness characteristics.

4.9.1 *Impacts of Foreseeable Mining Operations Common to all Alternatives*

Reasonably foreseeable mining operations on parcels RM-17 and CB-2 of the **Selected Lands** could occur on approximately 748 acres of the Granite Mountain wilderness characteristics inventory unit. Thus, the mining operations that would foreseeably occur could eliminate the unit's qualifying wilderness characteristics, including naturalness and solitude, consequently

reducing the wilderness characteristics inventory unit to less than 5,000 acres. This reduction would cause the unit to not meet the first designation criterion. The wilderness characteristics of the remaining lands within the unit, particularly “solitude,” would be impacted by the foreseeable uses, as mining activities would likely be seen, heard, and felt by visitors.

4.9.2 No Action Alternative

Under the No Action Alternative, any future requests for surface use authorization on the **Selected Lands** could include measures to address effects on the wilderness characteristics of the Granite Mountain wilderness characteristics inventory unit.

Foreseeable mining operations conducted pursuant to 43 CFR subpart 3809 under the No Action Alternative would not be required to mitigate for wilderness characteristics. The BLM could only require measures to address effects to wilderness characteristics under 43 CFR subpart 3809 if the agency were to determine that foreseeable mining operations would result in unnecessary or undue degradation.

The **Offered Lands** would remain under ASARCO ownership. BLM does not inventory private lands for wilderness characteristics.

4.9.3 Proposed Action

Upon exchange of the **Selected Lands**, the Granite Mountain wilderness characteristics inventory unit would contain less than 5,000 acres of public land, thus eliminating the qualifying criteria to be at least 5,000 acres. Mining operations on private land, conducted under state and local regulations, are not required to mitigate for wilderness characteristics.

The **Offered Lands** would be inventoried for wilderness characteristics. None of the **Offered Lands** parcels meet the minimum acreage requirements to be considered a wilderness characteristics inventory unit on their own.

4.9.4 Buckeye Alternative

Under this alternative, impacts would be similar to the Proposed Action, except that 640 acres of the McCracken Mountains parcels would be transferred to federal ownership and inventoried for wilderness characteristics.

4.9.5 Copper Butte Alternative

Under this alternative, impacts would be similar to the Proposed Action except that approximately 1,698 fewer acres of **Offered Lands** would be transferred to federal ownership and inventoried for wilderness characteristics.

4.10 CULTURAL AND HERITAGE RESOURCES

The FEIS discusses impacts to cultural and heritage resources in Section 4.5, pages 4-37 through 4-39. After issuance of the FEIS, ASARCO purchased the surface ownership of the ASLD-administered Selected Land parcels. Adverse effects on historic properties were mitigated prior

to the sale of the land; these lands and any resources present on them are no longer part of this analysis.

The **Selected Lands** contain 57 NRHP-eligible sites and five resources that are of traditional cultural significance to Native peoples. This section analyzes potential effects resulting from the various alternatives.

4.10.1 Impacts of Foreseeable Mining Operations Common to all Alternatives

As discussed in the FEIS, foreseeable mining operations under all alternatives could disturb, damage, and/or destroy historic properties. Foreseeable mining operations may also alter the property's setting when that setting contributes to the property's NRHP eligibility, introduce new visible or audible elements, and increase in visitation, which may lead to inadvertent damage of the sites. Five Places of Traditional Cultural Significance are all located in the area designated Buffer under the foreseeable development scenario and thus may experience indirect impacts from foreseeable mining operations from access restrictions, introduction of new visible or auditory elements, or inadvertent damage from increase visitation to the area.

The number of sites that could experience effects from the reasonably foreseeable mining operations resulting from the various alternatives are summarized by parcel group in Table 4.10-1.

Table 4.10-1. Cultural Site Effects Overview

Parcel Group	Sites Impacted – No Action and Proposed Action	NRHP-eligible Sites – No Action and Proposed Action	Sites Impacted – Buckeye Alternative	NRHP-eligible Sites – Buckeye Alternative	Sites Impacted – Copper Butte Alternative	NRHP-eligible Sites – Copper Butte Alternative
Ray Mine	34	19	34	19	34	19
Copper Butte	53	35	31	15	37	15
Chilito/Hayden	4	3	4	3	4	3
Casa Grande	1	0	1	0	1	0
Total	92	57	70	37	76	37

4.10.2 No Action

4.10.2.1 ARCHAEOLOGICAL SITES

There would be no transfer out of federal ownership of the lands (surface or subsurface) containing the 57 NRHP-eligible sites within the **Selected Lands**. Therefore, unlike the action alternatives, selecting the No Action Alternative would not result in a direct, adverse effect as defined by the NHPA regulations because the lands would remain in federal ownership, and thus the NHPA and Archaeological Resources Protection Act (ARPA) still would apply.

The continued application of the NHPA and ARPA under the No Action Alternative would also provide the possibility that the resources themselves would remain physically intact under the requirements of the BLM's regulations that, among other things, require operators to not knowingly disturb, alter, injure, or destroy known archaeological sites. In compliance with the

NHPA, the BLM would develop a programmatic agreement (PA) to be signed by ASARCO, BLM, SHPO, and the tribes establishing protocols and processes to address adverse effects to historic properties that would be impacted under any new or revised MPO or other authorization. Under the PA, BLM could require the operator to avoid or resolve adverse effects to the sites on each parcel. Such resolution of adverse effects would be developed in consultation with SHPO and American Indian tribes and may include, but is not limited to, avoidance of sites and allowing access to tribal members. Any such PA likely would be substantially similar to the PA developed for the Proposed Action. In addition, cultural resources not included in any approved authorization would also remain physically intact and subject to the protections of the NHPA and ARPA. To the extent ASARCO seeks surface use authorization from BLM to use these lands, selecting the No Action Alternative would allow the BLM to resolve adverse effects of the proposed use, such as inadvertent damage due to increased human presence in the area or effects to setting, as a condition of approval in accordance with the NHPA and its implementing regulations at 36 CFR 800.

Ray Mine Complex. Five historic properties (archaeological sites) are located on parcels where the foreseeable use is identified as Transition or Production, Operation and Support. In addition, 14 historic properties are within areas designated as Buffer.

Copper Butte/Buckeye. Sixteen historic properties are located in areas designated as Transition; Production, Operation, and Support; or Long-Range Prospect and would be directly impacted by foreseeable mining operations. Eighteen historic properties are within the area designated Buffer and may be indirectly impacted.

Chilito/Hayden. This parcel is slated for Production, Operation, and Support; therefore, all three historic properties would be directly impacted by foreseeable mining operations.

Casa Grande. Because there are no historic properties on the Casa Grande parcels, no impacts from foreseeable mining activities are anticipated.

Places of Traditional Cultural Significance

The No Action Alternative would not result in the transfer of the lands containing the properties that are of traditional cultural significance to Native peoples. Therefore, selecting the No Action Alternative would not have an adverse effect on the land status of these resources because the lands would remain in federal ownership and would remain subject to the NHPA and ARPA.

In addition, because any surface use authorization or MPO would be occurring on federal lands, the operator would be required to comply with the NHPA, ARPA, and BLM's regulations and to resolve any potential impacts. Under the NHPA, adverse effects would need to be avoided, minimized, or mitigated through measures developed in consultation with the affected tribes and may include avoidance areas or modifications to the associated authorization.

The **Offered Lands** would remain privately owned. Any cultural resources present on **Offered Lands** would not gain protection under the ARPA and would only be subject to NHPA compliance if a federal permit or decision is needed to develop the land.

Human Remains, Funerary Objects, Sacred Objects, or Objects of Cultural Patrimony

Under the No Action Alternative, the **Selected Lands** would remain under BLM management. Human remains, funerary objects, sacred objects, or objects of cultural patrimony that may be inadvertently discovered would be subject to NAGPRA. Any surface use authorization or MPO submitted would include an action plan that requires the operator to cease activity and notify the appropriate BLM official, who would then take steps to secure the remains or object, consult with appropriate tribes, and oversee the transfer or disposition of the discovery before authorizing the resumption of activity, as provided in 43 CFR § 10.4.

The **Offered Lands** would remain privately owned. BLM would have no authority to implement protection and consultation on human remains and objects protected under NAGPRA. Human remains, funerary objects, sacred objects, or objects of cultural patrimony that originate on these lands would still be protected by 18 USC § 1170, which forbids trafficking of Native American remains and cultural items, as well as ARS § 41-865.

4.10.3 Proposed Action

NHPA regulations at 36 CFR § 800.5 include the “transfer, lease, or sale of [the historic] property out of federal ownership or control without adequate and legally enforceable conditions to ensure long-term preservation of the property’s historic significance” as an adverse effect. The NHPA regulations identify such conveyances as having an adverse effect because protection under the NHPA for historic sites would be available after conveyance only if a federal decision is involved. Conveyance out of federal ownership also removes protection under the ARPA, which only applies on federal and Tribal lands.

The Proposed Action would have a direct adverse effect on the land status for all 57 historic properties within the **Selected Lands** because the loss of federal management and oversight resulting from the transfer of the surface lands or subsurface rights out of federal ownership or management creates an adverse effect to the historic properties. Under 36 CFR § 800.5(2) (vii) this adverse effect to any lands containing NRHP-eligible or undetermined sites would occur regardless of the foreseeable use of the parcels. Fifty-three of these historic properties are eligible for the NRHP under Criterion D, two historic properties are eligible under Criterion A, and two historic properties are eligible under Criteria A and D.

NHPA or ARPA would no longer apply to any lands conveyed through the land exchange. However, per the NHPA’s regulatory provisions a PA to address adverse effects resulting from the land exchange was executed in 2018. The direct adverse effects to historic properties from the conveyance of the **Selected Lands** under the Proposed Action must be resolved prior to any ground disturbance per the PA. This PA does not require ASARCO to protect or otherwise avoid adverse effects to historic properties once the lands leave federal ownership, but rather addresses the loss of federal oversight. The number of sites impacted by the change in land status differs for each action alternative.

Historic properties in the analysis area are eligible under two of the four NRHP-eligibility criteria described in 36 CFR § 60.4. The majority of the archaeological sites in the analysis area are eligible under Criterion D and would be subjected to data recovery designed to extract the

significant information from each affected site. For these sites, once the data recovery is complete as described in the PA, the sites would likely no longer be eligible for the NRHP under Criterion D and would require no further consideration or protection regardless of any future federal nexus. Adverse effects on sites eligible under Criterion A, association with broad themes of history, are addressed in the PA.

4.10.3.1 ARCHAEOLOGICAL SITES

Ray Mine Complex. Within the Ray Mine Complex, the land exchange under the Proposed Action would directly impact 19 historic properties through the change in land status and removal of ARPA and NHPA protections. One historic property is eligible under Criterion A; the remaining 18 are eligible under Criterion D. Those properties eligible under Criterion D would be subjected to data recovery to recover their information potential. The one property eligible under Criterion A is a trail; resolution for adverse effects to the trail are completed and included in the PA and include public information dissemination.

Copper Butte/Buckeye. Within the Copper Butte/Buckeye Complex, the land exchange under the Proposed Action would directly impact 35 historic properties through the change in land status and removal of ARPA and NHPA protections. Thirty-two historic properties are eligible under Criterion D, one is eligible under Criterion A, and two are eligible under both Criteria A and D. Those properties eligible under Criterion D would be subjected to data recovery to recover their information potential. The properties eligible under Criterion A are pictograph or petroglyph sites; resolution of adverse effects to these sites are completed and included in the PA in consultation with affected tribes.

Chilito/Hayden. Within the Chilito/Hayden parcels, the land exchange under the Proposed Action would directly impact three historic properties that are NRHP eligible under Criterion D through the change in land status and removal of ARPA and NHPA protections. The affected properties would be subjected to data recovery to recover their information potential.

Casa Grande. Within the Casa Grande parcels, there are no historic properties to be impacted by the land exchange under the Proposed Action.

Places of Traditional Cultural Significance

Selected Lands. Two rock art sites, which have been declared TCPs by the O'odham peoples, would be adversely impacted by the change in land status and removal of ARPA and NHPA protections when the lands are exchanged under the Proposed Action. Two archaeological sites and an isolated occurrence, which have been declared places of traditional cultural significance by the Hopi Tribe, would be directly affected by the transfer of lands under the Proposed Action, because they would no longer be protected by ARPA. The Proposed Action may also indirectly impact these resources by restricting access to the sites for tribal members because the lands would be privately owned by ASARCO. Mitigation measures are completed and included in the PA in consultation with the affected tribes.

Offered Lands. The transfer under the Proposed Action would bring eight archaeological sites, three roasting features, and (both known and unknown) places of traditional importance to Native peoples on the **Offered Lands** parcels under the full protection under the ARPA and

NHPA. Any future activity on the parcels with these resources would be subject to compliance with federal law.

Human Remains, Funerary Objects, Sacred Objects, or Objects of Cultural Patrimony

The Proposed Action would transfer the **Selected Lands** to private ownership and would remove BLM's authority to implement protections afforded to Native American human remains and cultural objects under NAGPRA. In Arizona, private landowners are required to comply with ARS § 41-865.

The **Offered Lands** would be managed by BLM. Any future discoveries of Native American human remains and cultural objects would be afforded the full protections provided under NAGPRA.

4.10.4 Buckeye Alternative

4.10.4.1 ARCHAEOLOGICAL SITES

The Buckeye Alternative would have direct adverse impacts on the land status of 53 historic properties within the **Selected Lands** because the lands would be transferred out of federal ownership. Forty-nine historic properties within the Buckeye Alternative are eligible under Criterion D, two are eligible under Criterion A, and two are eligible under Criteria A and D. Four historic properties within the **Selected Lands** are situated on lands that would be excluded from the land exchange under the Buckeye Alternative. These four historic properties would not experience direct adverse impacts to land status and future surface use authorization or MPO on these lands would be required to comply with ARPA, the NHPA, and BLM regulations.

Ray Mine Complex. The impacts under the Buckeye Alternative are the same as under the Proposed Action.

Copper Butte/Buckeye. Under the Buckeye Alternative, the land exchange would directly impact the 31 historic properties through the change in land status and removal of ARPA and NHPA protections. Twenty-eight of the historic properties are eligible for the NRHP under Criterion D, one under Criterion A, and two under Criteria A and D. Mitigation of adverse effects to historic properties which are eligible under Criterion A are completed and included in the PA in consultation with the affected tribes. The remaining four historic properties are on lands that would remain in federal ownership; consequently, these four sites would not experience a direct impact as a result of the land exchange under the Buckeye Alternative.

Two of the historic properties are located within Long Range Prospect areas of parcel CB-1, and resolution of adverse effects would be required as a condition of approval of any authorization that affected those sites. Two of the historic properties are located within Buffer areas of parcel CB-1. Based on the foreseeable uses presented by ASARCO, the likelihood that these properties would be affected by foreseeable mining operations is low; however, if surface use authorization were proposed that would affect these historic properties, the BLM would have to resolve adverse effects in accordance with the NHPA and its implementing regulations at 36 CFR 800.

Chilito/Hayden. The impacts under the Buckeye Alternative are the same as under the Proposed Action.

Casa Grande. The impacts under the Buckeye Alternative are the same as under the Proposed Action.

Places of Traditional Cultural Significance

Selected Lands. Five resources of traditional cultural importance would be adversely impacted by the transfer of lands under the Buckeye Alternative. Because all of the resources are on lands that would be transferred, the effects of the transfer as well as of the direct and indirect impacts on the resources after the transfer would be similar to those of the Proposed Action. The action may also indirectly impact these resources by restricting access to the sites for tribal members because the lands would be privately owned by ASARCO. Mitigation measures are completed and included in the PA in consultation with the affected tribes.

Offered Lands. All archaeological sites and places (known and unknown) of traditional importance to Native peoples would be protected under the ARPA and NHPA. Because Section 9 of the McCracken Mountains parcels is excluded from the exchange under this alternative, any archaeological sites or places of traditional importance within Section 9 would not gain protection under the ARPA and would only be subject to NHPA compliance if a federal permit or decision is needed to develop the land.

Human Remains, Funerary Objects, Sacred Objects, or Objects of Cultural Patrimony

Selected Lands. Protection of Native American human remains and cultural objects would be the same as discussed under Proposed Action Alternative, except for 800 acres of land which would remain under BLM management and provide protection to human remains and cultural objects as outlined in the No Action Alternative.

Offered Lands. Protection of Native American human remains and cultural objects would be the same as discussed under the Proposed Action, except for 640 acres that would remain privately owned. Human remains and cultural objects on remaining privately owned land would be protected under ARS § 41-865.

4.10.5 Copper Butte Alternative

4.10.5.1 ARCHAEOLOGICAL SITES

The Copper Butte Alternative would have a direct adverse impact on the land status of 37 historic properties within the **Selected Lands** because the lands would be transferred out of federal ownership. Thirty-three historic properties within the Copper Butte Alternative are eligible under Criterion D, two are eligible under Criterion A, and two are eligible under Criteria A and D. Twenty historic properties within the **Selected Lands** are situated on lands that would be excluded from the land exchange under the Copper Butte Alternative. These 20 historic properties would not experience direct adverse impacts from the change in land status and any

future surface use authorization or MPO on these lands would be required to comply with ARPA, the NHPA, and BLM regulations.

Ray Mine Complex. The impacts under the Copper Butte Alternative are the same as under the Proposed Action.

Copper Butte/Buckeye. The land exchange under the Copper Butte Alternative would directly impact 15 historic properties through the change in land status and removal of ARPA and NHPA protections. Twelve of those historic properties are eligible for the NRHP under Criterion D, one under Criterion A, and two under Criteria A and D. Resolution of adverse effects to historic properties which are eligible under Criterion A are completed and included in the PA in consultation with the affected tribes. The remaining 20 historic properties are on lands that would remain in federal ownership; consequently, those 20 sites would not experience a direct impact from the land exchange under the Copper Butte Alternative.

The areas to be excluded from the exchange in parcels CB-1, CB-2, and CB-3 are designated as Transition, Buffer, or Long-Range Prospect. If any surface use authorization were proposed that would affect these historic properties, the BLM would have to resolve adverse effects in accordance with the NHPA and its implementing regulations at 36 CFR 800.

Chilito/Hayden. The impacts under the Copper Butte Alternative are the same as under the Proposed Action.

Casa Grande. The impacts under the Copper Butte Alternative are the same as under the Proposed Action.

Places of Traditional Cultural Significance

Selected Lands. Two rock art sites that have been declared TCPs by the O'odham peoples would be adversely impacted by the land exchange under the Copper Butte Alternative. Exchanging the lands under this alternative would directly impact the land status of these resources by removing them from federal ownership and the protection of the ARPA. The land exchange under this alternative may also indirectly impact resources by restricting access to the sites for tribal members. Mitigation of adverse effects to these TCPs are completed and included in the PA in consultation with the affected tribes. The three resources located on lands that would not be exchanged under this alternative, with the potential to be impacted by other surface use authorizations or an MPO, would be addressed through a separate PA.

Offered Lands. The land exchange would protect all archaeological sites and places of traditional importance (known and unknown) to Native peoples by affording them protection under the ARPA and NHPA. Because some parcels would be excluded from the exchange, any archaeological sites or places of traditional importance within Sections 3, 9, and 19 of the McCracken Mountains parcels would not gain protection under the ARPA and would only be subject to NHPA compliance if a federal permit or decision is needed to develop the land.

Human Remains, Funerary Objects, Sacred Objects, or Objects of Cultural Patrimony

Selected Lands. Protection of Native American human remains and cultural objects would be the same as discussed under the Proposed Action, except for 1,815 acres of land which would remain under BLM management and provide protection to human remains and cultural objects as outlined in the No Action Alternative.

Offered Lands. Protection of Native American human remains and cultural objects would be the same as discussed under the Proposed Action, except for those located on the 1,698 acres that would remain privately owned. Human remains and cultural objects on those privately-owned land would remain protected under ARS § 41-865.

4.11 SOCIOECONOMIC CONDITIONS

The FEIS discusses impacts to socioeconomic conditions in Section 4.6, pages 4-39 through 4-45.

4.11.1 *Impacts of Foreseeable Mining Operations Common to all Alternatives*

4.11.1.1 POPULATION AND DEMOGRAPHICS

Foreseeable mining is not expected to have an impact on population or demographics within the study area. Apart from changes in foreseeable uses on the Casa Grande parcels (**Selected Lands**), none of the foreseeable uses have substantively changed from the FEIS discussion. Population and demographic trends would continue unaffected, consistent with historic trends. The anticipated employment effects of the alternatives (as discussed below) are not expected to induce any more population or demographic changes in the study area than are already realized by the operation of the Ray Mine.

4.11.1.2 LOCAL AND REGIONAL ECONOMY

Taxes and Payment in Lieu of Taxes. There would be no impacts to taxes or PILT as a result of foreseeable mining operations.

Employment. Foreseeable mining operations on the **Selected Lands** are expected to increase employment and wages. ASARCO would add approximately 200 new full-time employees to support the potential future mining uses of the Copper Butte parcels (ASARCO 2018). An estimated 540 additional jobs may be supported by the additional 200 employees ASARCO employs (Arizona Mining Association 2011). No employment estimate is available for the Chilito/Hayden parcels because ASARCO has not begun conceptual mine planning, and effects to employment cannot be estimated.

Income. An additional \$16.5 million/year in additional wages, salaries, and fringe benefits is estimated for the 200 new hires associated with foreseeable mining operations on the Copper Butte parcels (ASARCO 2018). No income estimate is available for the Chilito/Hayden parcels

because ASARCO has not begun conceptual mine planning, and effects to employment cannot be estimated.

Grazing Economics. Foreseeable mining operations would result in a loss of up to approximately 6,928 acres available for federal authorization of livestock grazing in Pinal County and of 747 acres available for federal authorization for livestock grazing in Gila County. This represents a loss of less than 1% of the total available grazing acreage for both Pinal County and Gila County. Foreseeable mining operations could also lead to an overall loss in grazing economic output for Pinal and Gila Counties. However, the potential economic impacts of these changes are unable to be quantified solely by acreage and AUM allotments. There would be no quantifiable change to grazing economics on the **Offered Lands**.

Recreation Economics. Foreseeable mining operations on the **Selected Lands** would displace to other areas an estimated \$170,168 annually in recreation activity (BLM 1999; converted to 2018-dollar values).⁹

Environmental Justice. Multiple federally recognized tribes have identified concerns about the impacts from mining activities and access to places of traditional cultural importance on the **Selected Lands**. Foreseeable mining operations are not expected to raise environmental justice issues because the current demographics of the study area do not indicate a disproportion of low-income or minority populations.

4.11.2 No Action Alternative

4.11.2.1 POPULATION AND DEMOGRAPHICS

The No Action Alternative is not expected to impact population or demographics.

4.11.2.2 LOCAL AND REGIONAL ECONOMY

Taxes and Payment in Lieu of Taxes. Under the No Action Alternative, Pinal and Gila Counties would continue to receive PILT of approximately \$30,442 for the **Selected Lands**. The **Selected Lands** would not be subject to property tax. The **Offered Lands** would remain privately owned, and Mohave County and Pinal County would continue to receive annual property taxes totaling approximately \$9,500.

Employment. The No Action Alternative would have no impact on employment on the **Selected** or **Offered Lands**.

Income. The No Action Alternative would have no impact on income on the **Selected** or **Offered Lands**.

Grazing Economics. The No Action Alternative would have no quantifiable impact to grazing economics on the **Selected** or the **Offered Lands**.

⁹ Qualitative estimate based on 1999 dollars is used because no current data exist regarding dispersed recreation on the Selected Lands.

Recreation Economics. A displacement to recreational activities on the **Selected Lands** would occur at such time as the surface use authorizations or an MPO was issued. The No Action Alternative would not affect recreation economics on the **Offered Lands**.

Environmental Justice. The **Selected Lands** would remain under federal ownership, and future uses of the land would be subject to EO 12898. Multiple federally recognized tribes have identified concerns about the impacts from mining activities and access to places of traditional cultural importance on the **Selected Lands**. The BLM would continue to listen to and seek to mitigate tribal concerns. If any surface use authorization of the **Selected Lands** is sought, including a new or modified MPO, the BLM would continue to monitor and analyze the demographic and economic trends of the affected environment and engage with populations of concern as required under EO 12898.

4.11.3 Proposed Action

4.11.3.1 POPULATION AND DEMOGRAPHICS

The Proposed Action is not expected to impact population or demographics.

4.11.3.2 LOCAL AND REGIONAL ECONOMY

Taxes and Payment in Lieu of Taxes. Under the Proposed Action, the **Selected Lands** would result in an increase in property tax payments and a decrease in federal PILT payments to Gila and Pinal Counties. The Proposed Action would reduce tax revenues and increase PILT payments from **Offered Lands** in Pinal and Mohave Counties (Table 4.11-1).

Table 4.11-1. Fiscal Impacts of the Proposed Action

Selected Lands			
County	Acres of Selected Lands	Decrease in PILT Revenue	Increase in Property Tax Revenue*
Pinal	10,624	\$29,673	\$1,128,180 to \$1,484,332
Gila	352	\$742	\$33,584 to \$37,029
Offered Lands			
County	Acres of Offered Lands	Decrease in Property Tax Revenue	Increase in PILT Revenue
Pinal	320	\$2,463	\$894
Mohave	6,978	\$6,963	\$4,055

Source: BBC Research & Consulting 2019.

Note: Results assume distribution of future land uses as described in Section 2.2.6 of the FEIS (that is, 48% operational mining land and 52% vacant land).

* The range of property tax revenues assumes a low assessed value of \$1,600 per acre for the Ray Mine and a high assessed value of \$2,100 per acre.

For the **Selected Lands**, Pinal County would receive between \$1.1 million to \$1.5 million in annual property tax revenues and would forego \$29,700 in PILT revenues. Gila County would receive between \$33,600 and \$37,000 in annual property tax revenues and would forego \$742 in PILT revenues (BBC Research and Consulting 2019).

For the **Offered Lands**, Pinal County would forego about \$2,500 in annual property tax revenues and would receive about \$900 in PILT revenues. Mohave County would forego about \$7,000 in annual property tax revenues and would receive about \$4,100 in PILT revenues (BBC Research and Consulting 2019).

Employment and Income. The Proposed Action would not impact employment and income.

Grazing Economics. The Proposed Action would not have a quantifiable impact to grazing economics for the **Selected Lands**. Grazing may occur on the **Offered Lands** subsequent to the land exchange and would be subject to BLM rangeland management requirements.

Recreation Economics. The transfer of the **Selected Lands** to private ownership could result in impacts to recreation economics sooner than under the No Action Alternative because ASARCO would not first need to seek surface use authorization from the BLM.

Under the Proposed Action, the addition acquisition of 7,304 acres of **Offered Lands** under the Proposed Action would result in additional acreage available for dispersed recreation and hunting access, which could provide additional opportunities for recreation-related spending in the associated communities. However, this economic impact cannot be quantified.

Environmental Justice. State and local regulations of mining operations on private land do not contain provisions equivalent to EO 12898 for environmental justice. The land exchange would eliminate the specific processes of EO 12898 which allow tribes and minority and low-income populations to voice their concerns to the BLM on environmental impacts related to foreseeable uses. However, future actions on the **Selected Lands** with a federal nexus would be subject to EO 12898.

Future decisions on the **Offered Lands** would require BLM to consider impacts to tribes and minority and low-income populations per EO 12898.

4.11.4 Buckeye Alternative

4.11.4.1 POPULATION AND DEMOGRAPHICS

The Buckeye Alternative is not expected to impact population or demographics.

4.11.4.2 LOCAL AND REGIONAL ECONOMY

Taxes and Payment in Lieu of Taxes. Under the Buckeye Alternative, the **Selected Lands** would result in an increase in property tax payments and a decrease in federal PILT payments to Gila and Pinal Counties. The Buckeye Alternative would reduce tax revenues and increase PILT payments from **Offered Lands** in Pinal and Mohave Counties (Table 4.11-2).

Table 4.11-2. Fiscal Impacts of the Buckeye Alternative

Selected Lands			
County	Acres of Selected Lands	Decrease in PILT Revenue	Increase in Property Tax Revenue*
Pinal	9,824	\$27,439	\$1,043,229 to \$1,372,563
Gila	352	\$742	\$33,584 to \$37,029
Offered Lands			
County	Acres of Offered Lands	Decrease in Property Tax Revenue	Increase in PILT Revenue
Pinal	320	\$2,463	\$894
Mohave	6,338	\$6,451	\$3,683

Source: BBC Research & Consulting 2019.

Note: Results assume distribution of future land uses as described in Section 2.2.6 of the FEIS (i.e., 48% operational mining land and 52% vacant land).

* The range of property tax revenues assumes a low assessed value of \$1,600 per acre for the Ray Mine and a high assessed value of \$2,100 per acre.

For the **Selected Lands**, Pinal County would receive between \$1.0 million and \$1.4 million in annual property tax revenues and forego \$27,439 in PILT revenues. Gila County would receive between \$33,600 and \$37,000 in annual property tax revenues and forego about \$742 in annual PILT revenues (BBC Research and Consulting 2019).

For the **Offered Lands**, Pinal County would forego about \$2,500 in annual property tax revenues and receive about \$900 in annual PILT revenues. Mohave County would forego about \$6,500 in annual property tax revenues and receive about \$3,700 in annual PILT revenues (BBC Research and Consulting 2019).

Employment and Income. Employment and income estimates would be the same as the Proposed Action.

Grazing Economics. Grazing economic impacts for the **Selected** and **Offered Lands** would be the same as the Proposed Action.

Recreation Economics. The Buckeye Alternative would likely result in a similar length of time before effects to recreation economics are felt on the **Selected Lands** conveyed than the Proposed Action, and a similar length of time before effects to recreation economics related to the retained parcels as the No Action Alternative.

Under the Buckeye Alternative, the acquisition of 6,659 acres of **Offered Lands** would result in additional acreage available for dispersed recreation and hunting access, which could provide additional opportunities for recreation-related spending in the associated communities. Based on the available information, it is not possible to quantify effects to recreation economics from the lands acquired under the Buckeye Alternative, although they would be expected to be less than under the Proposed Action, and greater than the No Action Alternative and the Copper Butte Alternative.

Environmental Justice. Impacts would be the same as the Proposed Action, except for the portion of the **Selected Lands** that remain in federal ownership and the **Offered Lands** that would not be conveyed to federal ownership.

4.11.5 Copper Butte Alternative

4.11.5.1 POPULATION AND DEMOGRAPHICS

The Copper Butte Alternative is not expected to impact population and demographics.

4.11.5.2 LOCAL AND REGIONAL ECONOMY

Taxes and Payment in Lieu of Taxes. Under the Copper Butte Alternative, the **Selected Lands** would result in an increase in property tax payments and a decrease in federal PILT payments to Gila and Pinal Counties. The Copper Butte Alternative would reduce tax revenues and increase PILT payments from **Offered Lands** in Pinal and Mohave Counties (Table 4.11-3).

Table 4.11-3. Fiscal Impacts of the Copper Butte Alternative

Selected Lands			
County	Acres of Selected Lands	Decrease in PILT Revenue	Increase in Property Tax Revenue*
Pinal	8,809	\$24,275	\$935,447 to \$1,230,755
Gila	352	\$742	\$33,584 to \$37,029
Offered Lands			
County	Acres of Offered Lands	Decrease in Property Tax Revenue	Increase in PILT Revenue
Pinal	320	\$2,463	\$894
Mohave	5,280	\$5,603	\$3,068

Source: BBC Research & Consulting 2019.

Note: Results assume distribution of future land uses as described in Section 2.2.6 of the FEIS (i.e., 48% operational mining land and 52% vacant land).

* The range of property tax revenues assumes a low assessed value of \$1,600 per acre for the Ray Mine and a high assessed value of \$2,100 per acre.

For the **Selected Lands**, Pinal County would receive between \$0.9 million and \$1.2 million in annual property tax revenues and forego \$24,275 in annual PILT revenues. Gila County would receive between \$33,600 and \$37,000 in annual property tax revenues and forego about \$742 in annual PILT revenues (BBC Research and Consulting 2019).

For the **Offered Lands**, Pinal County would forego \$2,463 in annual property tax revenues and would receive about \$900 in annual PILT revenues. Mohave County would forego \$5,603 in annual property tax revenues and would receive about \$3,100 in annual PILT revenues (BBC Research and Consulting 2019).

Employment and Income. Employment and income estimates would be the same as the Proposed Action.

Grazing Economics. Grazing economic impacts for the **Selected** and **Offered Lands** would be the same as the Proposed Action.

Recreation Economics. The Copper Butte Alternative would likely result in shorter length of time before effects to recreation economics are felt on the conveyed lands than the No Action Alternative, and a similar length of time before effects to recreation economics related to retained parcels CB-1, CB-2, and CB-3 as the Proposed Action.

Under the Copper Butte Alternative, the acquisition of 5,606 acres of **Offered Lands** would result in additional acreage available for dispersed recreation and hunting access, which could provide additional opportunities for recreation-related spending in the associated communities. Based on the available information, it is not possible to quantify effects to recreation economics from the lands acquired under the Copper Butte Alternative, although they would be expected to be less than under the Proposed Action and the Buckeye Alternative, and greater than the No Action Alternative.

Environmental Justice. Impacts would be the same as the Proposed Action, except for the portion of the **Selected Lands** that remain in federal ownership and the **Offered Lands** that would not be conveyed to federal ownership.

4.12 CUMULATIVE IMPACTS

The FEIS discusses cumulative effects on pages 4-45 through 4-52. This cumulative impact analysis (CIA) describes the effect of the proposed action and alternatives when added to past, present, and reasonably foreseeable future actions (RFFAs) within the cumulative impacts analysis area (CIAA), and identifies changes to the cumulative actions and impacts identified in the FEIS. The CIAA varies by resource area. These projects are described in Appendix D, *Past, Present, and Reasonably Foreseeable Future Projects and Resource Conditions Considered in the Cumulative Effects Analysis*. Appendix D also provides updated information regarding the projects considered in the FEIS. Many of the RFFAs considered in the FEIS are now part of Past/Present projects, and a new list of future projects is included for this Final SEIS.

4.12.1 Biological Resources

A vegetation or riparian resource cumulative impact can be defined as the total impact, positive or negative, on vegetation or riparian areas that result from the incremental impact of the Proposed Action, when added to other past, present, and reasonably foreseeable future actions (RFFAs) occurring within the same analysis area.

For biological resources cumulative impacts, the CIAA for comparison of past, present, and future actions is defined in the 1999 Final EIS (FEIS) as a 50-mile radius from the **Selected Lands**. This is the same impacts assessment area used in the FEIS.

These lands have been used historically for ranching and mining. The effects of past and present activities on biological resources of the **Selected Lands** are detailed in Section 3.2.1 of the 1999 FEIS.

The reasonably foreseeable activities that are considered for this project are listed in Appendix D. Approximately 17,732 acres are expected to be modified by reasonably foreseeable mining operations, including 8,196 acres for the **Selected Lands** (Ray Mine); 6,900 acres for Resolution Copper Mine; and 2,636 acres for the Ripsey Wash Tailings Storage Facility (TSF). Because parcel RM-18 is not technologically or logistically feasible for a tailings facility as identified in the 1999 FEIS, the facility will be constructed in the Ripsey Wash area. This parcel was purchased by ASARCO from the ASLD, and the facility will be built on the site, whether the Ray Land Exchange takes place or not. When considering actions provided in Appendix D, including the 7,402-acre Ripsey Wash TSF, the analysis area for biological resources is experiencing moderate to major cumulative effects through loss of upland and riparian vegetation and associated wildlife habitat. Foreseeable mining activities would create a high degree of change within the existing resource character and overall condition of upland and riparian vegetation resources. Impacts include an increased risk for noxious weed invasion and adverse effects on wildlife from increased habitat fragmentation, noise, and traffic. Mining and other activities within the CIAA resulting in land clearing, grading, or conversion from a natural or undeveloped condition, such as development, master planned communities, and road construction would contribute to cumulative impacts to vegetation and habitat, including loss of upland and riparian vegetation communities. Additional vegetation and habitat impacts from livestock grazing, OHV use, recreation, wildfire, and noxious weeds would contribute to habitat loss and fragmentation, which could result in adverse impacts to wildlife from increased competition for resources and reduce population numbers.

Foreseeable mining operations on the **Selected Lands** could result in the removal of between 4,078 and 5,347 acres of the 8,196 acres of natural vegetation and soil resources, including approximately 71 acres of previously disturbed upland plant communities. Under the Proposed Action, impacted vegetation and wildlife habitat would be reclaimed to landowner specification and noxious weed management would not be required under state law. The landowner would not be required to protect or mitigate for disturbance of unoccupied designated or proposed critical habitat.

Thus, the proposed land exchange would result in an approximate 56% increase to the loss of upland vegetation and wildlife habitat; 5,347 additional acres or permanent disturbance to 9,536 acres of the other RFFAs within the CIAA. No additional cumulative impacts to special status species, including USFWS-listed species, beyond those described in the 1999 FEIS, are expected. For more detailed information regarding cumulative impacts to USFWS-listed species, see the Biological Assessment of the Proposed Ray Land Exchange (BLM 2013c) in the project record (Chapter 3, Section 3.2.3, provides a summary discussion of special status species issues evaluated in the Biological Assessment). Although protective measures for critical habitat on the **Selected Lands** would be reduced without the protections of federal management, no cumulative impacts are anticipated as no mining operations are expected to occur on critical habitat within the **Selected Lands** (see Section 4.2.1).

4.12.2 Water Resources

The cumulative impact assessment area for water resources is the Middle Gila Watershed. This is the same CIAA used in the FEIS.

As detailed in Section 4.3, the proposed land exchange would have no impact on surface water quality and quantity, or groundwater quality and quantity. ASARCO would be required to comply with the same regulations on water resources, regardless of the alternative chosen. The proposed land exchange would have an impact on water rights. PWR 107 federally reserved water rights (FRWRs) are the only federally reserved water rights that the land exchange will impact, as the PWR 107 withdrawal will be revoked for any **Selected Lands** involved prior to disposal. For this reason, and because most other types of FRWRs support conservation purpose reservations for lands that will not be disposed, this cumulative impact discussion will focus only on PWR 107 FRWRs. There are 39 potential PWR 107 FRWRs within the CIAA on BLM-administered public land. The exact number of these rights cannot be determined without extensive research and field surveys to confirm presence, use, etc.

Past, present, and reasonably foreseeable future actions in the CIAA for water resources include all land exchanges and disposals listed in Appendix D. It is unknown how many PWR 107 FRWRs were revoked during past land exchanges and disposals. At this time, the only foreseeable federal land exchange/disposal in the CIAA is the Resolution Copper land exchange. It is unknown at this time what FRWRs may be impacted by that exchange.

The proposed land exchange would contribute to the loss of PWR 107 FRWRs as 18 PWR 107 FRWRs would be revoked prior to disposal of the **Selected Lands**. But due to uncertainty in how many PWR 107 FRWRs have been affected by past land disposals and the uncertainty of how many PWR 107 FRWRs exist within the watershed, the cumulative impact cannot be quantified.

As described in Section 4.3.3, acquisition of the **Offered Lands** may require filing of State-based water rights.

4.12.3 Mineral Resources

The CIAA for mineral resources is a 50-mile radius from the **Selected Lands**, and a 50-mile radius from the **Offered Lands**. Cumulative impacts to mineral resources were not analyzed in the 1999 FEIS, however a 50-mile radius encompasses the lands informally known as the Copper Triangle. This area contains a high concentration of past, present, and future copper mines, and follows the CIAA most frequently used for other resources in the 1999 FEIS. Past, present, and RFFAs in the CIAA for mineral resources include all of the mining projects listed in Appendix D. These projects include mining operations entirely on private land, as well as mining operations situated entirely or in part on federal lands. All of the mining projects listed in Appendix D are related to the development of metallic minerals, specifically copper.

Mineral resources in the CIAA have been impacted through decades of past and present mineral exploration and mining operations. The Ray Mine, for example, was founded in 1882, and current operations on the **Selected Lands** have been developing and producing copper since the Ray Mine expansion of the 1990s. In addition to the development of copper and associated metallic minerals, ASARCO has a BLM-approved MPO to mine metallurgical-grade limestone that was authorized in 1981. Mining companies are anticipated to continue to mine within the CIAA, subject to intermittent closures at the operator's discretion.

The proposed land exchange will not impact potential for development of copper or other metallic minerals; however, conveying the lands could impact mineral resource potential for development in the CIAA by transferring rights to all minerals on the **Selected Lands** to ASARCO. While ASARCO is currently allowed to use mineral materials within the boundaries of its MPO for purposes reasonable incident to its approved operations, transfer of all mineral rights in the **Selected Lands** under the Proposed Action would give ASARCO the right to develop and market any mineral materials deposit found on those lands. Nevertheless, the cumulative effects to mineral resources as a result of the proposed land exchange are considered negligible as no deposits of mineral materials on the **Selected Lands** are identified in Chapter 3, and thus the land exchange would not impact any present or reasonably foreseeable mining operation in the CIAA for the **Selected Lands**.

As described in Section 4.5.3, upon acquisition of the **Offered Lands**, 760 acres would be available for mineral disposal under federal mining laws. The majority of the **Offered Lands** are already unavailable for mineral development, since the McCracken Mountains parcels (6,384 acres) are currently and would continue to be deed restricted from mining. The minerals in the 320-acre Gila River at Cochran parcel group, 320-acre Tomlin parcel group, and 120-acre Sacramento Valley parcel group would become subject to disposal under applicable federal laws and regulations. Thus, the only impact to mineral potential for development from the proposed land exchange is that the 160-acre Knisely Ranch parcels would not be available for mineral development, as they would be included in the Mount Tipton Wilderness. The mineral potential of these lands is unknown, and there are no current or foreseeable plans to mine these lands. As no mining projects exist, or have been proposed on the **Offered Lands**, their transfer under the Proposed Action is not expected to contribute to cumulative impacts in the **Selected Lands** or **Offered Lands** CIAAs.

4.12.4 Land Use, Access, and Recreation

The cumulative impact assessment area for land use and recreation is a 50-mile radius from the **Selected Lands**. This is the same CIAA used in the FEIS. The CIAA for the **Offered Lands** is Mohave County, as the **Offered Lands** are dispersed throughout the county, and this geographical area best captures the regional cumulative impact of acquiring the **Offered Lands** will have on land use and recreation.

Past and present actions on private lands that affect land use and recreation resources within the CIAA for the **Selected Lands** include mining, urban development, and grazing. On federal, state, and tribal trust lands, past and present uses include mining, ROWs, grazing, recreation, and management for visual/scenic values. U.S. Forest Service and BLM lands are managed under a Multiple Use-Sustained Yield (MUSY) management framework. Within the CIAA, land exchanges listed in Appendix D and FEIS Table 4-18 have eliminated acreage for MUSY management. In addition, past and present mining and other projects have affected the specific resources identified above, as identified in Appendix D. For example, as stated in the 1999 FEIS, lands within the CIAA have been subjected to extensive mining for decades. Consequently, areas around past and present mining operations have seen decreased recreation opportunities and scenic values have been impacted by shafts, adits, open pits, haul and access roads, tailings and waste rock, and processing facilities.

With respect to RFFAs, at the time of publication of this Final SEIS, the Resolution Copper exchange/disposal is the only proposed land tenure adjustment within the CIAA that is reasonably foreseeable. Resolution Copper is proposing to acquire approximately 2,400 acres of National Forest System land for the Resolution Copper Mining Project near Superior, Arizona, approximately 5 miles north of the northernmost Ray Mine Complex parcels. In exchange, Resolution Copper would transfer to the U.S. Forest Service approximately 1,226 acres to be administered by the Tonto and Coconino National Forests (within and outside of the CIAA). Resolution Copper would also transfer to BLM approximately 5,300 acres of lands; most of these parcels are in the vicinity of the San Pedro River in southern Arizona and outside the CIAA for the Ray Land Exchange. Other reasonably foreseeable future actions within the CIAA include the mining projects in Appendix D, in particular the Ray Mine expansion and Ripsey Wash TSF, which are expected to affect resources such as ROWs, grazing, recreation, and management for visual/scenic values.

These reasonably foreseeable future actions are expected to eliminate physical access routes to some backcountry areas. For example, the Ray Mine expansion is expected to close motorized access and recreation on up to 30.8 miles of existing routes. The impacts to the existing public routes are illustrated on Figure 4.7-1, *Public access routes impacts overview* (see Appendix F). Additionally, the Resolution Copper land exchange includes popular camping and recreation sites that could also be eliminated, or restricted. The Ray Mine expansion and Ripsey Wash TSF are also expected to include visual impacts incidental to open pit mining and mining-related uses.

The proposed land exchange would transfer up to 8,196 acres of surface estate in the CIAA from the BLM, and 320 acres of private land in the CIAA into BLM management. The 50-mile CIAA comprises approximately 5,026,528 acres, of which about 57% are federal (i.e., BLM, U.S. Forest Service, National Park Service, and U.S. Bureau of Reclamation) or tribal lands. When the proposed land exchange is combined with the reasonably foreseeable Resolution Copper land exchange, the potential removal of land from federal ownership would total approximately 10,500 acres, which represents a total reduction of 0.006% of federal lands within the CIAA. The proposed exchange, even when combined with the Resolution Copper land exchange, would thus have only a negligible cumulative effect on land tenure.

The proposed land exchange would also have the effect that third parties seeking ROW access across the lands transferred would need to negotiate these future ROWs with the private landowners. This change in tenure may eliminate the potential for future ROW corridors (roads, transmission lines, pipelines, etc.). However, as with land tenure, the cumulative effect of the proposed exchange on ROWs is expected to be negligible, even when combined with the Resolution Copper land exchange.

The proposed land exchange would also reduce the amount of lands within the CIAA available for federal grazing authorizations. The impacts on grazing of removing this acreage is unknown, as ASARCO may continue to allow grazing on new terms at their discretion (including increasing grazing over BLM-authorized levels). Cumulatively, these impacts would add to the incremental loss of federal grazing acreage from previous, present, and reasonably foreseeable land exchanges, as well as federal surface authorizations, but the incremental impact to grazing from the proposed action cannot be quantified.

The proposed land exchange would also reduce the amount of lands within the CIAA available for dispersed recreation, including hiking, camping, hunting, rock-climbing, and off-road driving. Like grazing impacts, the impacts on recreation of removing this acreage is unknown because it is possible that ASARCO could allow recreation to continue on certain parcels. Thus, while the proposed exchange could add to the impacts from previous land exchanges and federal surface authorizations in the CIAA with respect to the incremental loss of access and available land for dispersed recreation, the cumulative effect of the proposed action cannot be quantified.

The proposed exchange could also eliminate any requirement to mitigate visual impacts from what would otherwise be discretionary surface-use authorizations on the **Selected Lands**. The loss of opportunities under the Proposed Action to mitigate visual impacts from future land uses will be cumulatively negligible in the CIAA due to historic visual resource impacts.

Within the CIAA of the **Offered Lands**, one public land tenure change is foreseeable. The exchange of 345 acres of public land near Bullhead City, Arizona for approximately 1,100 acres of private land elsewhere in the county is expected to benefit recreation and access, including recreation opportunities on public land in Mohave County. The acquisition of the **Offered Lands** under the proposed Ray Land exchange would add to the cumulative impact of this RFFA.

Acquisition of the **Offered Lands** also would consolidate areas of checkerboard ownership (McCracken Mountains) and inholdings (Knisely Ranch) into relatively contiguous tracts under BLM's MUSY management framework. ROWs and grazing authorizations would be authorized in a manner consistent with the Kingman RMP. Each of the **Offered Lands** parcels has previously been identified by BLM as desirable for acquisition for the unique resource values they contained, such as riparian or other important wildlife habitat. Bringing these lands under federal management through an exchange is expected to sustain the long-term health of these resources, particularly in the McCracken Mountain ACEC.

The acquisition of **Offered Lands** also would add to the cumulative impact on recreational land use. Approximately 7,000 acres of new public land available for dispersed recreation will be added to Mohave County, including an inholding in the Mount Tipton Wilderness. Other recreational uses over time would be considered under objectives of the Kingman RMP. Finally, certain **Offered Lands** parcels are located adjacent or in close proximity to BLM lands that have been categorized in visual resource inventories as visually unique or aesthetically distinct landscapes. BLM's acquisition of the **Offered Lands** would permit BLM to actively manage these lands for scenic value. While the **Offered Lands** themselves have not been inventoried for visual resources, their acquisition ensures that any future authorizations on those lands would include mitigation for BLM VRM objectives as identified in the applicable resource management plans.

4.12.5 Wilderness Resources/Special Management Areas

The CIAA for wilderness resources/SMA is the State of Arizona. A geographically smaller impact area (50-mile radius, following CIAAs analyzed in the 1999 FEIS) provides local context for wilderness resources/SMA impacts. However, a broader scope, using state boundaries, is more useful to capture the beneficial impacts of the **Offered Lands**. A 50-mile radius from the **Selected Lands** extends across backcountry areas and towards communities including Globe

(northeast) and metropolitan Phoenix (northwest) and Tucson (south). There are 14 designated wilderness areas, and extensive reaches of the Arizona Trail in this area, informally known as the Copper Triangle due to its mining history.

Past and present actions within the Copper Triangle have affected wilderness resources and SMAs, in particular the White Canyon Wilderness and Superstition Mountains Wilderness. The eastern boundary of the White Canyon Wilderness is within 5 miles of the western boundary of the existing Ray Mine pit. Operations at the Ray Mine include noise and visual impacts, which have altered characteristics of solitude with the White Canyon Wilderness. The Superstition Mountains Wilderness (160,236 acres) is within this analysis area, and its wilderness characteristics have likely been impacted by past and present development activity near its western (urban development) and eastern (Pinto Creek Mine) boundaries.

RFFAs that are likely to affect wilderness and SMAs include the Ray Mine expansion and the Ripsey Wash TSF. While neither the Ray Mine expansion and related uses of the **Selected Lands**, nor the future Ripsey Wash TSF would encroach into the White Canyon Wilderness, the expansion of mining activity within its vicinity would likely impact some of the wilderness characteristics such as naturalness, undeveloped, i.e., “without the imprint of man,” and solitude (see BLM Manual 6340), especially along the boundaries nearest to foreseeable mining activity and related uses. And while the Ray Mine expansion and Ripsey Wash TSF are unlikely to impact the Superstition Mountains Wilderness or other wilderness, they will contribute to a cumulative impact on some of the characteristics of wilderness values such as naturalness, undeveloped, i.e., “without the imprint of man,” and solitude within the Copper Triangle. In addition, impacts to the Superstition Mountains Wilderness from urban development and Pinto Creek Mine are likely to continue in the future.

As noted in Section 4.8.3, the Proposed Action has the potential to impact wilderness resources and SMAs, as BLM would relinquish any authority to mitigate noise and visual impacts on discretionary uses on the **Selected Lands** under the No Action Alternative. However, this differential impact with respect to the **Selected Lands** cannot be quantified and is unlikely to contribute significantly in the overall impacts to wilderness and SMAs in Arizona.

As noted in Section 4.8.3, acquisition of the **Offered Lands** would benefit wilderness and SMAs. BLM (Kingman Field Office) would improve the management of the Mount Tipton Wilderness through the acquisition of the Knisely Ranch Parcel Group (160 acres). BLM (Kingman Field Office) would receive 440 acres of new public land to improve wild horse and burro management in the Black Mountain and Big Sandy Herd Management Areas, and 6,834 acres of public land would be added to the McCracken Desert Tortoise ACEC. Closer to **Selected Lands**, the Gila River at Cochran parcel (320 acres) (within the Gila River Riparian Management Area, Middle Gila Cultural Resource Management Area, and White Canyon RCA) would add to the land base available for public use and management of wildlife habitat along the river.

The proposed land exchange will have negligible impact on wilderness and SMAs in Arizona from the loss of management authority held by BLM on the **Selected Lands**. With the addition of 7,754 acres to wilderness and SMAs in Arizona, the proposed land exchange would have a cumulative benefit.

4.12.6 *Wilderness Characteristics*

The CIAA for wilderness characteristics is the State of Arizona. A geographically smaller impact area (50-mile radius, following CIAAs for other resources analyzed in the FEIS) provides local context for wilderness characteristics. However, a broader scope, using state boundaries, is more useful to capture the beneficial impacts from all acquisitions, including the more far-flung **Offered Lands**.

Of the past and present actions listed in Appendix D, nearly all land exchanges and projects that abut public lands have likely impacted wilderness characteristics, whether inventoried or not, on nearby federal lands, including those managed by the U.S. Forest Service. Within the CIAA, extensive past and present mining operations have created impacts that can be seen, heard, and felt by visitors to undeveloped areas of neighboring public lands. Other past and present development and land use actions listed in Appendix D, such as urban and suburban expansion, public works projects, and increased visitation to public lands, have also contributed to the loss of wilderness characteristics such as naturalness, and outstanding opportunities for either solitude or primitive and unconfined recreation.

RFFAs that are likely to affect wilderness characteristics include all future new or expanded mining projects within the CIAA. The foreseeable expansion of Ray Mine operations and the Ripsey Wash TSF would impact the opportunity for “solitude” recreation in the Granite Mountain wilderness characteristic inventory unit. The Ray Mine expansion would impact roughly 748 acres of lands currently inventoried as possessing wilderness characteristics, including lands within the Granite Mountain wilderness characteristic inventory unit. The impact of the Resolution Copper Project on lands with wilderness characteristics is currently unknown. Yet, statewide, ongoing and expanding mining operations on both public and private land, continued urban expansion, agriculture, etc., will further impact lands in ways that may eliminate wilderness characteristics including size, naturalness, and opportunities for solitude.

The proposed land exchange would affect wilderness characteristics in two ways. First, the conveyance would cause the Granite Mountain wilderness characteristic inventory unit to be fewer than 5,000 acres, thus removing that unit from BLM Arizona’s wilderness characteristics inventory. In addition, conveyance of the lands could result in greater impacts to wilderness characteristics on and near the **Selected Lands** because there would no longer be any authority to require measures to minimize adverse impacts to wilderness characteristics for what would otherwise constitute discretionary authorizations on the **Selected Lands**. However, this differential impact with respect to the **Selected Lands** cannot be quantified and is unlikely to contribute significantly in the overall impacts to wilderness characteristics in the CIAA.

Moreover, any cumulative adverse effects on wilderness characteristics from the past, present, and reasonably foreseeable future actions, including the impacts of proposed land exchange described above, may be mitigated through the acquisition of the **Offered Lands**. BLM would acquire 7,304 acres of land in Gila County and Mojave County that would be inventoried for wilderness characteristics. While none of the **Offered Lands** parcels contain enough acreage to be considered as a new wilderness characteristic inventory unit, they are near special management areas and would be inventoried and considered for wilderness characteristics with contiguous public lands. BLM would potentially gain the authority to mitigate for wilderness

characteristics on future authorizations on/near these lands, should they be found as possessing wilderness characteristics.

4.12.7 Cultural and Heritage Resources

The CIAA for cultural resources is a 50-mile radius around the **Selected Lands**. This is the same CIAA used in the 1999 FEIS, and is useful to assess localized impacts to Native tribes that have historically inhabited the area. Consultation between BLM and 17 tribes was initiated on June 15, 2011, and respondents included tribes outside of the 50-mile radius. Consequently, BLM has determined that for purposes of cumulative impacts assessment, tribal concerns in the region do not conform to simple geographic limit, and an analysis area including the entire State of Arizona is also required to understand the greater context of how **Offered Lands** in exchanges can mitigate adverse effects of past, present, and future actions.

As listed in Appendix D (updated from 1999 FEIS), numerous mining operations within the 50-mile CIAA have impacted cultural resources, including the current approved operations at the Ray Mine, Cyprus Miami Mine Expansion, the Carlota Mine, and the Pinto Valley Mine. Open-pit mining involves large-scale surface disturbances and excavation which may destroy historic resources not identified and addressed in advance or otherwise protected from disturbance, alteration, injury, or destruction once discovered. It is not possible to quantify cultural resources impacted by past and present mining activity, as these disturbed lands are a mosaic of public and private lands, with both known and unknown cultural resources.

The transfer of lands out of federal ownership constitutes a direct, adverse impact on cultural resources, as defined in the NHPA regulations because, unlike uses of public lands which are subject to the NHPA, an equivalent statutory protection for cultural resources does not exist for surface disturbing activities on private lands. Numerous federal land exchanges and disposals have occurred in Arizona throughout the previous decades. Notable ones have been included in Appendix D. While it is not possible to quantify the full extent of cultural resources impacted on land transferred from federal ownership, pursuant to the NHPA, the direct adverse effects of these transfers (since passage of NHPA in 1966) have been mitigated through programmatic agreements, similar to the PA in the Proposed Action. Additionally, the acquisition of lands from exchanges listed in Appendix D, has had a beneficial impact on cultural resources statewide.

Some of the present actions listed in Appendix D also are expected to continue into the future and may affect additional cultural resources, such as the existing Ray Mine, the Cyprus Miami Mine, Carlota Mine, and Pinto Valley Mine. Other reasonably foreseeable future actions within the CIAA include the Ray Mine expansion, Resolution Copper Project and Land Exchange, and the proposed Ripsey Wash TSF project. These three projects together would impact an additional 172 or more NRHP-eligible or NRHP-undetermined sites in the Pinal and Tortilla Mountain ranges.

The Proposed Action would have a direct adverse effect on the land status for all 57 historic properties within the **Selected Lands** because the loss of federal management and oversight resulting from the transfer of the surface lands or subsurface rights out of federal ownership or management creates an adverse effect to the historic properties. Under 36 CFR § 800.5(2) (vii) this adverse effect to any lands containing NRHP-eligible or undetermined sites would occur regardless of the foreseeable use of the parcels. Fifty-three of these historic properties are

eligible for the NRHP under Criterion D, two historic properties are eligible under Criterion A, and two historic properties are eligible under Criteria A and D.

Impacts to cultural resources from reasonably foreseeable mining operations in the Ray Mine expansion include NRHP-eligible or NRHP-undetermined sites and site settings impacts loss of integrity and potential vandalism. The direct adverse effects to historic properties from the conveyance of the **Selected Lands** under the Proposed Action must be resolved prior to any ground disturbance per the PA. This PA does not require ASARCO to protect or otherwise avoid adverse effects to historic properties once the lands leave federal ownership, but rather addresses the loss of federal oversight. The number of sites impacted by the change in land status differs for each action alternative.

Per the NHPA's regulatory provisions, a PA to address adverse effects resulting from the land exchange was executed in 2018.

Historic properties in the analysis area are eligible under two of the four NRHP-eligibility criteria described in 36 CFR § 60.4. The majority of the archaeological sites in the analysis area are eligible under Criterion D and would be subjected to data recovery designed to extract the significant information from each affected site. For these sites, once the data recovery is complete as described in the PA, the sites would likely no longer be eligible for the NRHP under Criterion D and would require no further consideration or protection regardless of any future federal nexus. Adverse effects on sites eligible under Criterion A, Association with Broad Themes of History, are addressed in the PA.

Impacts of the Resolution Copper Project and Land Exchange on cultural resources will not be fully known until the PA under the NHPA for that project has been fully implemented. At this time, Resolution Copper could adversely impact 142 NRHP-eligible or undetermined sites; however, direct, adverse impacts on cultural resources from the transfer of lands out of federal ownership would be mitigated in accordance with the PA. Moreover, an unknown number of sites on the 4,500 acres of land to be received by the Forest Service would be beneficially impacted because they would have the protection of the NHPA and ARPA. The Ripsey Wash TSF involves the sale of 7,402 acres of Arizona State Trust land administered by the ASLD to ASARCO for the development of a new tailings disposal site. These lands are located just west and southwest of the town of Kelvin on the Gila River. The pending sale would adversely impact 29 NRHP-eligible sites and one site of undetermined NRHP eligibility. The Ripsey Wash project is also undergoing consultation under the NHPA as part of its CWA Section 404 Permit process. For the Ripsey Wash TSF, adverse impacts of the project (land sale) on cultural resources would be mitigated in accordance with the Arizona Antiquities Act, as the action concerns State-owned lands.

The proposed Ray Land Exchange would contribute to adverse effects on historic sites because 57 NRHP-eligible properties and 5 TCPs would be adversely affected by the transfer of lands out of federal ownership as a result of the proposed land exchange. Additionally, BLM would relinquish its authority to manage for human remains and funerary objects under NAGPRA on all of the **Selected Lands**, and the Forest Service will relinquish NAGPRA authority on 2,400 acres of land in the Resolution Copper Project.

The cumulative effects to cultural resources as a result of the proposed land exchange are considered negligible because of procedural mitigation to the adversely impacted resources on the **Selected Lands** and the federal protection for known and unknown cultural resources to be applied on the **Offered Lands**. The PA among BLM, the Advisory Council on Historic Preservation, and the Arizona State Historic Preservation Office addresses how adverse impacts due to the exchange would be mitigated, including through measures such as documentation and data recovery of impacted properties and sites, whether eligible for NRHP or not, on the **Selected Lands**. Human remains and funerary objects would not be protected under NAGPRA should any be discovered, but ARS 41-865 would provide protection for these resources should they be found on the private lands. As described in Section 4.10.3, acquisition of the **Offered Lands** would have beneficial effects on cultural resources known and as yet unknown, which include eight archaeological sites, three roasting features, and all other known and unknown historic properties and TCPs on the **Offered Lands**.

4.12.8 Socioeconomic Conditions

The CIAA for socioeconomic conditions is Pinal and Gila County for the **Selected Lands**, and Mohave County for the **Offered Lands**. These CIAAs were chosen to best capture the cumulative impact on property tax revenue in the regions affected by the proposed land exchange.

Past, present, and reasonably foreseeable future actions in the CIAA for socioeconomic conditions include all land exchanges and disposals listed in Appendix D.

Counties receive federal PILT to account for land owned by the federal government within their jurisdiction, including the **Selected Lands**. When federal lands become private, counties are able to assess and levy property taxes. Past land exchanges and disposals of federal lands within the CIAA have added private property to Pinal County and Gila County. These transfers have cumulatively reduced PILT but increased the property tax the counties have collected. The precise impact of past actions on counties is unknown. An October 2017 report by the Congressional Research Service concluded that the impacts of PILT and property tax vary by county and parcels over time.

With respect to reasonably foreseeable future actions, at the time of publication of this Final SEIS, the Resolution Copper Project exchange/disposal is the only proposed land tenure adjustment within the CIAA that is reasonably foreseeable. When completed, the Resolution Copper land exchange will reduce PILT to Pinal County, and likely increase private property taxes collected. But the exact impact from the Resolution Copper land exchange is currently unknown, and the impact of lands to be acquired by the federal government is unknown but will increase PILT payments in the multiple counties in Arizona where the **Offered Lands** are located.

The proposed land exchange would increase property tax revenue in Pinal County by \$1.1 million to \$1.5 million annually, and by \$33,600 to \$37,000 annually in Gila County. PILT to Pinal County would be reduced \$29,700, and \$742 in Gila County. In both counties, the increase in tax revenue from the proposed exchange is substantial. Although the exact impacts to taxes and PILT payments from past, present and reasonably foreseeable future actions are unknown, the addition of tax revenues from the proposed land exchange will likely have a

cumulatively beneficial impact for Pinal and Gila Counties, and a negligible impact on Mohave County.

Past and present actions in Appendix D that have affected recreation economics include all previous land tenure adjustments and past and presently authorized mining on federal land. These actions have resulted in recreational users losing access to dispersed recreation (hunting, rock climbing, hiking) and use of roads and trails for OHV and non-motorized travel. Reasonably foreseeable future actions that are expected to affect recreation economics include the Ray Mine expansion, which will close roads and backcountry areas under active mining for public safety.

As presented in Section 4.7, the proposed exchange would reduce the federal land available for dispersed recreation on the **Selected Lands** near the Ray Mine. While the negative economic impact of the reduction in available dispersed recreation, and how and where public land recreational users spend money while recreating resulting from the proposed exchange is not possible to quantify since spending behavior is highly speculative, the overall economic impact to recreation near the Ray Mine will likely have a cumulatively negative impact when added to the effects of past, present, and reasonably foreseeable future actions.

The impacts of the proposed land exchange in the CIAA for **Offered Lands** (Mohave County) will be a reduction of property tax collected, and an increase in PILT. The net difference between property tax and PILT would be a loss of around \$3,000 in revenue to Mohave County. The precise impacts of previous land transfers on the property tax base is unknown. The only RFFA in the CIAA is the Black Mountain Range and Bullhead City Land Exchange. This exchange would transfer approximately 345 acres of public land to Bullhead City, Arizona, in exchange for approximately 1,100 acres of land elsewhere in Mohave County. While the precise tax base impacts of this exchange are currently unknown, it is expected that the Bullhead City parcels will be used for commercial development, potentially increasing overall tax revenue to Mohave County.

The increase of acreage in the **Offered Lands** CIAA would provide more dispersed recreational opportunities, thus contributing to the cumulative impact of increased acreage available for recreation from previous and future land tenure changes in Mohave County. Again, the economic impact of increased visitation is unknown, and any analysis would be highly speculative.

Federal agencies, under EO 12898, are required to account for environmental justice in environmental analyses and land authorizations. Current demographics do not indicate a presence of disproportionate low-income or minority populations within the CIAAs. However, multiple tribes have expressed concerns about impacts from foreseeable uses on the **Selected Lands**. Under the proposed exchange, the special consideration provided to these concerns under EO 12898 would be eliminated on the **Selected Lands**, as no equivalent requirement exists for private land development (see Section 4.11). The same situation exists for the only other foreseeable land tenure adjustment (Resolution Copper). Cumulatively, these projects would decrease the participatory avenues through which tribes could express their concerns on future surface use authorizations. EO 12898 remains applicable to other federal authorizations related to mining operations on the **Selected Lands**, such as CWA Section 404 permits. In Mohave

County, the proposed land exchange would provide for EO 12898 environmental justice considerations in all future management considerations on **Offered Lands**.

Appendix A

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 R 18-11-406, 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). ARPA 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/and manager determines that a location having cultural or religious importance to the tribe may be harmed or destroyed.

Arizona Revised Statute, Title 41, State Government § 41-865. Disturbing human remains or funerary objects; rules; violation; classification; definitions. Private landowners in the state of Arizona are required to follow State requirements for the protection of Native American human remains and funerary objects.

The Bald and Golden Eagle Protection Act. This law (16 USC 668–668c) was enacted in 1940 and has been amended several times. The USFWS published a final rule that took effect on November 10, 2009, for two new permit regulations that would allow for the nonpurposeful “take” of eagles and eagle nests under this act (50 CFR §§ 13 and 22).

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 (USACE), the U.S. Environmental Protection Agency (EPA) and the Arizona Department of Environmental Quality (ADEQ) administers the compliance programs associated with Sections 303 (d), 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 States¹ 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 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. The State of Arizona has been given primacy over Section 402 of the CWA, the National Pollutant Discharge Elimination System (NPDES) program. Under Section 402 and ARS 49-255.01, ADEQ regulates discharge of pollutants (except for dredged or fill material) into navigable WUS under the Arizona Pollutant Discharge Elimination System (AZPDES) program. ADEQ considers virtually all waterways in Arizona, including dry washes, to fall under the jurisdiction of the AZPDES program and gives special consideration to those that have been designated Outstanding Arizona Waters.
- 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 USACE for impacts to waters of the U.S, including wetlands, regardless of land ownership, and 2) avoid, minimize, and/or mitigate all such impacts. The State of Arizona is in the process of evaluating the assumption of primacy for Section 404. Currently the immediate regulatory decision regarding which activities fall under Section 404 of the CWA lies with the USACE Los Angeles District.
- Section 303(d) requires a "303(d) list," recording those water bodies that have a designated beneficial use that is impaired by one or more pollutants. The State must take appropriate action to improve impaired water bodies by establishing total maximum daily loads (TMDLs) and reducing or eliminating pollutant discharges.

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 Final SEIS and the FEIS (supported by biological evaluation studies) disclosed all impacts related to biological resources in the project vicinity.

¹ Waters of the U.S. are defined at 33 CFR 323.2(a).

Farmland Protection Policy Act. Under the Farmland Protection Policy Act (Public Law 97-98; 7 USC 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). FLPMA includes 13 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 FLPMA 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.

Migratory Bird Treaty Act of 1918, as amended (MBTA). This act provides for the protection of migratory birds and prohibits their unlawful take or possession. This act is not cited in the FEIS, and the potential for migratory bird populations to occur and/or be impacted on either the Offered Lands or the Selected Lands was not discussed. A December 22, 2017, solicitor memorandum makes new determinations related to the legal interpretation of incidental take (otherwise lawful projects that may result in harm to individuals or habitat of migratory birds). The memorandum finds that, consistent with the text, history, and purpose of the MBTA, the statute's prohibitions on pursuing, hunting, taking, capturing, killing, or attempting to do the same apply only to affirmative actions (deliberate acts done directly and intentionally to migratory birds) that have as their purpose the taking or killing of migratory birds, their nests, or their eggs.

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. 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.

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 is required for proposals for legislation and for major federal actions (as defined in § 1508.18). Environmental assessments (EAs) and environmental impact statements (EISs), 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 NHPA 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. The Final SEIS and the FEIS 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.

Public Water Reserve No. 107 (PWR 107). PWR 107 was created through an Executive Order that states all public lands within 0.25 mile of a spring or water hole are withdrawn from settlement, location, sale, or entry, and reserved for the public use under the Stock Raising Homestead Act of December 29, 1916.

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 United States. This law focuses on all waters actually or potentially designated for drinking use, whether from aboveground or underground sources.

The SDWA 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 Comprehensive Environmental Response, Compensation, and Liability Act (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 A-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 Arizona Mined Land Reclamation Rules 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 subpart 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 A-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.

Table A-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:	Require reclamation plan for disturbances over five acres	Require reclamation plan for disturbances over 5 acres
Acreage exemptions:	Requires reclamation for disturbances under five acres, under FLMPA Section 302(b)	Does not apply to disturbances under 5 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, water management, soil management, erosion prevention, revegetation, visual resources, site protection, and site-specific standards. Water management standards are covered under the state APP.
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

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:
 - a. Being free from impoundments
 - b. Generally inaccessible except by trail
 - c. With essentially primitive watersheds or shorelines
 - d. Unpolluted waters
2. Scenic river areas characterized as:
 - a. Being free from impoundments
 - b. Accessible in places by road
 - c. Having shorelines or watersheds still largely undeveloped
3. Scenic river areas characterized as:
 - a. Being readily accessible by road or railroad
 - b. May have some development along their shoreline
 - c. 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. 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 (EO) 11988 --Floodplain Management. EO 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.

EO 11990 --Wetlands. EO 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.

EO 12898 –Environmental Justice. EO 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 EO, 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.

EO 13007 –Indian Sacred Sites. EO 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.

EO 13112 –Invasive Species. This EO seeks to improve coordination between federal agencies in efforts to combat invasive plant and animal species, and directs federal agencies to prevent introduction of invasive species, control populations, monitor populations, and provide for restoration of native species, among other requirements.

EO 13186 –Responsibilities of Federal Agencies to Protect Migratory Birds. This EO, issued on January 11, 2001, directs each federal agency taking actions that are likely to have a measurable effect on migratory bird populations to develop and implement a Memorandum of Understanding (MOU) with the U.S. Fish and Wildlife Service (USFWS) that will promote the conservation of migratory bird populations. The BLM and USFWS signed an MOU on April 12, 2010, to enhance coordination and communication toward meeting the agency’s responsibilities under the MBTA, the Bald and Golden Eagle Protection Act (BGEPA), and this EO.

EO 13783 –Promoting Energy Independence and Economic Growth. This EO directed the CEQ to withdraw its 2016 “Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews” on April 5, 2017.

Secretary of the Interior Order (SO) 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).

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.

SO 3347 –Conservation Stewardship and Outdoor Recreation (03/2/2017). This SO required the completion of two reports so that the U.S. Department of the Interior could identify specific actions to expand access for hunting, fishing, and recreational shooting activities; improve coordination with States; improve habitat for fish and wildlife; manage predators effectively; and facilitate greater public access to

U.S. Department of the Interior lands. SO 3347 is considered for the recreation and access analysis, particularly in understanding how public motorized routes may be impacted.

SO 3356 –Hunting, Fishing, Recreational Shooting and Wildlife Conservation Opportunities and Coordination with States, Tribes and Territories (01/15/17). This SO directs bureaus and offices within the U.S. Department of the Interior, in collaboration with States, Tribes, and territorial partners, to implement programs to enhance hunting, fishing, and recreational shooting opportunities on U.S. Department of the Interior–managed lands and waters, while also promoting conservation activities. SO 3356 is considered for the recreation and access analysis, particularly in understanding how hunting may be affected by the land exchange.

SO 3366 –Increasing Recreational Opportunities on Lands and Waters Managed by the U.S. Department of the Interior (04/18/18). This SO directs certain agencies to create a plan that develops new, or increases and expands existing, recreational opportunities that are consistent and comply with all applicable laws and regulations, and provides recommendations for improving and streamlining relevant permitting requirements for guides and outfitters and facilitated outdoor recreation providers.

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Appendix B

COMPARISON TABLES

TABLE B-1
COMPARISON OF FEDERAL MINING REGULATIONS WITH
STATE OF ARIZONA AND FEDERAL
ENVIRONMENTAL REGULATIONS NOT REQUIRED BY MINING LAWS

The BLM regulations shown in columns 1 and 2 apply to activities on federal lands administered by the BLM. Other applicable laws, regulations, and rules (column 3) apply to both federal and private lands (except state mined land reclamation rules that apply *only* to private lands). All sections refer to regulatory requirements, except that italicized sections refer to regulatory standards.

Unless otherwise indicated in the table, BLM regulations are taken from 43 CFR subpart 3809. Aquifer Protection Permit laws and regulations are taken from Arizona Revised Statutes (ARS) §§ 49-241 through 49-252 and Arizona Administrative Code (AAC) R18-9-101 through R18-9-403. Arizona State Mine Inspector (ASMI) laws and regulations are taken from Arizona State reclamation statutes at ARS 27-901, *et seq.*, and rules at R11-2-201, *et seq.* Other regulations and rules are indicated in the table.

BLM-Administered Land Regulations: 43 CFR Subpart 3809 (<i>applicable requirement or resource shown in parentheses</i>)	BLM-Administered Land Regulations: Description	Other Applicable Laws, Statutes, Regulations, and Rules that duplicate 43 CFR Subpart 3809
3809.401(b)(2) (<i>Description of Operations</i>)	A description of the equipment, devices, or practices you propose to use during operations including, where applicable—	
3809.401(b)(2)(i) (<i>Maps</i>)	Maps of the project area at an appropriate scale showing the location of exploration activities, drill sites, mining activities, processing facilities, waste rock and tailing disposal areas, support facilities, structures, buildings, and access routes;	APP R18-9-A.202.A Technical Requirements Mined Land Reclamation R11-2-501. Mining Unit Reclamation Plan Content Clean Water Act 33 CFR 320 through 332 40 CFR 122

BLM-Administered Land Regulations: 43 CFR Subpart 3809 (applicable requirement or resource shown in parentheses)	BLM-Administered Land Regulations: Description	Other Applicable Laws, Statutes, Regulations, and Rules that duplicate 43 CFR Subpart 3809
3809.401(b)(2)(ii) 3809.420(b)* (Designs)	<p>Preliminary or conceptual designs, cross sections, and operating plans for mining areas, processing facilities, and waste rock and tailing disposal facilities;</p> <p>(12) <i>Leaching operations and impoundments.</i> (i) You must design, construct, and operate all leach pads, tailings impoundments, ponds, and solution-holding facilities according to standard engineering practices to achieve and maintain stability and facilitate reclamation.</p> <p>(ii) You must construct a low-permeability liner or containment system that will minimize the release of leaching solutions to the environment. You must monitor to detect potential releases of contaminants from heaps, process ponds, tailings impoundments, and other structures and remediate environmental impacts if leakage occurs.</p> <p>(iii) You must design, construct, and operate cyanide or other leaching facilities and impoundments to contain precipitation from the local 100-year, 24-hour storm event in addition to the maximum process solution inventory. Your design must also include allowances for snowmelt events and draindown from heaps during power outages in the design.</p> <p>(iv) You must construct a secondary containment system around vats, tanks, or recovery circuits adequate to prevent the release of toxic solutions to the environment in the event of primary containment failure.</p> <p>(v) You must exclude access by the public, wildlife, or livestock to solution containment and transfer structures that contain lethal levels of cyanide or other solutions.</p> <p>(vi) During closure and at final reclamation, you must detoxify leaching solutions and heaps and manage tailings or other process waste to minimize impacts to the environment from contact with toxic materials or leachate. Acceptable practices to detoxify solutions and materials include natural degradation, rinsing, chemical treatment, or equally successful alternative methods. Upon completion of reclamation, all materials and discharges must meet applicable standards.</p> <p>(vii) In cases of temporary or seasonal closure, you must provide adequate maintenance, monitoring, security, and financial guarantee, and BLM may require you to detoxify process solutions.</p>	<p>APP R18-9-A.202.A Technical Requirements Clean Water Act 33 CFR 320 through 332 40 CFR 122 AZPDES (Arizona delegated program) R18-9-B901 <i>et seq.</i></p>
3809.401(b)(2)(iii) 3809.420(b)(3)(ii) (Water Resources)	<p>Water management plans;</p> <p>(B) Measures to control erosion, landslides, and water runoff;</p>	<p>APP R18-9-A.202.A Technical Requirements Clean Water Act 33 CFR 320 through 332 40 CFR 122 AZPDES (Arizona delegated program) R18-9-B901 <i>et seq.</i></p>
3809.401(b)(2)(iv) 3809.420(b) 3809.420(b)(3)(ii) (Hazardous Materials)	<p>Rock characterization and handling plans;</p> <p>(2) <i>Mining wastes.</i> All tailings, dumps, deleterious materials or substances, and other waste produced by the operations shall be disposed of so as to prevent unnecessary or undue degradation and in accordance with applicable federal and state laws.</p> <p>(C) Measures to isolate, remove, or control toxic materials;</p>	<p>APP R18-9-A.202.A Technical Requirements Clean Water Act 33 CFR 320 through 332 40 CFR 122 AZPDES (Arizona delegated program) R18-9-B901 <i>et seq.</i></p>

Appendix B.
Ray Land Exchange/Plan Amendment Final SEIS – Comparison Tables

BLM-Administered Land Regulations: 43 CFR Subpart 3809 (applicable requirement or resource shown in parentheses)	BLM-Administered Land Regulations: Description	Other Applicable Laws, Statutes, Regulations, and Rules that duplicate 43 CFR Subpart 3809
3809.401(b)(2)(v) (Quality Control)	Quality assurance plans;	APP Mining BADCT, QAPP, Permits
3809.401(b)(2)(vi) (Spill contingency plans)	Spill contingency plans;	APP R18-9-A.204 Contingency Plan Clean Water Act 33 CFR 320 through 332 40 CFR 122 40 CFR 112 AZPDES (Arizona delegated program) R18-9-B901 <i>et seq.</i>
3809.401(b)(2)(vii) 3809.420(a) (Mineral Resources)	A general schedule of operations from start through closure 2) <i>Sequence of operations.</i> You must avoid unnecessary impacts and facilitate reclamation by following a reasonable and customary mineral exploration, development, mining and reclamation sequence.	Mined Land Reclamation ARS 27-971.B Submission and contents of reclamation plan
3809.401(b)(2)(viii) (Designs)	Plans for all access roads, water supply pipelines, and power or utility services;	APP R18-9-A.202.A Technical Requirements Mined Land Reclamation R11-2-501. Mining Unit Reclamation Plan Content Clean Water Act 40 CFR 122 AZPDES (Arizona delegated program) R18-9-B901 <i>et seq.</i>
3809.401(b)(3) 3809.420(b) (Reclamation / Vegetation)	<i>Reclamation Plan.</i> A plan for reclamation to meet the standards in §3809.420, with a description of the equipment, devices, or practices you propose to use including, where applicable, plans for (see 3809.401(b)(3)(i) through (x)) (3) <i>Reclamation.</i> (i) At the earliest feasible time, the operator shall reclaim the area disturbed, except to the extent necessary to preserve evidence of mineralization, by taking reasonable measures to prevent or control on-site and off-site damage of the Federal lands.	APP ARS 49-243. Information and criteria for issuing individual permit; definition Mined Land Reclamation ARS 27-971. Submission and contents of reclamation plan
3809.401(b)(3)(i) (Public Health and Safety)	Drill-hole plugging;	Mined Land Reclamation ARS 27-953 Approval; criteria Arizona Department of Water Resources Well Abandonment R12-18-803

BLM-Administered Land Regulations: 43 CFR Subpart 3809 (applicable requirement or resource shown in parentheses)	BLM-Administered Land Regulations: Description	Other Applicable Laws, Statutes, Regulations, and Rules that duplicate 43 CFR Subpart 3809
3809.401(b)(3)(iii) 3809.420(b) 3809.420(b)(3)(iii) (Reclamation / Vegetation)	<p>Regrading and reshaping;</p> <p>(1) <i>Access routes</i>. Access routes shall be planned for only the minimum width needed for operations and shall follow natural contours, where practicable to minimize cut and fill. When the construction of access routes involves slopes that require cuts on the inside edge in excess of 3 feet, the operator may be required to consult with the authorized officer concerning the most appropriate location of the access route prior to commencing operations. An operator is entitled to access to his operations consistent with provisions of the mining laws. Where a notice or a plan of operations is required, it shall specify the location of access routes for operations and other conditions necessary to prevent unnecessary or undue degradation. The authorized officer may require the operator to use existing roads to minimize the number of access routes, and, if practicable, to construct access roads within a designated transportation or utility corridor. When commercial hauling is involved and the use of an existing road is required, the authorized officer may require the operator to make appropriate arrangements for use and maintenance.</p> <p>(B) Measures to control erosion, landslides, and water runoff;</p> <p>(D) Reshaping the area disturbed, application of the topsoil, and revegetation of disturbed areas, where reasonably practicable; and</p>	<p>Mined Land Reclamation ARS 27-971.B Submission and contents of reclamation plan</p> <p>R11-2-602. Erosion Control and Topographic Contouring</p> <p>R11-2-603. Roads</p> <p>Clean Water Act 33 CFR 320 through 332 40 CFR 122</p> <p>AZPDES (Arizona delegated program) R18-9-B901 <i>et seq.</i></p>
3809.401(b)(3)(iii) 3809.420(a) 3809.420(a) (Reclamation / Vegetation / Land Use)	<p>Mine reclamation, including information on the feasibility of pit backfilling that details economic, environmental, and safety factors</p> <p>(3) <i>Land-use plans</i>. Consistent with the mining laws, your operations and post-mining land use must comply with the applicable BLM land-use plans and activity plans, and with coastal zone management plans under 16 USC 1451, as appropriate.</p> <p>5) <i>Concurrent reclamation</i>. You must initiate and complete reclamation at the earliest economically and technically feasible time on those portions of the disturbed are</p>	<p>Mined Land Reclamation ARS 27-953. Approval; criteria (exploration)</p> <p>ARS 27-971. Submission and contents of reclamation plan</p> <p>ARS 27-975. Features excluded from reclamation plan or allowed to remain following reclamation; public protection measures</p>
3809.401(b)(3)(iv) 3809.420(a) (Reclamation / Vegetation)	<p>Riparian mitigation;</p> <p>4) <i>Mitigation</i>. You must take mitigation measures specified by BLM to protect public lands.</p>	<p>Clean Water Act; Endangered Species Act</p> <p>Clean Water Act 33 CFR 320 through 332</p>
3809.401(b)(3)(v) 3809.420(b)(3)(ii) (Reclamation / Wildlife)	<p>Wildlife habitat rehabilitation;</p> <p>(E) Rehabilitation of fisheries and wildlife habitat.</p>	<p>Mined Land Reclamation ARS 27-971. Submission and contents of reclamation plan</p> <p>Clean Water Act; Endangered Species Act</p>
3809.401(b)(3)(vi) 3809.420(b)(3)(ii) (Reclamation / Soils)	<p>Topsoil handling;</p> <p>(A) Saving of topsoil for final application after reshaping of disturbed areas have been completed;</p> <p>(D) Reshaping the area disturbed, application of the topsoil, and revegetation of disturbed areas, where reasonably practicable; and</p>	<p>Mined Land Reclamation ARS 27-974. Preservation and conservation of soil; exceptions</p> <p>R11-2-703. Soil Conservation</p> <p>R11-2-704. Redistribution of Soil</p> <p>R11-2-705. Off-site Soil</p>
3809.401(b)(3)(vii) 3809.420(b)(3)(ii) (Reclamation / Vegetation)	<p>Revegetation;</p> <p>(D) Reshaping the area disturbed, application of the topsoil, and revegetation of disturbed areas, where reasonably practicable; and</p>	<p>Mined Land Reclamation ARS 27-971. Submission and contents of reclamation plan</p> <p>R11-2-701. Revegetation Provisions</p> <p>R11-2-702. Revegetation Standards</p>

BLM-Administered Land Regulations: 43 CFR Subpart 3809 (applicable requirement or resource shown in parentheses)	BLM-Administered Land Regulations: Description	Other Applicable Laws, Statutes, Regulations, and Rules that duplicate 43 CFR Subpart 3809
3809.401(b)(3)(viii) 3809.420(b) 3809.420(b)(3)(ii) 3809.420(b) (Hazardous Materials)	Isolation and control of acid-forming, toxic, or deleterious materials; (2) <i>Mining wastes</i> . All tailings, dumps, deleterious materials or substances, and other waste produced by the operations shall be disposed of so as to prevent unnecessary or undue degradation and in accordance with applicable Federal and state Laws. (C) Measures to isolate, remove, or control toxic materials; (11) <i>Acid-forming, toxic, or other deleterious materials</i> . You must incorporate identification, handling, and placement of potentially acid-forming, toxic or other deleterious materials into your operations, facility design, reclamation, and environmental monitoring programs to minimize the formation and impacts of acidic, alkaline, metal-bearing, or other deleterious leachate, including the following: (i) You must handle, place, or treat potentially acid-forming, toxic, or other deleterious materials in a manner that minimizes the likelihood of acid formation and toxic and other deleterious leachate generation (source control); (ii) If you cannot prevent the formation of acid, toxic, or other deleterious drainage, you must minimize uncontrolled migration of leachate; and (iii) You must capture and treat acid drainage, or other undesirable effluent, to the applicable standard if source controls and migration controls do not prove effective. You are responsible for any costs associated with water treatment or facility maintenance after project closure. Long-term, or post-mining, effluent capture and treatment are not acceptable substitutes for source and migration control, and you may rely on them only after all reasonable source and migration control methods have been employed.	APP ADEQ Mining BADCT Guidance Document Federal and State Toxic Release Inventory Reporting
3809.401(b)(3)(ix) (Decommissioning)	Removal or stabilization of buildings, structures and support facilities; and	Mined Land Reclamation ARS 27-975. Features excluded from reclamation plan or allowed to remain following reclamation; public protection measures
3809.401(b)(3)(x) (Decommissioning)	Post-closure management;	APP R18-9-A.202.A Technical Requirements R18-9-A209 Temporary Cessation, Closure, Post-closure
3809.401(b)(4) (Monitoring Plan – all resources)	<i>Monitoring Plan</i> . A proposed plan for monitoring the effect of your operations. You must design monitoring plans to meet the following objectives: To demonstrate compliance with the approved plan of operations and other Federal or State environmental laws and regulations, to provide early detection of potential problems, and to supply information that will assist in directing corrective actions should they become necessary. Where applicable, you must include in monitoring plans details on type and location of monitoring devices, sampling parameters and frequency, analytical methods, reporting procedures, and procedures to respond to adverse monitoring results. Monitoring plans may incorporate existing State or other Federal monitoring requirements to avoid duplication. Examples of monitoring programs which may be necessary include surface- and ground-water quality and quantity, air quality, revegetation, stability, noise levels, and wildlife mortality; and	APP (groundwater) R18-9-A202(A) Technical Requirements R18-9-A205. Alert Levels, Discharge Limitations, and AQLs R18-9-A206. Monitoring Requirements R18-9-A207. Reporting Requirements Clean Water Act (surface water) 33 CFR 320 through 332 40 CFR 122 AZPDES (Arizona delegated program) R18-9-B901 <i>et seq.</i>

BLM-Administered Land Regulations: 43 CFR Subpart 3809 (applicable requirement or resource shown in parentheses)	BLM-Administered Land Regulations: Description	Other Applicable Laws, Statutes, Regulations, and Rules that duplicate 43 CFR Subpart 3809
3809.401(b)(5) (Decommissioning)	<i>Interim management plan.</i> A plan to manage the project area during periods of temporary closure (including periods of seasonal closure) to prevent unnecessary or undue degradation. The interim management plan must include, where applicable, the following:	APP R18-9-A209. Temporary Cessation, Closure, Post-closure
3809.401(b)(5)(i) (Public Health and Safety)	Measures to stabilize excavations and workings;	Mined Land Reclamation ARS 27-971. Submission and contents of reclamation plan
3809.401(b)(5)(ii) (Hazardous Materials)	Measures to isolate or control toxic or deleterious materials (See also the requirements in §3809.420(c)(12)(vii);	Federal and State Toxic Release Inventory Reporting Pollution Prevention Clean Water Act 33 CFR 320 through 332 40 CFR 122 AZPDES (Arizona delegated program) R18-9-B901 <i>et seq.</i>
3809.401(b)(5)(iii) (Decommissioning)	Provisions for the storage or removal of equipment, supplies and structures;	
3809.401(b)(5)(iv) 3809.420(b) (Public Health and Safety)	Measures to maintain the project area in a safe and clean condition; 13) <i>Maintenance and public safety.</i> During all operations, the operator shall maintain his or her structures, equipment, and other facilities in a safe and orderly manner. Hazardous sites or conditions resulting from operations shall be marked by signs, fenced, or otherwise identified to alert the public in accordance with applicable Federal and state laws and regulations.	Mined Land Reclamation R11-2-601. Public Safety Standards Arizona State Mine Inspector and Mine Safety and Health Administration (MSHA)
3809.401(c) (Decommissioning)	In addition to the requirements of paragraph (b) of this section, BLM may require you to supply:	
3809.401(c)(1) (NEPA – all resources)	Operational and baseline environmental information for BLM to analyze potential environmental impacts as required by the National Environmental Policy Act and to determine if your plan of operations will prevent unnecessary or undue degradation. This could include information on public and non-public lands needed to characterize the geology, paleontological resources, cave resources, hydrology, soils, vegetation, wildlife, air quality, cultural resources, and socioeconomic conditions in and around the project area, as well as information that may require you to conduct static and kinetic testing to characterize the potential for your operations to produce acid drainage or other leachate. BLM is available to advise you on the exact type of information and level of detail needed to meet these requirements; and	Clean Water Act 33 CFR 320 through 332 40 CFR 122 NEPA 42 USC 4321–4347 § 102 (2); Appendix B of 33 CFR part 325
3809.401(c)(2) 3809.420(a) (Federal and State Law compliance)	Other information, if necessary to ensure that your operations will comply with this subpart. 6) <i>Compliance with other laws.</i> You must conduct all operations in a manner that complies with all pertinent Federal and state laws. (see also 3809.420(b) 4 through 10 below)	R18-9-A202(A) Technical Requirements Compliance with all Federal and State laws
3809.401(d) (Socioeconomics)	<i>Reclamation cost estimate.</i> At a time specified by BLM, you must submit an estimate of the cost to fully reclaim your operations as required by §3809.552. BLM will review your reclamation cost estimate and notify you of any deficiencies or additional information that must be submitted in order to determine a final reclamation cost. BLM will notify you when we have determined the final amount for which you must provide financial assurance.	APP R18-9-A.201(B) Individual Permit Application R18-9-A209(B) Temporary Cessation, Closure, Post-closure

BLM-Administered Land Regulations: 43 CFR Subpart 3809 (applicable requirement or resource shown in parentheses)	BLM-Administered Land Regulations: Description	Other Applicable Laws, Statutes, Regulations, and Rules that duplicate 43 CFR Subpart 3809
3809.420(b)(3)(iii) (Mineral Resources)	When reclamation of the disturbed area has been completed, except to the extent necessary to preserve evidence of mineralization, the authorized officer shall be notified so that an inspection of the area can be made.	
3809.420(b) (Air Quality, Water Resources, Hazardous Materials, Biological Resources, Cultural and Heritage Resources, Mineral Resources, Public Health and Safety)	<p>(4) <i>Air quality.</i> All operators shall comply with applicable Federal and state air quality standards, including the Clean Air Act (42 USC 1857 <i>et seq.</i>).</p> <p>(5) <i>Water quality.</i> All operators shall comply with applicable Federal and state water quality standards, including the Federal Water Pollution Control Act, as amended (30 USC 1151 <i>et seq.</i>).</p> <p>(6) <i>Solid wastes.</i> All operators shall comply with applicable Federal and state standards for the disposal and treatment of solid wastes, including regulations issued pursuant to the Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act (42 USC 6901 <i>et seq.</i>). All garbage, refuse or waste shall either be removed from the affected lands or disposed of or treated to minimize, so far as is practicable, its impact on the lands.</p> <p>(7) <i>Fisheries, wildlife and plant habitat.</i> The operator shall take such action as may be needed to prevent adverse impacts to threatened or endangered species, and their habitat which may be affected by operations.</p> <p>(8) <i>Cultural and paleontological resources.</i> (i) Operators shall not knowingly disturb, alter, injure, or destroy any scientifically important paleontological remains or any historical or archaeological site, structure, building or object on Federal lands.</p> <p>(ii) Operators shall immediately bring to the attention of the authorized officer any cultural and/or paleontological resources that might be altered or destroyed on Federal lands by his/her operations, and shall leave such discovery intact until told to proceed by the authorized officer. The authorized officer shall evaluate the discoveries brought to his/her attention, take action to protect or remove the resource, and allow operations to proceed within 10 working days after notification to the authorized officer of such discovery.</p> <p>(iii) The Federal Government shall have the responsibility and bear the cost of investigations and salvage of cultural and paleontology values discovered after a plan of operations has been approved, or where a plan is not involved.</p> <p>(9) <i>Protection of survey monuments.</i> To the extent practicable, all operators shall protect all survey monuments, witness corners, reference monuments, bearing trees and line trees against unnecessary or undue destruction, obliteration or damage. If, in the course of operations, any monuments, corners, or accessories are destroyed, obliterated, or damaged by such operations, the operator shall immediately report the matter to the authorized officer. The authorized officer shall prescribe, in writing, the requirements for the restoration or reestablishment of monuments, corners, bearing and line trees.</p> <p>(10) <i>Fire.</i> The operator shall comply with all applicable Federal and state fire laws and regulations, and shall take all reasonable measures to prevent and suppress fires in the area of operations.</p>	<p>Clean Air Act (CAA): Certification by ADEQ; <i>ARS 49-401 et seq.</i>; <i>R18-2-101 et seq.</i></p> <p>Safe Drinking Water Act (SDWA)</p> <p>Federal Water Pollution Control Act (Clean Water Act; CWA): Certification by ADEQ; safe drinking water at R18-4-101 <i>et seq.</i>; water quality standards at ARS 49-221, <i>et seq.</i> and R18-11-101 <i>et seq.</i>; aquifer protection permit at ARS 49-241 <i>et seq.</i> and R18-9-101 <i>et seq.</i>; AZPDES at ARS 49-255 <i>et seq.</i> and R18-9-A901 <i>et seq.</i>; and stormwater pollution prevention plans at ARS 49-401 <i>et seq.</i></p> <p>Resource Conservation and Recovery Act (RCRA)</p> <p>County waste requirements</p> <p>Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)</p> <p>Endangered Species Act (ESA)</p> <p>Bald and Golden Eagle Protection Act</p> <p>Migratory Bird Treaty Act;</p> <p>Enforced by U.S. Fish and Wildlife Service</p> <p>National Historic Preservation Act (NHPA)</p> <p>Archaeological Resources Protection Act (ARPA)</p> <p>Native American Graves Protection and Repatriation Act</p> <p>Enforced by the SHPO</p> <p>No comparable federal or state standard for protection of federal survey monuments.</p> <p>County ordinances;</p> <p>Safety issues enforced by the Arizona State Mine Inspector, Mine Safety and Health Administration, and Occupational Safety and Health Administration</p>

Appendix B.
Ray Land Exchange/Plan Amendment Final SEIS – Comparison Tables

BLM-Administered Land Regulations: 43 CFR Subpart 3809 (applicable requirement or resource shown in parentheses)	BLM-Administered Land Regulations: Description	Other Applicable Laws, Statutes, Regulations, and Rules that duplicate 43 CFR Subpart 3809
3809.500 (b) (Socioeconomics)	If you conduct operations under a notice or plan of operations, you must provide BLM or the State a financial guarantee that meets the requirements of this subpart before starting operations. For more information, see §§ 3809.551 through 3809.573.	APP R18-9-A203 for the plan and closure; Financial assurance for mined land reclamation at R11-2-802 <i>et seq.</i>

Note: ADEQ = Arizona Department of Environmental Quality, APP = Aquifer Protection Permit, AQL = Acceptance Quality Level, ARS = Arizona Revised Statutes, AZPDES = Arizona Pollutant Discharge Elimination System, BADCT = Best Available Demonstrated Control Technology, CFR = Code of Federal Regulations, QAPP = Quality Assurance Project Plan, R = Arizona Administrative Code Rule, SHPO = State Historic Preservation Office.

Table B-2. Comparison of BLM Regulatory Requirements and Standards with ADEQ Aquifer Protection Permit and ASMI Mined Land Reclamation Plan Standards

43 CFR (applicable requirement or resource shown in parentheses)	Description	APP	Description/Regulation	Mined Land Reclamation	Description/Regulation
3809.401(b)(2) (Description of Operations)	Description of Operations. A description of the equipment, devices, or practices you propose to use during operations including, where applicable—				
3809.401(b)(2)(i) (Maps)	Maps of the project area at an appropriate scale showing the location of exploration activities, drill sites, mining activities, processing facilities, waste rock and tailing disposal areas, support facilities, structures, buildings, and access routes;	R18-9-A.202.A Technical Requirements	1. A topographic map, or other appropriate map approved by the Department, of the facility location and contiguous land area showing the known use of adjacent properties, all known water well locations found within one-half mile of the facility, and a description of well construction details and well uses, if available; 2. A facility site plan showing all known property lines, structures, water wells, injection wells, drywells and their uses, topography, and the location of points of discharge. The facility site plan shall include all known borings. If the Department determines that borings are numerous, the applicant shall satisfy this requirement with a narrative description of the number and location of the borings;	R11-2-501. Mining Unit Reclamation Plan Content	B. Maps of the existing or proposed surface disturbances submitted pursuant to ARS § 27-971(B)(8) for mining units shall indicate the following: 1. Existing and proposed post-mining and post-reclamation physical topography; 2. Natural features, including surface water; 3. Surface disturbances, pits, excavations, and building sites; 4. Development rock piles, tailings dams and impoundments, heaps for leaching, spoil, soil or growth media storage piles, overburden stockpiles, and other piles of unconsolidated material; 5. Solution ponds, settling ponds, and non-tailings impoundments; 6. Roads, buildings, structures, and stationary equipment; 7. Final post-mining land use objectives for each portion of the surface disturbance; and 8. Boundaries of the mining unit.

43 CFR (applicable requirement or resource shown in parentheses)	Description	APP	Description/Regulation	Mined Land Reclamation	Description/Regulation
3809.401(b)(2)(ii) 3809.420(b) (Designs)	<p>Preliminary or conceptual designs, cross sections, and operating plans for mining areas, processing facilities, and waste rock and tailing disposal facilities;</p> <p><i>(12) Leaching operations and impoundments. (i) You must design, construct, and operate all leach pads, tailings impoundments, ponds, and solution-holding facilities according to standard engineering practices to achieve and maintain stability and facilitate reclamation.</i></p> <p><i>(ii) You must construct a low-permeability liner or containment system that will minimize the release of leaching solutions to the environment. You must monitor to detect potential releases of contaminants from heaps, process ponds, tailings impoundments, and other structures and remediate environmental impacts if leakage occurs.</i></p> <p><i>(iii) You must design, construct, and operate cyanide or other leaching facilities and impoundments to contain precipitation from the local 100-year, 24-hour storm event in addition to the maximum process solution inventory. Your design must also include allowances for snowmelt events and draindown from heaps during power outages in the design.</i></p> <p><i>(iv) You must construct a secondary containment system around vats, tanks, or recovery circuits adequate to prevent the release of toxic solutions to the environment in the event of primary containment failure.</i></p> <p><i>(v) You must exclude access by the public, wildlife, or livestock to solution containment and transfer structures that contain lethal levels of cyanide or other solutions.</i></p> <p><i>(vi) During closure and at final reclamation, you must detoxify leaching solutions and heaps and manage tailings or other process waste to minimize impacts to the environment from contact with toxic materials or leachate. Acceptable practices to detoxify solutions and materials include natural degradation, rinsing, chemical treatment, or equally successful alternative methods. Upon completion of reclamation, all materials and discharges must meet applicable standards.</i></p> <p><i>(vii) In cases of temporary or seasonal closure, you must provide adequate maintenance, monitoring, security, and financial guarantee, and BLM may require you to detoxify process solutions.</i></p>	R18-9-A.202.A Technical Requirements	<p>3. The facility design documents indicating proposed or as-built design details and proposed or as-built configuration of basins, ponds, waste storage areas, drainage diversion features, or other engineered elements of the facility affecting discharge. When formal as-built plan submittals are not available, the applicant shall provide documentation sufficient to allow evaluation of those elements of the facility affecting discharge, following the demonstration requirements of ARS § 49-243(B). An applicant seeking an Aquifer Protection Permit for a sewage treatment facility satisfies the requirements of this subsection by submitting the documents required in R18-9-B202 and R18-9-B203;</p> <p>See also, BADCT for leaching.</p>		
3809.401(b)(2)(iii) 3809.420(b)(3)(ii) (Water Resources)	<p>Water management plans;</p> <p><i>(B) Measures to control erosion, landslides, and water runoff;</i></p>	R18-9-A.202.A Technical Requirements	<p>4. A summary of the known past facility discharge activities and the proposed facility discharge activities indicating all of the following:</p> <p>a. The chemical, biological, and physical characteristics of the discharge;</p> <p>b. The rate, volume, and frequency of the discharge for each facility; and</p> <p>c. The location of the discharge and a map outlining the pollutant management area described in ARS § 49-244(1);</p>		

43 CFR (applicable requirement or resource shown in parentheses)	Description	APP	Description/Regulation	Mined Land Reclamation	Description/Regulation
3809.401(b)(2)(iii) 3809.420(b)(3)(ii) (Water Resources) (Continued)	Water management plans; (B) Measures to control erosion, landslides, and water runoff;	R18-9-A.202.A Technical Requirements	5. A description of the BADCT employed in the facility, including: a. A statement of the technology, processes, operating methods, or other alternatives proposed to meet the requirements of ARS § 49-243(B), (G), or (P), as applicable. The statement shall describe: i. The alternative discharge control measures considered, ii. The technical and economic advantages and disadvantages of each alternative, and iii. The justification for selection or rejection of each alternative; b. An evaluation of each alternative discharge control technology relative to the amount of discharge reduction achievable, site-specific hydrologic and geologic characteristics, other environmental impacts, and water conservation or augmentation; c. For a new facility, an industry-wide evaluation of the economic impact of implementation of each alternative discharge control technology; d. For an existing facility, a statement reflecting the consideration of factors listed in ARS § 49-243(B)(1)(a) through (h); 8. A hydrogeologic study that defines the discharge impact area for the expected duration of the facility. The Department may allow the applicant to submit an abbreviated hydrogeologic study or, if warranted, no hydrogeologic study, based upon the quantity and characteristics of the pollutants discharged, the methods of disposal, and the site conditions. The applicant may include information from a previous study of the affected area to meet a requirement of the hydrogeologic study, if the previous study accurately represents current hydrogeologic conditions. a. The hydrogeologic study shall demonstrate: i. That the facility will not cause or contribute to a violation of an Aquifer Water Quality Standard at the applicable point of compliance; or ii. If an Aquifer Water Quality Standard for a pollutant is exceeded in an aquifer at the time of permit issuance, that no additional degradation of the aquifer relative to that pollutant and determined at the applicable point of compliance will occur as a result of the discharge from the proposed facility; b. Based on the quantity and characteristics of pollutants discharged, methods of disposal, and site conditions, the Department may require the applicant to provide: i. A description of the surface and subsurface geology, including a description of all borings; ii. The location of any perennial, intermittent, or ephemeral surface water bodies; iii. The characteristics of the aquifer and geologic units with limited permeability, including depth, hydraulic conductivity, and transmissivity; iv. The rate, volume, and direction of surface water and groundwater flow, including hydrographs, if available, and equipotential maps; v. The precise location or estimate of the location of the 100-year flood plain and an assessment of the 100-year flood surface flow and potential impacts on the facility; vi. Documentation of the existing quality of the water in the aquifers underlying the site, including, where available, the method of analysis, quality assurance, and quality control procedures associated with the documentation; vii. Documentation of the extent and degree of any known soil contamination at the site; viii. An assessment of the potential of the discharge to cause the leaching of pollutants from surface soils or vadose materials; ix. For an underground water storage facility, an assessment of the potential of the discharge to cause the leaching of pollutants from surface soils or vadose materials or cause the migration of contaminated groundwater; x. Any changes in the water quality expected because of the discharge; xi. A description of any expected changes in the elevation or flow directions of the groundwater expected to be caused by the facility; xii. A map of the facility's discharge impact area; or xiii. The criteria and methodologies used to determine the discharge impact area.		

43 CFR (applicable requirement or resource shown in parentheses)	Description	APP	Description/Regulation	Mined Land Reclamation	Description/Regulation
3809.401(b)(2)(iv) 3809.420(b) 3809.420(b)(3)(ii) (Hazardous Materials)	Rock characterization and handling plans; <i>(2) Mining wastes. All tailings, dumps, deleterious materials or substances, and other waste produced by the operations shall be disposed of so as to prevent unnecessary or undue degradation and in accordance with applicable Federal and state Laws.</i> <i>(C) Measures to isolate, remove, or control toxic materials;</i>	R18-9-A.202.A Technical Requirements	All waste rock and ore are subject to characterization and handling in this Section. Waste rock (RDAs) and leach piles are regulated facilities required to Be described and characterized under sections 3, 4, 5, and 8.b. above.		
3809.401(b)(2)(v) (Quality Control)	Quality assurance plans;	Mining BADCT, QAPP, Permits	The Mining BADCT document includes provisions for quality assurance management during facility construction. The state Quality Assurance Project Plan (QAPP) governs the data quality provisions for data collected in assembling the permit application, and the issued permit includes data quality expectations for data collected and analyzed as required by the permit.		
3809.401(b)(2)(vi) (Spill contingency plans)	Spill contingency plans;	R18-9-A.204 Contingency Plan	A. An individual permit shall specify a contingency plan that defines the actions to be taken if a discharge results in any of the following: 1. A violation of an Aquifer Water Quality Standard or an AQL, 2. A violation of a discharge limitation, 3. A violation of any other permit condition, 4. An alert level is exceeded, or 5. An imminent and substantial endangerment to the public health or the environment. B. The contingency plan may include one or more of the following actions if a discharge results in any of the conditions described in subsection (A): 1. Verification sampling; 2. Notification to downstream or downgradient users who may be directly affected by the discharge; 3. Further monitoring that may include increased frequency, additional constituents, or additional monitoring locations; 4. Inspection, testing, operation, or maintenance of discharge control features at the facility; 5. Evaluation of the effectiveness of discharge control technology at the facility that may include technology upgrades; 6. Evaluation of pretreatment for sewage treatment facilities; 7. Preparation of a hydrogeologic study to assess the extent of soil, surface water, or aquifer impact; 8. Corrective action that includes any of the following measures: a. Control of the source of an unauthorized discharge, b. Soil cleanup, c. Cleanup of affected surface waters, d. Cleanup of affected parts of the aquifer, or e. Mitigation measures to limit the impact of pollutants on existing uses of the aquifer. (more)		
3809.401(b)(2)(vii) 3809.420(a) (Mineral Resources)	A general schedule of operations from start through closure <i>2) Sequence of operations. You must avoid unnecessary impacts and facilitate reclamation by following a reasonable and customary mineral exploration, development, mining and reclamation sequence.</i>			ARS 27-971.B Submission and contents of reclamation plan	10. A proposed tentative schedule for beginning surface disturbances and beginning and completing the reclamation measures.

43 CFR (applicable requirement or resource shown in parentheses)	Description	APP	Description/Regulation	Mined Land Reclamation	Description/Regulation
3809.401(b)(2)(viii) (Designs)	Plans for all access roads, water supply pipelines, and power or utility services;	R18-9-A.202.A Technical Requirements	2. A facility site plan showing all known property lines, structures, water wells, injection wells, drywells and their uses, topography, and the location of points of discharge. The facility site plan shall include all known borings. If the Department determines that borings are numerous, the applicant shall satisfy this requirement with a narrative description of the number and location of the borings;	R11-2-501. Mining Unit Reclamation Plan Content	B. Maps of the existing or proposed surface disturbances submitted pursuant to ARS § 27-971(B)(8) for mining units shall indicate the following: 1. Existing and proposed post-mining and post-reclamation physical topography; 2. Natural features, including surface water; 3. Surface disturbances, pits, excavations, and building sites; 4. Development rock piles, tailings dams and impoundments, heaps for leaching, spoil, soil or growth media storage piles, overburden stockpiles, and other piles of unconsolidated material; 5. Solution ponds, settling ponds, and non-tailings impoundments; 6. Roads, buildings, structures, and stationary equipment; 7. Final post-mining land use objectives for each portion of the surface disturbance; and 8. Boundaries of the mining unit.
3809.401(b)(3) 3809.420(b) (Reclamation / Vegetation)	<i>Reclamation Plan.</i> A plan for reclamation to meet the standards in §3809.420, with a description of the equipment, devices, or practices you propose to use including, where applicable, plans for (see 3809.401(b)(3)(i) through (x)) (3) <i>Reclamation.</i> (i) <i>At the earliest feasible time, the operator shall reclaim the area disturbed, except to the extent necessary to preserve evidence of mineralization, by taking reasonable measures to prevent or control on-site and off-site damage of the Federal lands.</i>	ARS 49-243. Information and criteria for issuing individual permit; definition	A. The director shall consider, and the applicant for an individual permit may be required to furnish with the application, the following information: 8. Closure strategy.	ARS 27-971. Submission and contents of reclamation plan	A. Beginning July 1, 1996, an owner or operator may submit a single reclamation plan that covers multiple mining units of a mining facility. B. The proposed reclamation plan shall include: 1. The names and addresses of the owner or operator and an individual who will be the regulatory contact. 2. A statement that the owner or operator assumes responsibility for the reclamation of surface disturbances that are attributable to the mining unit consistent with this chapter and the rules adopted pursuant to this chapter. 3. The current ownership and use of the land included in the mining unit. 4. The proposed post-mining use of the land. 5. A description of the mining unit and the proposed surface disturbances that will be created. 6. The existing and proposed final topography, including the final slopes of leach piles, overburden or low grade rock stockpiles and tailing piles. 7. A narrative description of roads that are proposed for the mining unit. 8. The acreage affected by each type of surface disturbance and a map of the mining unit area showing each surface disturbance. For previously undisturbed areas, the map shall identify any types of fish and wildlife habitats that will be disturbed. 9. The proposed reclamation measures that are necessary to achieve the post-mining land use including information concerning: (a) The measures that will be taken to restrict public access to pits, adits, shafts and other surface features that may be a hazard to public safety. (b) The measures that will be taken to address erosion control and stability. (c) The measures that will be taken to address revegetation, conservation and the care and monitoring of revegetated areas as provided in this chapter. (d) For surface disturbances where the proposed post-mining land use objective is designated as grazing, fish or wildlife habitat, forestry or recreation, the type of wildlife or fish habitat to be encouraged, including measures that will be taken to encourage that type of wildlife or fish habitat, and that those measures will not be incompatible with the fish or wildlife habitat on adjacent lands. 10. A proposed tentative schedule for beginning surface disturbances and beginning and completing the reclamation measures. 11. The estimated costs to perform each of the proposed reclamation measures for purposes of determining financial assurance requirements under article 5 of this chapter.

43 CFR (applicable requirement or resource shown in parentheses)	Description	APP	Description/Regulation	Mined Land Reclamation	Description/Regulation
3809.401(b)(3)(i) (Public Health and Safety)	Drill-hole plugging;			ARS 27-953. Approval; criteria	2. Holes that are drilled for mineral exploration purposes, unless completed for water monitoring, withdrawal or other use, shall be plugged, sealed or capped promptly after their use is completed as prescribed by rule by the department of water resources and as necessary to ensure the safety of persons, domestic animals, livestock and machinery in the area.
3809.401(b)(3)(ii) 3809.420(b) 3809.420(b)(3)(ii) (Reclamation / Vegetation)	Regrading and reshaping; <i>(1) Access routes. Access routes shall be planned for only the minimum width needed for operations and shall follow natural contours, where practicable to minimize cut and fill. When the construction of access routes involves slopes that require cuts on the inside edge in excess of 3 feet, the operator may be required to consult with the authorized officer concerning the most appropriate location of the access route prior to commencing operations. An operator is entitled to access to his operations consistent with provisions of the mining laws. Where a notice or a plan of operations is required, it shall specify the location of access routes for operations and other conditions necessary to prevent unnecessary or undue degradation. The authorized officer may require the operator to use existing roads to minimize the number of access routes, and, if practicable, to construct access roads within a designated transportation or utility corridor. When commercial hauling is involved and the use of an existing road is required, the authorized officer may require the operator to make appropriate arrangements for use and maintenance.</i> <i>(B) Measures to control erosion, landslides, and water runoff;</i> <i>(D) Reshaping the area disturbed, application of the topsoil, and revegetation of disturbed areas, where reasonably practicable; and</i>			ARS 27-971.B Submission and contents of reclamation plan R11-2-602. Erosion Control and Topographic Contouring R11-2-603. Roads	6. The existing and proposed final topography, including the final slopes of leach piles, overburden or low grade rock stockpiles and tailing piles. A. Mining units shall be reclaimed to a stable condition for erosion and seismic activity. B. Grading and other topographic contouring methods shall be conducted, as necessary, to establish final land forms which are: 1. Suitable for the post-mining land use objective in the approved reclamation plan. 2. Stable under static and dynamic conditions as certified by a qualified engineer considering the following: a. Site-specific seismic conditions; b. Safety consistent with good engineering practices; and c. The hazard to public safety, if failure occurs. C. Site-specific grading, revegetation, or other proposed erosion control measures shall be conducted, as necessary, to address erosion so that permanent piles of mine development rock, overburden, and tailings shall not restrict surface drainages in a manner that contributes to excessive erosion or which compromises the stability of the reclaimed facility. A. Reclamation of a road that is not included in the approved reclamation plan as part of the approved post-mining land use shall begin once the road is no longer needed for operations, reclamation, or monitoring. B. The following reclamation measures shall be conducted, as necessary, to achieve the post-mining land use included in the approved reclamation plan: 1. Vehicular traffic shall be controlled on the reclamation area to achieve the reclamation objectives; 2. Surface drainage patterns shall be restored to pre-mining conditions or new patterns shall be established; 3. All bridges and culverts shall be removed or stabilized in place; 4. Bridges and culverts left in place shall be protected from erosion with rock, concrete, or riprap; and 5. Roadbeds shall be ripped, plowed, and scarified and revegetated, as necessary, to achieve the post-mining land use.

43 CFR (applicable requirement or resource shown in parentheses)	Description	APP	Description/Regulation	Mined Land Reclamation	Description/Regulation
3809.401(b)(3)(iii) 3809.420(a) 3809.420(a) (Reclamation / Vegetation / Land Use)	<i>Mine reclamation, including information on the feasibility of pit backfilling that details economic, environmental, and safety factors</i> <i>(3) Land-use plans. Consistent with the mining laws, your operations and post-mining land use must comply with the applicable BLM land-use plans and activity plans, and with coastal zone management plans under 16 USC 1451, as appropriate.</i> <i>5) Concurrent reclamation. You must initiate and complete reclamation at the earliest economically and technically feasible time on those portions of the disturbed area that you will not disturb further.</i>			ARS 27-953. Approval; criteria (exploration) ARS 27-971. Submission and contents of reclamation plan ARS 27-975. Features excluded from reclamation plan or allowed to remain following reclamation; public protection measures	4. Mud pits that are used for drilling fluids and produced waters shall be reclaimed after hazardous substances are removed and disposed of, if necessary, and after they are sufficiently dry by reshaping to contours that are generally compatible with the adjacent areas. If it is appropriate to the area, suitable growth media shall be spread and seeded over the pit area. 5. Exploration trenches and pits shall be backfilled and reclaimed as soon as practicable as prescribed in the reclamation plan. If the trench or pit will remain open, measures shall be taken to stabilize the sides to address erosion control and to restrict access. Trench and pit reclamation shall include backfilling, reshaping to contours generally compatible with the adjacent areas and, if appropriate for the area, seeding to reestablish vegetation. B. The proposed reclamation plan shall include: 6. The existing and proposed final topography, including the final slopes of leach piles, overburden or low grade rock stockpiles and tailing piles. 9. The proposed reclamation measures that are necessary to achieve the post-mining land use including information concerning: <div>(a) The measures that will be taken to restrict public access to pits, adits, shafts and other surface features that may be a hazard to public safety. (b) The measures that will be taken to address erosion control and stability.</div> A. A reclamation plan may exclude any provision for reclaiming open pits, rock faces or subsidence areas through backfilling or returning material to the open pit, rock face or subsidence area from which it was extracted if it is impracticable and if public access to the open pit, rock face or subsidence area, including any surrounding unstable areas or walls, is restricted by fencing or other institutional controls. B. The following factors shall be considered in determining whether the reclamation of open pits, rock faces or subsidence areas is impracticable: <div>1. Cost to perform the reclamation. 2. Topography of the site. 3. Geology and stability of the site. 4. Time required to perform the reclamation. 5. Consumption of resources required to perform the reclamation. 6. Future access to mineral resources.</div>
3809.401(b)(3)(iv) 3809.420(a) (Reclamation / Vegetation)	Riparian mitigation; <i>4) Mitigation. You must take mitigation measures specified by BLM to protect public lands.</i>				
3809.401(b)(3)(v) 3809.420(b)(3)(ii) (Reclamation / Wildlife)	Wildlife habitat rehabilitation; <i>(E) Rehabilitation of fisheries and wildlife habitat.</i>			ARS 27-971. Submission and contents of reclamation plan	B. The proposed reclamation plan shall include: 9. The proposed reclamation measures that are necessary to achieve the post-mining land use including information concerning: (d) For surface disturbances where the proposed post-mining land use objective is designated as grazing, fish or wildlife habitat, forestry or recreation, the type of wildlife or fish habitat to be encouraged, including measures that will be taken to encourage that type of wildlife or fish habitat, and that those measures will not be incompatible with the fish or wildlife habitat on adjacent lands.

43 CFR (applicable requirement or resource shown in parentheses)	Description	APP	Description/Regulation	Mined Land Reclamation	Description/Regulation
3809.401(b)(3)(vi) 3809.420(b)(3)(ii) (Reclamation / Soils)	Topsoil handling; (A) Saving of topsoil for final application after reshaping of disturbed areas have been completed; (D) Reshaping the area disturbed, application of the topsoil, and revegetation of disturbed areas, where reasonably practicable; and			ARS 27-974. Preservation and conservation of soil; exceptions R11-2-703. Soil Conservation R11-2-704. Redistribution of Soil R11-2-705. Off-site Soil	Before creating a surface disturbance that is stated to be reclaimed by revegetation pursuant to a new mining unit reclamation plan, the owner or operator shall conserve the soil as reasonably available from the area of disturbance to support the stated revegetation on that specific disturbance as necessary to achieve the post-mining land use objectives stated in the reclamation plan unless the owner or operator demonstrates one or more of the following factors: 1. There is insufficient soil to make recovery practicable. 2. Recovery of the soil is not practicable due to limitations of topography, thickness of soil or other physical, climactic or biological constraints. 3. Direct revegetation of the disturbance, with or without soil amendments, is reasonably expected to be successful. If soil conservation is required by ARS § 27-974, any stockpiles of conserved soil shall be marked with legible signs that identify the stockpile as "SOIL." A soil stockpile shall be stabilized, if necessary, to prevent excessive losses from erosion. Before redistribution of soil, the regraded land shall be treated, if necessary, to reduce the potential for slippage of the redistributed material or to enhance root penetration, or both. Soil and other materials shall be redistributed in a manner that prevents excess compaction and achieves a thickness consistent with the approved post-mining land use. Soil may be brought in from an off-site location, and may include any growth media that will support vegetation, will provide a stable growing surface, and will not create a hazard to public safety.

43 CFR (applicable requirement or resource shown in parentheses)	Description	APP	Description/Regulation	Mined Land Reclamation	Description/Regulation
3809.401(b)(3)vii) 3809.420(b)(3)(ii) (Reclamation / Vegetation)	Revegetation; <i>(D) Reshaping the area disturbed, application of the topsoil, and revegetation of disturbed areas, where reasonably practicable; and</i>			ARS 27-971. Submission and contents of reclamation plan R11-2-701. Revegetation Provisions R11-2-702. Revegetation Standards	B. The proposed reclamation plan shall include: 9. The proposed reclamation measures that are necessary to achieve the post-mining land use including information concerning: (c) The measures that will be taken to address revegetation, conservation and the care and monitoring of revegetated areas as provided in this chapter. A. If revegetation is part of the proposed reclamation plan, the plan shall describe the: 1. Season of revegetation, 2. Species and amounts per acre of seeds or flora, and 3. Planting methods. B. If the proposed reclamation plan includes mulching, irrigation, pest control, disease control, or growth management measures, the proposed reclamation plan shall specifically describe the techniques, methods, controls, or measures to be used. A. Where surface disturbances result in compaction of the soil, ripping, disking, or other means shall be used in areas to be revegetated to reduce compaction and to establish a suitable root zone in preparation for planting. B. Revegetation shall be conducted to establish plant species that will support the approved post-mining land use. The establishment of vegetation species, density, or diversity which is different than pre-existing conditions or on adjacent lands shall constitute successful reclamation if any of the following apply: 1. The post-mining land use is different than the pre-mining land use or the use of adjacent lands; 2. The site-specific nature of the surface disturbance, including soil conditions and topography, is such that the establishment of pre- existing or adjacent conditions is not technically or economically practicable; or 3. The establishment of different species is preferable for control of erosion. C. Planting shall be conducted during the most favorable period of the year for plant establishment. D. Soil stabilizing practices or irrigation measures, or both, may be used to establish vegetation. E. This Section only applies if vegetation or revegetation measures are included in the approved reclamation plan.

43 CFR (applicable requirement or resource shown in parentheses)	Description	APP	Description/Regulation	Mined Land Reclamation	Description/Regulation
3809.401(b)(3)(viii) 3809.420(b) 3809.420(b)(3)(ii) 3809.420(b) (Hazardous Materials)	Isolation and control of acid-forming, toxic, or deleterious materials; <i>(2) Mining wastes. All tailings, dumps, deleterious materials or substances, and other waste produced by the operations shall be disposed of so as to prevent unnecessary or undue degradation and in accordance with applicable Federal and state laws.</i> <i>(C) Measures to isolate, remove, or control toxic materials;</i> <i>(11) Acid-forming, toxic, or other deleterious materials. You must incorporate identification, handling, and placement of potentially acid-forming, toxic or other deleterious materials into your operations, facility design, reclamation, and environmental monitoring programs to minimize the formation and impacts of acidic, alkaline, metal-bearing, or other deleterious leachate, including the following:</i> <i>(i) You must handle, place, or treat potentially acid-forming, toxic, or other deleterious materials in a manner that minimizes the likelihood of acid formation and toxic and other deleterious leachate generation (source control);</i> <i>(ii) If you cannot prevent the formation of acid, toxic, or other deleterious drainage, you must minimize uncontrolled migration of leachate; and</i> <i>(iii) You must capture and treat acid drainage, or other undesirable effluent, to the applicable standard if source controls and migration controls do not prove effective. You are responsible for any costs associated with water treatment or facility maintenance after project closure. Long-term, or post-mining, effluent capture and treatment are not acceptable substitutes for source and migration control, and you may rely on them only after all reasonable source and migration control methods have been employed.</i>	ADEQ Mining BADCT Guidance Document	There is frequent reference in the mining BADCT guidance document requiring analysis of process and waste materials to determine the manner in which the materials are to be handled.		
3809.401(b)(3)(ix) (Decommissioning)	Removal or stabilization of buildings, structures and support facilities; and			ARS 27-975. Features excluded from reclamation plan or allowed to remain following reclamation; public protection measures	C. Buildings and other structures may remain after reclamation if adequate measures are taken to protect public safety.

43 CFR (applicable requirement or resource shown in parentheses)	Description	APP	Description/Regulation	Mined Land Reclamation	Description/Regulation
3809.401(b)(3)(x) (Decommissioning)	Post-closure management;	R18-9-A.202.A Technical Requirements R18-9-A209 Temporary Cessation, Closure, Post-closure	10. Closure and post-closure strategies or plans C. Post-closure. A person shall describe post-closure monitoring and maintenance activities in an application for a permit or an amendment to an individual permit and submit it to the Department for approval. 1. The application shall include: a. The duration of post-closure care; b. The monitoring procedures proposed by the permittee, including monitoring frequency, type, and location; c. A description of the operating and maintenance procedures proposed for maintaining aquifer quality protection devices, such as liners, treatment systems, pump-back systems, surface water and stormwater management systems, and monitoring wells; d. A schedule and description of physical inspections proposed at the facility following closure; e. An estimate of the cost of post-closure maintenance and monitoring; f. A description of limitations on future land or water uses, or both, at the facility site as a result of facility operations; and g. The applicable fee established in 18 A.A.C. 14. 2. The Director shall include the post-closure plan submitted under subsection (C)(1) in the individual permit or permit amendment. a. The permittee shall provide the Department written notice that a closure plan or a post-closure plan was fully implemented within 30 calendar days of implementation of the plan. The notice shall include a summary report confirming the closure design and describing the results of sampling performed during closure activities and post-closure activities, if any, to demonstrate the level of cleanup achieved. b. The Director may, upon receipt of the notice, inspect the facility to ensure that the closure plan has been fully implemented. c. The Director shall issue a Permit Release Notice if the permittee satisfies all closure and post-closure requirements.		
3809.401(b)(4) (Monitoring Plan – all resources)	Monitoring Plan. A proposed plan for monitoring the effect of your operations. You must design monitoring plans to meet the following objectives: To demonstrate compliance with the approved plan of operations and other Federal or State environmental laws and regulations, to provide early detection of potential problems, and to supply information that will assist in directing corrective actions should they become necessary. Where applicable, you must include in monitoring plans details on type and location of monitoring devices, sampling parameters and frequency, analytical methods, reporting procedures, and procedures to respond to adverse monitoring results. Monitoring plans may incorporate existing State or other Federal monitoring requirements to avoid duplication. Examples of monitoring programs which may be necessary include surface- and ground-water quality and quantity, air quality, revegetation, stability, noise levels, and wildlife mortality; and	R18-9-A202(A) Technical Requirements R18-9-A205. Alert Levels, Discharge Limitations, and AQLs R18-9-A206. Monitoring Requirements R18-9-A207. Reporting Requirements	9. A detailed proposal indicating the alert levels, discharge limitations, monitoring requirements, compliance schedules, and temporary cessation or plans that the applicant will use to satisfy the requirements of ARS Title 49, Chapter 2, Article 3, and Articles 1 and 2 of this Chapter; A. Alert levels. 1. If the Department prescribes an alert level in an individual permit, the Department shall base the alert level on the site-specific conditions described by the applicant in the application submitted under R18-9-A201(A)(2) or other information available to the Department. 2. The Department may specify an alert level based on a pollutant that indicates the potential appearance of another pollutant. 3. The Department may specify the measurement of an alert level at a location appropriate for the discharge activity, considering the physical, chemical, and biological characteristics of the discharge, the particular treatment process, and the site-specific conditions. B. Discharge limitations. If the Department prescribes discharge limitations in an individual permit, the Department shall base the discharge limitations on the considerations described in ARS § 49-243. C. AQLs. The Department may prescribe an AQL in an individual permit to ensure that the facility continues to meet the criteria under ARS § 49-243(B)(2) or (3). 1. If the concentration of a pollutant in the aquifer does not exceed the Aquifer Water Quality Standard, the Department shall set the AQL at the Aquifer Water Quality Standard. 2. If the concentration of a pollutant in the aquifer exceeds the Aquifer Water Quality Standard, the Department shall set the AQL higher than the Aquifer Water Quality Standard.		

43 CFR (applicable requirement or resource shown in parentheses)	Description	APP	Description/Regulation	Mined Land Reclamation	Description/Regulation
3809.401(b)(4) (Monitoring Plan – all resources) (Continued)			<p>A. Monitoring.</p> <p>1. The Department shall determine whether monitoring is required to assure compliance with Aquifer Protection Permit conditions and with the applicable Aquifer Water Quality Standards established under ARS §§ 49-221, 49-223, 49-241 through 49-244, and 49-250 through 49-252.</p> <p>2. If monitoring is required, the Director shall specify to the permittee:</p> <p>a. The type and method of monitoring;</p> <p>b. The frequency of monitoring;</p> <p>c. Any requirements for the installation, use, or maintenance of monitoring equipment; and</p> <p>d. The intervals at which the permittee reports the monitoring results to the Department.</p> <p>B. Recordkeeping.</p> <p>1. A permittee shall make a monitoring record for each sample taken as required by the individual permit consisting of all of the following:</p> <p>a. The date, time, and exact place of a sampling and the name of each individual who performed the sampling;</p> <p>b. The procedures used to collect the sample;</p> <p>c. The date sample analysis was completed;</p> <p>d. The name of each individual or laboratory performing the analysis;</p> <p>e. The analytical techniques or methods used to perform the sampling and analysis;</p> <p>f. The chain of custody records; and</p> <p>g. Any field notes relating to the information described in subsections (B)(1)(a) through (f).</p> <p>2. A permittee shall make a monitoring record for each measurement made, as required by the individual permit, consisting of all of the following:</p> <p>a. The date, time, and exact place of the measurement and the name of each individual who performed the measurement;</p> <p>b. The procedures used to make the measurement; and</p> <p>c. Any field notes relating to the information described in subsections (B)(2)(a) and (b).</p> <p>3. A permittee shall maintain monitoring records for at least 10 years after the date of the sample or measurement, unless the Department specifies a shorter time period in the permit.</p> <p>A. A permittee shall notify the Department within five days after becoming aware of a violation of a permit condition or that an alert level was exceeded. The permittee shall inform the Department whether the contingency plan described in R18-9-A204 was implemented.</p> <p>B. In addition to the requirements in subsection (A), a permittee shall submit a written report to the Department within 30 days after the permittee becomes aware of a violation of a permit condition. The report shall contain:</p> <p>1. A description of the violation and its cause;</p> <p>2. The period of violation, including exact date and time, if known, and the anticipated time period the violation is expected to continue;</p> <p>3. Any action taken or planned to mitigate the effects of the violation or to eliminate or prevent recurrence of the violation;</p> <p>4. Any monitoring activity or other information that indicates that a pollutant is expected to cause a violation of an Aquifer Water Quality Standard; and</p> <p>5. Any malfunction or failure of a pollution control device or other equipment or process.</p> <p>C. A permittee shall notify the Department within five days after the occurrence of any of the following:</p> <p>1. The permittee's filing of bankruptcy, or</p> <p>2. The entry of any order or judgment not issued by the Director against the permittee for the enforcement of any federal or state environmental protection statute or rule.</p> <p>D. The Director shall specify the format for submitting results from monitoring conducted under R18-9-A206.</p>		

43 CFR (applicable requirement or resource shown in parentheses)	Description	APP	Description/Regulation	Mined Land Reclamation	Description/Regulation
3809.401(b)(5) (Decommissioning)	Interim management plan. A plan to manage the project area during periods of temporary closure (including periods of seasonal closure) to prevent unnecessary or undue degradation. The interim management plan must include, where applicable, the following:	R18-9-A209. Temporary Cessation, Closure, Post-closure	A. Temporary cessation. 1. A permittee shall notify the Department before a cessation of operations at the facility of at least 60 days duration. 2. The permittee shall implement any condition specified in the individual permit for the temporary cessation. 3. If the permit does not specify any temporary cessation condition, the permittee shall, prior to implementation, submit the proposed temporary cessation plan for Department approval.		
3809.401(b)(5)(i) (Public Health and Safety)	Measures to stabilize excavations and workings;			ARS 27-971. Submission and contents of reclamation plan	9. The proposed reclamation measures that are necessary to achieve the post-mining land use including information concerning: (a) The measures that will be taken to restrict public access to pits, adits, shafts and other surface features that may be a hazard to public safety. (b) The measures that will be taken to address erosion control and stability.
3809.401(b)(5)(ii) (Hazardous Materials)	Measures to isolate or control toxic or deleterious materials (See also the requirements in §3809.420(c)(12)(vii).);		See 3809.401(b)(3)(viii) above.		
3809.401(b)(5)(iii) (Decommissioning)	Provisions for the storage or removal of equipment, supplies and structures;				
3809.401(b)(5)(iv) 3809.420(b) (Public Health and Safety)	Measures to maintain the project area in a safe and clean condition; 13) Maintenance and public safety. During all operations, the operator shall maintain his or her structures, equipment, and other facilities in a safe and orderly manner. Hazardous sites or conditions resulting from operations shall be marked by signs, fenced, or otherwise identified to alert the public in accordance with applicable Federal and state laws and regulations.			R11-2-601. Public Safety Standards	A. Reclamation activities at mining units shall be designed to reduce hazards to public safety to the extent technically and economically practicable by measures, including: 1. Removal of scrap metal, wood, trash, and other debris that pose a threat to public safety, or create a public nuisance, or are inconsistent with an approved reclamation plan; and 2. Regrading slopes as prescribed under R11-2-602. B. The owner or operator shall maintain structures, equipment, and excavations at the reclamation site in a safe manner and shall restrict access to provide for public safety. Where hazards to public safety cannot be adequately reduced through reclamation measures; where buildings, structures, and excavations remain as part of the approved post-mining land use; or where a mining unit has been exempted from reclamation under ARS § 27-975(A), any hazard to public safety shall be reduced by: 1. Constructing berms, fences, barriers, or any combination of these measures to restrict public access when technically and economically practicable; and 2. Posting visible warning signs in locations where public access is available.
3809.401(c) (Decommissioning)	In addition to the requirements of paragraph (b) of this section, BLM may require you to supply:				
3809.401(c)(1) (NEPA – all resources)	Operational and baseline environmental information for BLM to analyze potential environmental impacts as required by the National Environmental Policy Act and to determine if your plan of operations will prevent unnecessary or undue degradation. This could include information on public and non-public lands needed to characterize the geology, paleontological resources, cave resources, hydrology, soils, vegetation, wildlife, air quality, cultural resources, and socioeconomic conditions in and around the project area, as well as information that may require you to conduct static and kinetic testing to characterize the potential for your operations to produce acid drainage or other leachate. BLM is available to advise you on the exact type of information and level of detail needed to meet these requirements; and		3809.401(c)		

43 CFR (applicable requirement or resource shown in parentheses)	Description	APP	Description/Regulation	Mined Land Reclamation	Description/Regulation
3809.401(c)(2) 3809.420(a) (Federal and State Law compliance)	Other information, if necessary to ensure that your operations will comply with this subpart. 6) Compliance with other laws. You must conduct all operations in a manner that complies with all pertinent Federal and state laws. (see also 3809.420(b) 4 through 10 below)	R18-9-A202(A) Technical Requirements	11. Any other relevant information required by the Department to determine whether to issue a permit.		
3809.401(d) (Socioeconomics)	Reclamation cost estimate. At a time specified by BLM, you must submit an estimate of the cost to fully reclaim your operations as required by §3809.552. BLM will review your reclamation cost estimate and notify you of any deficiencies or additional information that must be submitted in order to determine a final reclamation cost. BLM will notify you when we have determined the final amount for which you must provide financial assurance.	R18-9-A.201(B) Individual Permit Application R18-9-A209(B) Temporary Cessation, Closure, Post-closure	5. Cost estimates for facility construction, operation, maintenance, closure, and post-closure as follows. a. The applicant shall ensure that the cost estimates are derived by an engineer, controller, or accountant using competitive bids, construction plan take-off's, specifications, operating history for similar facilities, or other appropriate sources, as applicable. b. The following cost estimates that are representative of regional fair market costs: i. The cost of closure estimate under R18-9-A209(B)(2), consistent with the closure plan or strategy submitted under R18-9-A202(A)(10); ii. The estimated cost of post-closure monitoring and maintenance under R18-9-A209(C), consistent with the post-closure plan or strategy submitted under R18-9-A202(A)(10); B. Closure. 1. Before providing notice under subsection (B)(2), a person may request that the Director review a site investigation plan for a facility under subsection (B)(3)(a) or the results of a site investigation at a facility to determine compliance with this subsection and ARS § 49-252. 2. A person shall notify the Department of the person's intent to cease operations without resuming an activity for which the facility was designed or operated. 3. The person shall submit a closure plan for Director approval within 90 days following the notification of intent to cease operations with the applicable fee established in 18 A.A.C. 14. A complete closure plan shall include: a. A site investigation plan that includes a summary of relevant site studies already conducted and a proposed scope of work for any additional site investigation necessary to identify: i. The lateral and vertical extent of contamination in soils and groundwater, using applicable standards; ii. The approximate quantity and chemical, biological, and physical characteristics of each waste, contaminated water, or contaminated soil proposed for removal from the facility; iii. The approximate quantity and chemical, biological, and physical characteristics of each waste, contaminated water, or contaminated soil that will remain at the facility; and iv. Information regarding site conditions related to pollutant fate and transport that may influence the scope of sampling necessary to characterize the site for closure; b. A summary describing the results of a site investigation and any other information used to identify: i. The lateral and vertical extent of soil and groundwater contamination, using applicable standards, and the analytical results that support the determination; ii. The approximate quantity and chemical, biological, and physical characteristics of each material scheduled for removal; iii. The destination of the materials and documentation that the destination is approved to accept the materials; iv. The approximate quantity and chemical, biological, and physical characteristics of each material that remains at the facility; and v. Any other relevant information the Department determines is necessary;		

43 CFR (applicable requirement or resource shown in parentheses)	Description	APP	Description/Regulation	Mined Land Reclamation	Description/Regulation
3809.401(d) (Socioeconomics) (Continued)			<p>c. A closure design that identifies:</p> <ul style="list-style-type: none">i. The method used, if any, to treat any material remaining at the facility;ii. The method used to control the discharge of pollutants from the facility;iii. Any limitation on future land or water uses created as a result of the facility's operations or closure activities and a Declaration of Environmental Use Restriction according to ARS § 49-152, if necessary; andiv. The methods used to secure the facility; <p>d. An estimate of the cost of closure;</p> <p>e. A schedule for implementation of the closure plan and submission of a post-closure plan if clean closure is not achieved; and</p> <p>f. For an implemented closure plan, a summary report of the results of site investigation performed during closure activities, including confirmation and verification sampling.</p> <p>4. Within 60 days of receipt of a complete closure plan, the Department shall determine whether the closure plan achieves clean closure.</p> <p>a. If the implemented complete closure plan achieves clean closure, the Director shall:</p> <ul style="list-style-type: none">i. If the facility is not covered by an Aquifer Protection Permit, send the person a letter of approval; orii. If the facility is covered by an Aquifer Protection Permit, send the person a Permit Release Notice issued under subsection (C)(2)(c). <p>b. If the implemented complete closure plan did not achieve clean closure, the person shall submit a post-closure plan under subsection (C) and the following documents within 90 days from the date on the Department's notice or as specified under ARS § 49-252(E):</p> <ul style="list-style-type: none">i. An application for an individual permit, orii. A request to amend a current individual permit to address closure activities and post-closure monitoring and maintenance at the facility.		
3809.420(b)(3)(iii) (Mineral Resources)	When reclamation of the disturbed area has been completed, except to the extent necessary to preserve evidence of mineralization, the authorized officer shall be notified so that an inspection of the area can be made.				

43 CFR (applicable requirement or resource shown in parentheses)	Description	APP	Description/Regulation	Mined Land Reclamation	Description/Regulation
3809.420(b) (Air Quality, Water Resources, Hazardous Materials, Biological Resources, Cultural and Heritage Resources, Mineral Resources, Public Health and Safety)	<p>(4) Air quality. All operators shall comply with applicable Federal and state air quality standards, including the Clean Air Act (42 USC 1857 et seq.).</p> <p>5) Water quality. All operators shall comply with applicable Federal and state water quality standards, including the Federal Water Pollution Control Act, as amended (30 USC 1151 et seq.).</p> <p>(6) Solid wastes. All operators shall comply with applicable Federal and state standards for the disposal and treatment of solid wastes, including regulations issued pursuant to the Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act (42 USC 6901 et seq.). All garbage, refuse or waste shall either be removed from the affected lands or disposed of or treated to minimize, so far as is practicable, its impact on the lands.</p> <p>(7) Fisheries, wildlife and plant habitat. The operator shall take such action as may be needed to prevent adverse impacts to threatened or endangered species, and their habitat which may be affected by operations.</p> <p>(8) Cultural and paleontological resources. (i) Operators shall not knowingly disturb, alter, injure, or destroy any scientifically important paleontological remains or any historical or archaeological site, structure, building or object on Federal lands.</p> <p>(ii) Operators shall immediately bring to the attention of the authorized officer any cultural and/or paleontological resources that might be altered or destroyed on Federal lands by his/her operations, and shall leave such discovery intact until told to proceed by the authorized officer. The authorized officer shall evaluate the discoveries brought to his/her attention, take action to protect or remove the resource, and allow operations to proceed within 10 working days after notification to the authorized officer of such discovery.</p> <p>(iii) The Federal Government shall have the responsibility and bear the cost of investigations and salvage of cultural and paleontology values discovered after a plan of operations has been approved, or where a plan is not involved.</p> <p>(9) Protection of survey monuments. To the extent practicable, all operators shall protect all survey monuments, witness corners, reference monuments, bearing trees and line trees against unnecessary or undue destruction, obliteration or damage. If, in the course of operations, any monuments, corners, or accessories are destroyed, obliterated, or damaged by such operations, the operator shall immediately report the matter to the authorized officer. The authorized officer shall prescribe, in writing, the requirements for the restoration or reestablishment of monuments, corners, bearing and line trees.</p> <p>(10) Fire. The operator shall comply with all applicable Federal and state fire laws and regulations, and shall take all reasonable measures to prevent and suppress fires in the area of operations.</p>				

Appendix C

RAY LAND EXCHANGE EXISTING MINING AND FORESEEABLE MINING USE OF SELECTED LANDS



RAY LAND EXCHANGE EXISTING MINING AND FORESEEABLE MINING USE OF SELECTED LANDS

December 19, 2013

Prepared By:

J. Chris Pfahl, PE
Corporate Land Manager
ASARCO LLC

EXECUTIVE SUMMARY

Asarco LLC has undertaken a review of a technical memorandum written by Ron E. Borkan and Noelle Sanders of SWCA dated October 15, 1997 (See Attachment II) for the purpose of identifying changes in the reasonably foreseeable uses of the selected lands identified for the Ray Land Exchange.

A summary of the changes in foreseeable uses that have occurred in the 14 years since the original memorandum by SWCA was created are listed below:

1. ASARCO has sold the surface estate to the Casa Grande Parcels (CG-1, CG-2, and CG-3) and therefore has no foreseeable use of those parcels.
2. When the original document describing the existing and foreseeable mining uses was submitted to the BLM on August 15, 1997, the surface estate of Parcels CB-5, RM-7, RM-8, RM-9, RM-11, RM-14, and RM-15 was owned by the Arizona State Land Department (ASLD). Today, the surface estates of these parcels are owned by ASARCO.
3. Additional disturbances occurred on Parcels RM-2 (2.3 acres), RM-3 (1.9 acres), and RM-1 (0.4 acres). Parcel RM-10 also had additional disturbances (approximately 40 acres) that are covered under an approved BLM Mine Plan of Operations (MPO).
4. The surface estate of Parcel RM-8 is owned by ASARCO, but to stay consistent with the designation of the other parcels, there was “Existing Mining” prior to October 15, 1997. The existing mining refers to rock dumps, which are located on the parcel. The “Existing Mining” designation was also added to “Foreseeable Uses” for Parcels RM-1, RM-2, and RM-10 because of the additional disturbances that occurred on these parcels.
5. ASARCO has selected a different site for a future tailing storage facility and therefore, foreseeable uses for Parcel RM-18 have been changed from a combination of “Production, Operation and Support”; “Transition”; and “Buffer” to 100% “Buffer”.
6. For clarification, the Intermittent classification has been renamed Buffer and the Long Range Plan classification has been renamed Long Range Prospect. The definition of the classifications has not changed. A new classification of “Unknown” has also been added.

None of these changes are significant. For ease of reference a chart summarizing the updated uses (as compared to the original identified uses) is provided in Table I.

ATTACHMENTS

Attachment I – Figures

Figure 1 – Selected Lands – Casa Grande

Figure 2 – Selected Lands – Ray Mine Area

Figure 3 – Foreseeable Uses of Copper Butte and Ray Mine Area

Attachment II – SWCA Memorandum dated October 15, 1997

Table 1

COMPARISON OF EXISTING AND FORESEEABLE USES FOR RAY LAND EXCHANGE "SELECTED LANDS" BETWEEN OCTOBER 15, 1997 (ISSUE OF TECHNICAL MEMORANDUM) AND THE CURRENT VERSION (APRIL 25,2012)												
Parcel	Name	Acreage	Location Section Township Range			15-Oct-97 Ownership		Foreseeable Uses	Current Ownership		Foreseeable Uses	Comments
						Surface	Mineral		Surface	Mineral		
CASA GRANDE (CG) AREA												
CG-1		156.87	12	6S	4E	A	B	2, 3	L	B	6	These parcels were sold by ASARCO to Legends Property LLC, a land developer. The sales contract specified that if ASARCO were successful in a land exchange to trade for the mineral estate associated with these parcels, ASARCO would transfer those mineral rights to the new owner. It is unknown what the proposed use of these parcels will be.
CG-2		160.00	23	6S	4E	A	B	2, 3	L	B	6	
CG-3		320.00	24	6S	4E	A	B	2, 3	L	B	6	
Total		636.87										
CHILITO/HAYDEN (CH) AREA												
CH-1		262.72	22, 27	4S	15E	B	B	3, 4	B	B	3, 4	No Change
CH-2		7.55	27	4S	15E	B	B	3, 4	B	B	3, 4	No Change
CH-3		1.91	27	4S	15E	B	B	3, 4	B	B	3, 4	No Change
CH-4	Administration	80.00	11	5S	15E	B	B	4	B	B	4	No Change
CH-5	Hayden D	480.00	28	5S	15E	B	B	1	B	B	1	No Change
Total		832.18										
COPPER BUTTE (CB) AREA												
CB-1		1,120.00	25, 26	3S	12E	B	B	3, 4	B	B	3, 4	No Change
CB-2		615.00	17, 8	3S	13E	B	B	2, 3	B	B	2, 3	No Change
CB-3		691.97	19, 20	3S	13E	B	B	1, 2, 3	B	B	1, 2, 3	No Change
CB-4		595.46	30	3S	13E	A	B	1, 2, 3	A	B	1, 2, 3	No Change
CB-5		160.00	24	3S	12E	S	B	1, 2, 3	A	B	1, 2, 3	ASARCO purchased surface estate from Arizona State Land Department
Total		3,182.43										
RAY MINE (RM) AREA												
RM-1		423.03	34	2S	13E	B	B	1, 2, 3	B	B	1, 2, 3	0.36 acres of the parcel, identified as Lot 8 was overdumped in 1999 as part of the Ray Consent Decree. There were no other changes.
RM-2	Red Bluff	5.23	34	2S	13E	B	B	3	B	B	3, 5	2.30 acres of the Red Bluff fraction was overdumped as part of the Ray Consent Decree and part was used to build the diversion tunnel extension inlet for Mineral Creek, leaving about 2.9 acres undisturbed. The use changes from Buffer to both Buffer and Existing Mining.
RM-3	Red Hills Fraction	5.15	2	3S	13E	B	B	5	B	B	5	1.93 acres, of the 5.16 acres, of the Red Hills fraction was overdumped as part of the Ray Consent Decree. The parcel is completely overdumped by a Rock Deposition Area (RDA).
RM-4	Copper Zone No. 8	2.06	2	3S	13E	B	B	5	B	B	5	No Change
RM-5	Section 10 Fragment	0.02	10	3S	13E	B	B	5	B	B	5	No Change
RM-61, 6.2, 6.3	Copper Era 1	0.96	11	3S	13E	B	B	5	B	B	5	No Change
RM-6.4	Wedge Lode	0.02	11	3S	13E	B	B	5	B	B	5	No Change
RM-7	Section 35 Fragment	80.00	35	2S	13E	S	B	3	A	B	3	ASARCO purchased surface estate from Arizona State Land Department
RM-8	Section 9/10 Mineral	482.48	9, 10	3S	13E	S	B	1, 2, 3	A	B	1, 2, 3, 5	ASARCO purchased surface estate from Arizona State Land Department
RM-9	Section 11 Fragment	29.97	11	3S	13E	S	B	5	A	B	5	ASARCO purchased surface estate from Arizona State Land Department
RM-10	Limestone Quarry	207.43 651.97	13 18, 19	3S 3S	13E 14E	B B	B	1, 2, 3, 4	B B	B B	1, 2, 3, 4	Some additional mining (stripping), road construction and drilling has been done on the west side of parcel RM-10 increasing the prior existing surface disturbance by approximately 40 acres.
RM-11	Rustler's Gulch	70.76 88.14	31 6	2S 3S	14E 14E	S S	B B	1, 2, 3	A A	B B	1, 2, 3	ASARCO purchased surface estate from Arizona State Land Department
RM-12	Rustler's Gulch	159.34	1	3S	14E	B	B	1, 2, 3	B	B	1, 2, 3	No Change
RM-13	Rustler's Gulch	118.90	1	3S	14E	B	B	1, 2, 3	B	B	1, 2, 3	No Change
RM-14	East Side	228.75 121.41 0.21	12 7 7	3S 3S 3S	13E 14E 14E	S S B	B B B	1, 2, 3	A A B	B B B	1, 2, 3	ASARCO purchased surface estate from Arizona State Land Department
RM-15	Limestone Quarry	286.08	17, 18	3S	14E	S	B	4	A	B	4	ASARCO purchased surface estate from Arizona State Land Department
RM-16	Limestone Quarry	40.00	20	3S	14E	B	B	4	B	B	4	No Change
RM-17	Tortilla Foothills	1,320.00	22, 23, 26, 27, 34, 35	3S	13E	B	B	1, 2, 3	B	B	1, 2, 3	No Change
RM-18	Hackberry Gulch	560.00	33, 34	3S	14E	B	B	1, 2, 3	B	B	3	Since the original memo, ASARCO has made other plans for a future tailings storage facility and therefore the foreseeable use of this parcel has been changed to Buffer.
Total		6,323.51										
Grand Total		10,974.99										

Note: Any surface estate listed in the Record Of Decision (ROD) under state ownership is now owned by ASARCO.

Ownership

- A ASARCO
- B BLM
- S State
- L Legends Property LLC

Uses:

- 1 Production, Operation & Support
- 2 Transition
- 3 Buffer
- 4 Long-Rang Prospect
- 5 Existing Mining
- 6 Unknown

FORESEEABLE USES AND CLASSIFICATION OF USES

The existing and foreseeable land uses of the selected lands in the Ray Land Exchange include the following:

- a. Consolidate the land holdings surrounding the former Santa Cruz In-Situ Copper Mining Research Project (Property is now owned by a private land developer.)
- b. Allow for the expansion of the Tailing Deposition Area at Hayden;
- c. Allow for future development of the Ray and Hayden limestone quarries;
- d. Allow future development of the Copper Butte, Buckeye and Chilito copper deposits;
- e. Provide buffer zones around Ray Complex; and
- f. Consolidate the ASARCO land position to support the ongoing operation and expansion of the mine overburden and leach rock deposition areas at the Ray Mine through acquisition of BLM inholdings and adjacent lands.

The foreseeable uses of these “Selected Lands” or “Parcels” have been classified into four basic categories and they are:

- a. **Production, Operation & Support** areas would be subject to significant disturbance from mining activity, resulting in 25 to 100 percent surface disturbance. Potential foreseeable uses include, but are not limited to, expansion of open pits, haul roads, leach and rock deposition areas, and overburden deposition areas.
- b. **Transition** areas would be subject to scattered mining activity, resulting in 5 to 25 percent surface disturbance. Potential foreseeable uses include, but are not limited to, raveling areas around overburden and leach rock deposition areas, access roads, storm water diversion ditches, right-of-ways, and administrative facilities.
- c. **Buffer** areas would be subject to limited or no mining activity, resulting in less than 5 percent surface disturbance. Potential foreseeable uses include, but are not limited to, consolidation of ASARCO ownership and buffering neighboring land owners from mining operations.
- d. **Long-Range Prospect** areas would be used in the future for mine development with associated facilities. There is no current mining activity in these areas, nor has mine planning begun. The quantity of surface disturbance is unknown at this time.
- e. **Unknown** areas are owned by others and future uses are not known.
- f. **Existing Mining** and are those areas disturbed by current mining activity either in or adjacent to the Ray mine.

INVENTORY OF SELECTED LANDS

The four areas that make up the “Selected Lands” within the land exchange are:

Casa Grande (CG) Area - This area includes 3 parcels that total 636.87 acres. ASARCO is exchanging for the mineral estate only.

Chilito/Hayden (CH) Area - This area includes 5 parcels that total 832.18 acres. ASARCO is exchanging for both the surface and mineral estate on these 5 parcels.

Copper Butte/Buckeye (CB) Area - This area includes 5 parcels that total 3,182.43 acres. Of the 5 parcels selected by ASARCO, 2 parcels (755.46 acres) include mineral estate only and the remaining 3 parcels (2,426.97 acres) include both the mineral and surface estate.

Ray Mine (RM) Area - This area includes 18 parcels that total 6,324.92 acres. Of the 18 parcels selected by ASARCO, 6 parcels (1,387.59 acres) include mineral estate only and the remaining 12 parcels (4,937.92 acres) include both the mineral and surface estates.

The Table II below summarizes the “Selected Areas”:

Table II

Selected Lands			
Area	Mineral Estate	Mineral & Surface Estate	Total - Both Estates
CG	636.87	0.00	636.87
CH	0.00	832.18	832.18
CB	755.46	2,426.97	3,182.43
RM	1,387.59	4,935.92	6,323.51
Total	2,779.92	8,195.07	10,974.99

Note: State land is no longer involved in the land exchange.

A more detailed breakdown will follow to explain how each area and parcel will be used by ASARCO.

CASA GRANDE (CG) AREA

Summary: This area includes 3 parcels that total 636.87 acres. ASARCO is exchanging for the mineral estate only. ASARCO has sold the surface estate to the Casa Grande Parcels (CG-1, CG-2, and CG-3) to a non-mining third party and therefore the foreseeable uses are unknown. If acquired, ASARCO would transfer the mineral rights to the current owner.

Parcels:	CG-1, CG-2, CG-3	Location:	Sections 12, 23, & 24 of T6S, R4E
Estate Type:	Mineral (only)	Foreseeable Uses:	Unknown
Acreage:	636.87 acres		

Existing Condition: The Casa Grande parcels are retired agricultural lands. The surface estate of these parcels is no longer owned by ASARCO and no mining activity has occurred. Mining claims covering these parcels are held by ASARCO.

Foreseeable Uses: ASARCO has sold the surface estate to a land developer with the stipulation that in the event ASARCO were to obtain the mineral estates to these parcels, ASARCO would be obligated to transfer the mineral estate to the new owner. Therefore, any foreseeable uses would be outside the control of ASARCO and is therefore classified “Unknown”.

CHILITO/HAYDEN (CH) AREA

Summary: Three of the 5 Chilito/Hayden parcels are located adjacent to ASARCO's Chilito copper deposit. Plans for mining the Chilito deposit have not yet been developed and therefore the deposit is classified as a long term prospect. Parcel CH-4 is adjacent ASARCO's Hayden Smelter and Parcel CH-5 is adjacent to ASARCO's Hayden Concentrator "D" Tailing Impoundment.

Parcels:	CH-1, CH-2 & CH-3	Location:	Sections 22 & 27 of T4X, R15E
Estate Type:	Surface & Mineral	Foreseeable Uses:	Long-Range Prospect, Buffer

Existing Condition: These Chilito parcels have no current mining activity. Several roads and disturbances associated with past mining activity occur throughout the parcels. The parcels are adjacent to ASARCO private land used for mining copper and/or silica flux. Mining claims covering these parcels are held by ASARCO.

Foreseeable Uses: Parcel CH-1, the northern parcel immediately adjacent to ASARCO private land, could be used for future development of copper or silica flux deposits. Detailed planning for mining in Parcel CH-1 has not begun, and is not scheduled to begin in the foreseeable future. Therefore, Parcel CH-1 is classified as a "Long-Range Prospect". Parcels CH-2 and CH-3 would not be used for mining, but the current road could be used to support mining in CH-1. Therefore, Parcels CH-2 and CH-3 are classified as "Buffer".

Parcel:	CH-4	Location:	Sections 11 of T5S, R15E
Estate Type:	Surface & Mineral	Foreseeable Uses:	Long-Range Prospect
Acreage:	80 acres		

Existing Condition: Parcel CH-4 is located approximately one-quarter mile north of the Hayden smelter. Portions of the parcel are disturbed by mining related activity, including a small refuse dump site. Mining claims are held by ASARCO.

Foreseeable Uses: A portion of parcel CH-4 would be used for expansion of the refuse dump site. Parcel CH-4 could also be used to mine limestone used in support of copper milling/smeltering operations. Mine planning has not begun and is not scheduled to begin in the foreseeable future. Therefore, Parcel CH-4 is classified as a "Long-Range Prospect".

Parcel: CH-5
Estate Type: Surface & Mineral
Acreage: 480 acres

Location: Sections 28 of T5S, R15E
Foreseeable Uses: Production, Operation & Support

Existing Condition: Parcel CH-5 is located adjacent to ASARCO owned land used for tailings deposition from Hayden operations. Parcel CH-5 has no current mining disturbance. ASARCO does not hold any mining claims within Parcel CH-5.

Foreseeable Uses: Parcel CH-5 would be used for expansion of the current tailing deposition located between the selected parcel and the Gila River. Therefore, parcel CH-5 is classified as “Production, Operation & Support”.

COPPER BUTTE/BUCKEYE (CB) AREA

Summary: The Copper Butte/Buckeye Area includes two separate copper deposits; Copper Butte and Buckeye. An application for a Mine Plan of Operation (MPO) for the proposed Copper Butte operation was submitted to BLM in 1993. BLM deemed the application to be administratively complete in 2001. Due to economic reasons, ASARCO never finalized the MPO. The Copper Butte deposit could be considered a near-term project, but the Buckeye deposit is definitely a long-term project. The unfinalized MPO for Copper Butte defines a 122-acre open pit copper mine and associated facilities, including a storm water catchment pond, haul and access roads and a mine life of eleven years. The Copper Butte copper deposit is located on Asarco private land surrounded by selected lands. Preliminary plans for the Copper Butte operation include a surface disturbance foot print from the pit locations to overburden deposition locations, a storm water catchment pond and locations of haul roads. The recoverable copper over the life of the mine is determined to be 280 million pounds with approximately 89,647,000 tons of material ore and over burden removed. The proposed Buckeye operation would more likely be mined using underground methods. A foot print of surface disturbance for Buckeye does not exist at this time, nor have alternatives for access and haul roads been defined. Ore from both the proposed Copper Butte and Buckeye operations would be hauled to, and processed at, the existing Ray Mine facility east of Highway 177.

ASARCO submitted a patent application in December 1990 for approximately 387 acres of the selected lands in the Copper Butte Area (Includes portions of CB-1, CB-3, CB-4, & CB-5). On July 6, 1992, the BLM issued a first half final certificate for the 5 lode mining claims and 61 mill sites included in the application.

Parcel:	CB-1	Location:	Sections 25 & 26 of T3S, R12E
Estate Type:	Surface & Mineral	Foreseeable Uses:	Long-Range Prospect, Buffer
Acreage:	1,120 acres		

Existing Condition: Parcel CB-1 has no current mining disturbance. The White Canyon Area of Critical Environmental Concern (ACEC) and the White Canyon Wilderness are adjacent to this parcel. Mining claims covering the eastern portion of the parcel are held by ASARCO.

Foreseeable Uses: A portion of Parcel CB-1 would be used to develop the proposed Buckeye operation. Underground mining methods would most likely be used to access the deposit in the southeast part of Section 26 and the southwest part of Section 25. Since mine planning has not yet begun, nor is it likely to begin in the near-term, the area of potential surface disturbance is indicated by a broad area west of Walnut Canyon that is classified “Long-Range Prospect”. Remaining land within Parcel CB-1 would consolidate ASARCO ownership, and is classified as “Buffer”.

Parcel:	CB-2	Location:	Section 17 & 8 of T3S, R13E
Estate Type:	Surface & Mineral	Foreseeable Uses:	Transition, Buffer
Acreage:	615 acres		

Existing Condition: Parcel CB-2 has no current mining activity. Highway 177 and Battle Axe road cross the parcel. Mining claims covering the parcel are held by ASARCO.

Foreseeable Uses: Parcel CB-2 would be used to facilitate development of the Copper Butte copper deposit located on ASARCO private land. Battle Axe road would be the future access and haul road corridor connecting the proposed Copper Butte and Buckeye operations with the Ray Mine. The Battle Axe road corridor is classified as “Transition”. Remaining lands within Parcel CB-2 would consolidate ASARCO ownership, and are classified as “Buffer”.

Parcel:	CB-3	Location:	Sections 19 & 20 of T3S, R13E
Estate Type:	Surface & Mineral	Foreseeable Uses:	Production, Operation & Support, Transition, Buffer
Acreage:	691.97 acres		

Existing Condition: Parcel CB-3 has no current mining activity; however it surrounds ASARCO private land that has been mined in the past. Mining claims covering a majority of the parcel are held by ASARCO.

Foreseeable Uses: Parcel CB-3 would be used to support development of the Copper Butte copper deposit located on land currently owned by ASARCO. Portions of CB-3 would be used for the proposed pit, waste-rock deposition areas, haul/access routes, and storm water diversion ditches. Water to support the operation would be delivered by pipeline from Ray Mine and would likely cross Parcel CB-3 in Section 19. Portions of CB-3 involved in the proposed Copper Butte operation are classified as “Production, Operation & Support”, with a 250 foot strip on both sides classified as “Transition”. The Battle Axe road corridor, the current road with a 250 foot strip on both sides, is classified as “Transition”. Remaining lands within CB-3 would consolidate ASARCO ownership and are classified as “Buffer”.

Parcel: CB-4

Estate Type: Mineral
Acreage: 595.46 acres

Location:**Foreseeable Uses:**

Section 30 of T3S, R13E

Production, Operation & Support,
Transition, Buffer

Existing Condition: Parcel CB-4 has no current mining activity. The surface is owned by ASARCO. Mining claims covering a majority of the parcel are held by ASARCO.

Foreseeable Uses: A portion of Parcel CB-4 would be used to support development of the Copper Butte operation. That portion of CB-4 would contain part of the proposed pit, waste-rock deposition areas (RDA), the storm water catchment pond, and haul/access routes. Portions of CB-4 involved in the proposed Copper Butte operation are classified as “Production, Operation & Support”, with a 250 foot strip classified as “Transition”. Remaining lands within CB-4 would consolidate ASARCO ownership and are classified as “Buffer”.

Parcel: CB-5

Estate Type: Mineral
Acreage: 160 acres

Location:**Foreseeable Uses:**

Section 24 of T3S, R12E

Production, Operation & Support,
Transition, Buffer

Existing Condition: Parcel CB-5 has no current mining activity. The surface is owned by ASARCO. Mining claims covering the southeast corner of the parcel are held by ASARCO.

Foreseeable Uses: A portion of Parcel CB-5 would be used to support development of the Copper Butte operation. That portion would be used for waste-rock deposition and would be classified as “Production, Operation & Support”. The remainder of lands within CB-5 would consolidate ASARCO ownership and is classified as “Buffer”.

RAY MINE (RM) AREA

Summary: The Ray Mine Area selected parcels surround Asarco's existing Ray open pit copper mining operation. ASARCO would use the parcels to expand mine overburden and leach rock deposition areas, stormwater diversion, and to support mine closure activities within the foreseeable future. The Limestone Quarry (RM-IO) area could potentially be developed to provide limestone used in support of copper mining activity and portions of the Tortilla Foothills (RM-17) parcel would potentially be used for the realignment of Highway 177.

Parcel: RM-1

Estate Type: Surface & Mineral
Acreage: 423.03 acres

Location:**Foreseeable Uses:**

Section 34 of T2S, R13E

Production, Operation & Support,
Transition, Buffer

Existing Condition: Parcel RM-1 includes one poorly maintained road across the southern half of the parcel and several small disturbed areas associated with past mining activity. Mining claims covering the parcel are held by ASARCO.

Foreseeable Uses: Portions of Parcel RM-1 are and will be used for expansion of waste-rock deposition areas (RDA). These portions of RM-1 are classified as “Production, Operation & Support”, and include a

250 foot strip classified as “Transition”. Remaining lands within the parcel would be used to consolidate ASARCO ownership and are classified as “Buffer”.

Parcel:	RM-2	Location:	Section 34 of T2S, R13E
Estate Type:	Surface & Mineral	Foreseeable Uses:	Existing Mining, Buffer
Acreage:	5.21 acres		

Existing Condition: A portion of parcel RM-2 is being used as a RDA and a diversion tunnel inlet for Mineral Creek that has been rerouted through the Dripping Springs mountain range around the Ray open pit and rock deposition areas. Mining claims covering the parcel are held by ASARCO.

Foreseeable Uses: This parcel is classified as “Existing Mining” where the RDA resides and the remainder of the parcel is classified as “Buffer”.

Parcel:	RM-3	Location:	Section 2 of T2S, R13E
Estate Type:	Surface & Mineral	Foreseeable Uses:	Existing Mining
Acreage:	5.16 acres		

Existing Condition: Parcel RM-3 is disturbed by current mining activity. Mining claims covering the parcel are held by ASARCO.

Foreseeable Uses: Parcel RM-3 would be used to consolidate ASARCO land ownership. This parcel is already completely over dumped by an RDA and is classified as “Existing Mining”.

Parcel:	RM-4	Location:	Section 2 of T3S, R13E
Estate Type:	Surface & Mineral	Foreseeable Uses:	Existing Mining
Acreage:	2.05 acres		

Existing Condition: Parcel RM-4 is within the existing Ray mine operations in an area previously disturbed by mining activity. Mining claims covering the parcel are held by ASARCO.

Foreseeable Uses: Parcel RM-4 would be used to consolidate ASARCO land ownership. This parcel is already disturbed by current mining activity (i.e., RDA) and is classified as “Existing Mining”.

Parcel:	RM-5	Location:	Section 10 of T3S, R13E
Estate Type:	Surface & Mineral	Foreseeable Uses:	Existing Mining
Acreage:	0.02 acres		

Existing Condition: Parcel RM-5 is disturbed by current mining activity. Mining claims covering the parcel are held by ASARCO.

Foreseeable Uses: Parcel RM-5 would be used to consolidate ASARCO land ownership. This parcel is already disturbed by current mining activity (i.e., RDA) and is classified as “Existing Mining”.

Parcels: RM-6.1, 6.2, & 6.3

Estate Type: Surface & Mineral

Acreage: 0.962 acres

Location:

Section 11 of T3S, R13E

Foreseeable Uses:

Existing Mining

Existing Condition: Parcels RM-6.1, 6.2, and 6.3 are within the existing Ray mine operations in an area previously disturbed by mining activity. Mining claims covering the parcel are held by ASARCO.

Foreseeable Uses: Parcels RM-6.1, 6.2, and 6.3 would be used to consolidate ASARCO land ownership. These parcels are already disturbed by current mining activity (i.e., RDA) and are classified as “Existing Mining”.

Parcel: RM-6.4

Estate Type: Surface & Mineral

Acreage: 0.02 acres

Location:

Section 11 of T3S, R13E

Foreseeable Uses:

Existing Mining

Existing Condition: Parcel RM-6.4 is disturbed by current mining activity. Mining claims covering the parcel are held by ASARCO.

Foreseeable Uses: Parcel RM-6.4 would be used to consolidate ASARCO land ownership. This parcel is already disturbed by current mining activity (footprint of parcel falls on north pit wall).

Parcel: RM-7

Estate Type: Mineral

Acreage: 80 acres

Location:

Section 35 of T2S, R13E

Foreseeable Uses:

Buffer

Existing Condition: The surface of Parcel RM-7 is owned by ASARCO and there has been no disturbance from mining. ASARCO owns a concrete dam (Big Box) that is located in the southeast corner of this parcel. Mining claims are held by ASARCO. Portions of the parcel are continually under water and other portions can become inundated by water due to water that collects behind the dam. Big Box dam was constructed to control or meter storm water upstream of the dam through a diversion tunnel.

Foreseeable Uses: Parcel RM-7 would be used to consolidate ASARCO land ownership and no mining is planned for this parcel, therefore the parcel is classified as “Buffer”.

Parcel: RM-8

Estate Type: Mineral
Acreage: 482.48 acres

Location: Sections 9 & 10 of T3S, R13E
Foreseeable Uses: Existing Mining, Production,
Operation & Support, Transition,
Buffer

Existing Condition: The surface of Parcel RM-8 is owned by ASARCO. Portions of the parcel are disturbed by current mining. Mining claims covering the parcel are held by ASARCO.

Foreseeable Uses: Portions of Parcel RM-8 would be used to expand the disturbance footprint of the overburden/leach rock deposition area at the Ray Mine. Those portions already disturbed (rock deposition areas) are classified as “Existing Mining”. The remaining portions where the rock deposition will take place will be classified as “Production, Operation & Support”. Some of the parcel includes a 250 foot strip classified as “Transition”. The remaining land within the parcel will be used to consolidate ASARCO ownership and is classified as “Buffer”.

Parcel: RM-9

Estate Type: Mineral
Acreage: 29.97 acres

Location: Section 11 of T3S, R13E
Foreseeable Uses: Existing Mining

Existing Condition: Parcel RM-9 is disturbed by current mining activity. Mining claims covering the parcel are held by ASARCO.

Foreseeable Uses: Parcel RM-9 would be used to consolidate ASARCO land ownership. This parcel is already disturbed by current mining activity (i.e., RDA) and is classified as “Existing Mining”.

Parcel: RM-10

Estate Type: Surface & Mineral
Acreage: 862.48 acres

Location: Section 13 of T3S, R13E
Sections 18 & 19 of T3S, R14E
Foreseeable Uses: Production, Operation & Support,
Transition, Buffer, Long-Range
Prospect

Existing Condition: Parcel RM-10 has no current mining activity. However, there are parts of the parcel that are covered under a BLM Mine Plan of Operation (MPO). Portions of RM-10 are disturbed by impassable roads in the northern half of the parcel, and a maintained road near the western and southern boundaries that are accessible by the Ray pit operations. In addition, the mine has done some road building and drilling within the portion covered by the MPO. Mining claims covering the parcel are held by ASARCO.

Foreseeable Uses: Parcel RM-10 would be used for expansion of the Ray pit and for waste rock deposition areas. These portions of the parcel are classified as “Production, Operation & Support”, An adjacent zone is classified as “Transition”. Remaining land within RM-10 could be used to mine limestone in support of the copper mining operations. Since detailed planning for the limestone mining has not begun and is not scheduled to begin in the foreseeable future, this portion of RM-10 is classified as “Long-Range Prospect”.

Parcel:	RM-11	Location:	Section 31 of T2S, R14E
Estate Type:	Mineral		Section 6 of T3S, R14E
Acreage:	158.90 acres	Foreseeable Uses:	Production, Operation & Support, Transition, Buffer

Existing Condition: Parcel RM-11 has no current mining activity. An impassable road runs along Rustler's Gulch. Mining claims covering the parcel are held by ASARCO.

Foreseeable Uses: Parcel RM-11 would be used for possible storm water drainage ditches and buffer zone. Uses of the parcel would be classified as "Production, Operation & Support", "Transition", and "Buffer".

Parcel:	RM-12	Location:	Section 1 of T3S, R13E
Estate Type:	Surface & Mineral	Foreseeable Uses:	Production, Operation & Support, Transition, Buffer
Acreage:	160 acres		

Existing Condition: Parcel RM-12 has no current mining activity and has no current disturbance. Mining claims covering the parcel are held by ASARCO.

Foreseeable Uses: Portions of RM-12 would be used for expansion of waste rock deposition area and for storm water drainage ditch construction. These portions are classified as "Production, Operation & Support". An adjacent zone would be classified as "Transition". The remaining land within the parcel will be used to consolidate ASARCO ownership and is classified as "Buffer".

Parcel:	RM-13	Location:	Section 1 of T3S, R13E
Estate Type:	Surface & Mineral	Foreseeable Uses:	Production, Operation & Support, Transition, Buffer
Acreage:	118 acres		

Existing Condition: Parcel RM-13 has no current mining activity. Several impassable roads exist throughout the parcel. Mining claims covering the parcel are held by ASARCO.

Foreseeable Uses: Portions of RM-13 would be used for expansion of waste rock deposition area and for storm water drainage ditch construction. These portions are classified as "Production, Operation & Support". An adjacent zone would be classified as "Transition". The remaining land within the parcel will be used to consolidate ASARCO ownership and is classified as "Buffer".

Parcel:	RM-14	Location:	Section 12 of T3S, R13E
Estate Type:	Mineral		Section 7 of T3S, R14E
Acreage:	350.4 acres	Foreseeable Uses:	Production, Operation & Support, Transition, Buffer

Existing Condition: Parcel RM-14 has no current mining activity or surface disturbance. Mining claims covering the parcel are held by ASARCO.

Foreseeable Uses: Portions of RM-14 would be used for expansion of waste rock deposition area and for storm water drainage ditch construction. These portions are classified as “Production, Operation & Support”. An adjacent zone is classified as “Transition”. The remaining land within the parcel will be used to consolidate ASARCO ownership and is classified as “Buffer”.

Parcel:	RM-15	Location:	Section 17 & 18 of T3S, R14E
Estate Type:	Mineral	Foreseeable Uses:	Long-Range Prospect
Acreage:	286.08 acres		

Existing Condition: Parcel RM-15 has no current mining activity, however, prior to purchasing the surface of the parcel from ASLD, ASARCO performed exploration drilling and sampling to determine the extent of the limestone resource. Mining claims covering the parcel are held by ASARCO.

Foreseeable Uses: Portions of Parcel RM-15 would be used for expansion of the limestone quarry. Mining of the limestone quarry is not expected to occur in the foreseeable future; therefore, RM-15 is classified as a “Long-Range Prospect”.

Parcel:	RM-16	Location:	Section 20 of T3S, R14E
Estate Type:	Surface & Mineral	Foreseeable Uses:	Long-Range Prospect
Acreage:	40 acres		

Existing Condition: Parcel RM-16 has no current mining activity or surface disturbance. Mining claims covering the parcel are held by ASARCO.

Foreseeable Uses: Portions of Parcel RM-16 would be used for expansion of the limestone quarry. Mining of the limestone quarry is not expected to occur in the foreseeable future; therefore, RM-16 is classified as a “Long-Range Prospect”.

Parcel:	RM-17	Location:	Sections 22, 23, 26, 27, 34 & 35 of T3S, R13E
Estate Type:	Surface & Mineral	Foreseeable Uses:	Production, Operation & Support, Transition, Buffer
Acreage:	1,320 acres		

Existing Condition: Parcel RM-17 has no current mining activity, but has one unmaintained roadway through the middle to Highway 177. Mining claims covering the parcel are held by ASARCO.

Foreseeable Uses: Portions of Parcel RM-17 would be used for expansion of waste rock deposition areas and for construction of storm water diversion drain ditches and possible relocation of Highway 177. These portions of RM-17 are classified as “Production, Operation & Support”, and include an adjacent zone classified as “Transition”. Remaining lands within RM-17 would be used to consolidate ASARCO ownership and are classified as “Buffer”.

Parcel:	RM-18	Location:	Sections 33 & 34 of T3S, R14E
Estate Type:	Surface & Mineral		Sections 3, 4, 5, & 8 of T4S, R14E
Acreage:	2001.6 acres	Foreseeable Uses:	Buffer

Existing Condition: Parcel RM-18 has no current mining activity. The abandoned Alice Mine is found at the north end of section 33 and the abandoned Gray Horse Mine is found in section 3. One four wheel drive road and trails in the Cane Springs Canyon access old vanadium mine workings from Highway 177. This access corridor is found in Sections 3, 4 and 8. Mining claims covering the parcel are held by ASARCO.

Foreseeable Uses: Parcel RM-18, is located adjacent to ASARCO owned land. Parcel RM-18 would be used to buffer the adjacent tailings impoundment and to consolidate ASARCO ownership. The entire parcel is classified as “Buffer”. The access corridor in Sections 3, 4 and 8 would remain open for recreational use.

Table III

Summary of Existing Mining and Foreseeable Use of Selected Lands								
PARCEL	Un-Known (acres)	EXIST MIN (acres)	POS (acres)	TRANS (acres)	Buffer (acres)	Long Range Prospect (acres)	SURF & MIN (acres)	MIN ONLY (acres)
CG-1	157							157
CG-2	160							160
CG-3	320							320
CASA GRANDE SUB-TOTAL	637							637
CH-1						263	263	
CH-2						8	8	
CH-3						2	2	
CH-4						80	80	
CH-5			480				480	
CHILITO/HAYDEN SUB-TOTAL			480			353	833	
CB-1					757	363	1,120	
CB-2				110	505		615	
CB-3			279	119	294		692	
CB-4			64	66	465			595
CB-5			2	11	147			160
COPPER BUTTE/BUCKEYE SUB-TOTAL			345	306	2,168	363	2,427	755
RM-1			73	26	324		423	
RM-2		2			3		5	
RM-3		5					5	
RM-4		2					2	
RM-5		< 1					< 1	
RM-6.1-3		< 1					< 1	
RM-6.4		< 1					< 1	
RM-7					80			80
RM-8		295	90	47	50			482
RM-9		30						30
RM-10		61	116	31		652	860	
RM-11			16	21	122			159
RM-12			159				159	
RM-13			119				119	
RM-14			166	31	153			350
RM-15		2				284		286
RM-16						40	40	
RM-17			649	60	611		1,320	
RM-18					2,001		2,001	
RAY MINE SUB-TOTAL		398	1,388	216	3,344	976	4,935	1,387
TOTAL - ALL PARCELS	637	398	2,213	522	5,512	1,692	8,195	2,779
GRAND TOTAL - ALL ACREAGE							10,974	

ATTACHMENT I

FIGURES

Figure 1: Selected Lands - Casa Grande

Figure 2: Selected Lands – Ray Mine Area

Figure 3a: Foreseeable Uses of Selected Lands in the Ray Mine Area

Figure 3b: Foreseeable Uses of Selected Lands in the Hayden Area

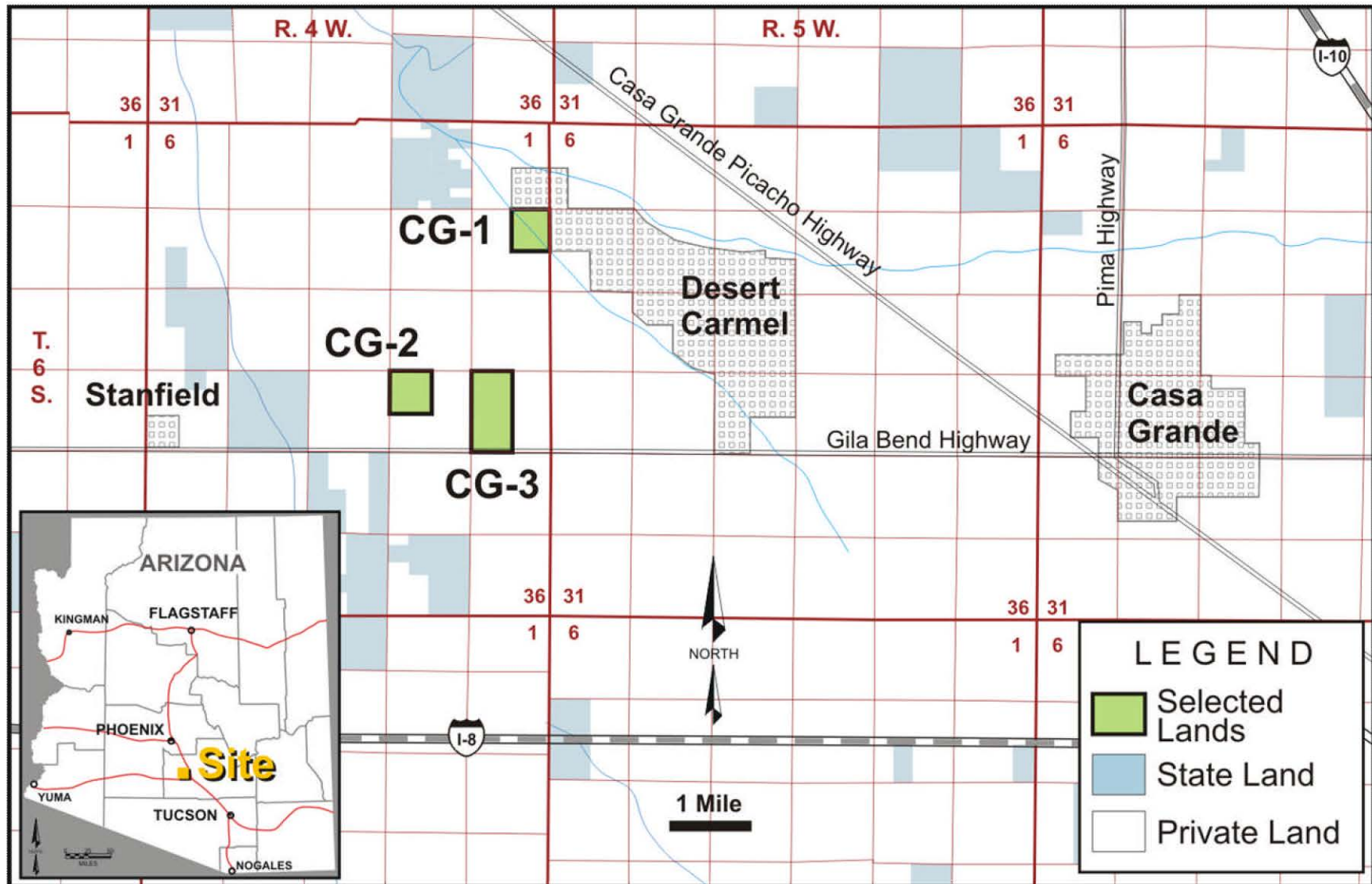
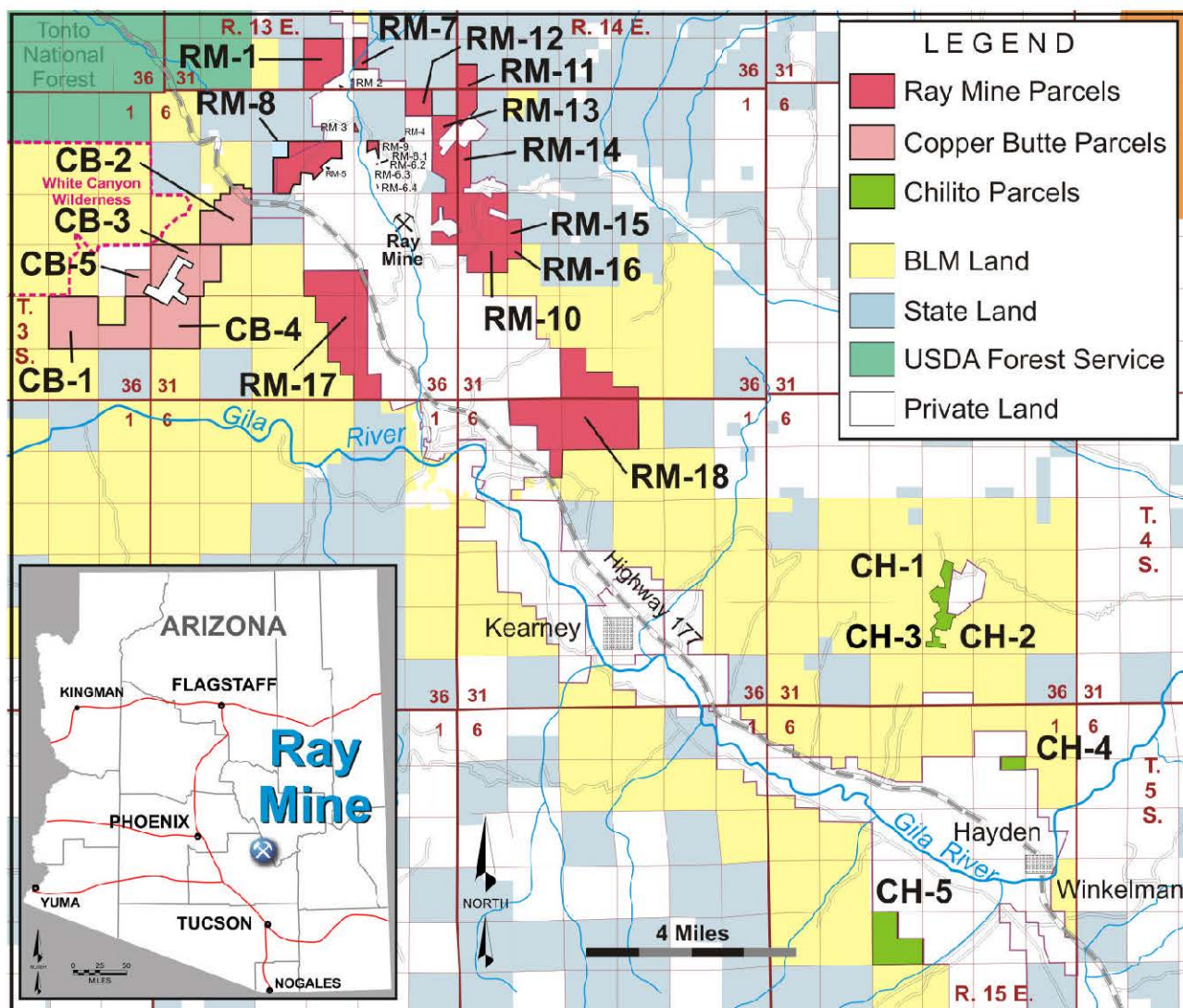
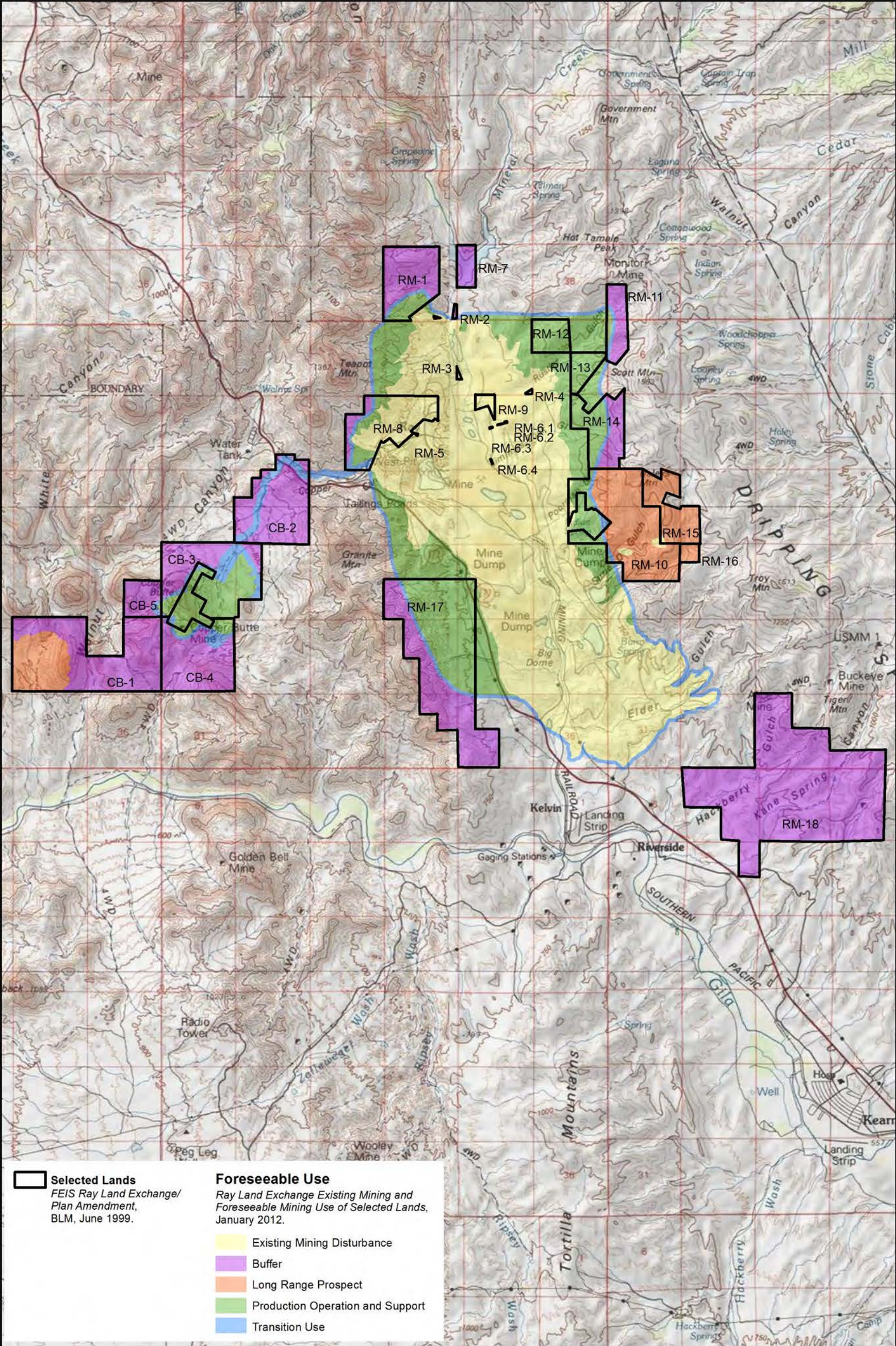
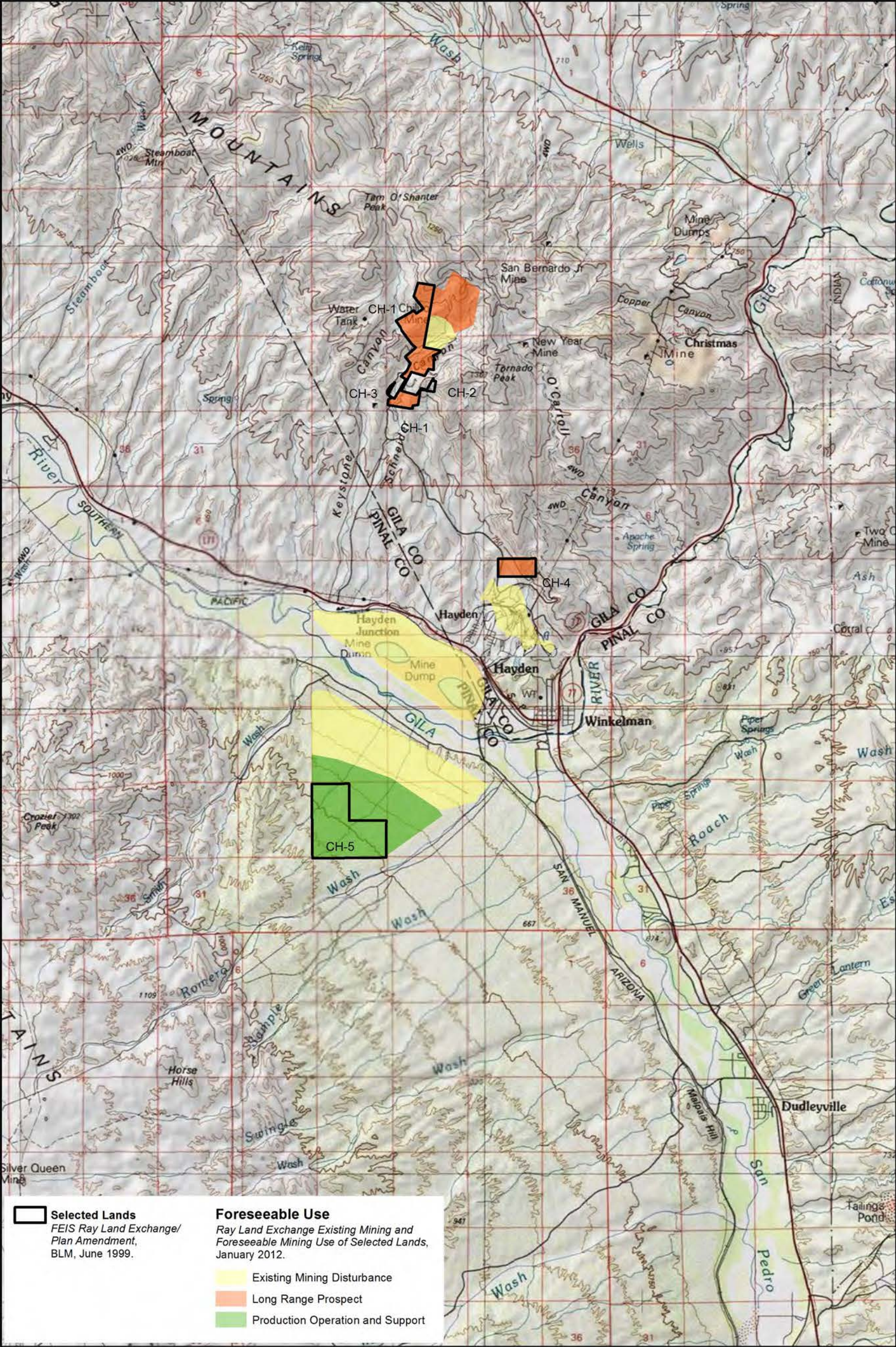


Figure 2 - Selected Lands –Ray Mine Area







Selected Lands
FEIS Ray Land Exchange/
Plan Amendment,
BLM, June 1999.

Foreseeable Use
Ray Land Exchange Existing Mining and
Foreseeable Mining Use of Selected Lands,
January 2012.

- Existing Mining Disturbance
- Long Range Prospect
- Production Operation and Support



ATTACHMENT II

SWCA October 15, 1997 Technical Memorandum

“Ray Land Exchange/Plan Amendment Draft EIS:
Description of Existing Mining and Foreseeable Mining Use
of Selected Lands”

October 15, 1997

TECHNICAL MEMORANDUM

TO: Shela McFarlin, Project Manager, BLM Arizona State Office
Interdisciplinary Team (ID Team)

FROM: Ron E. Borkan, Principal-In-Charge, SWCA
Noelle Sanders, SWCA

CC: Project File 86-94929-306

RE: **RAY LAND EXCHANGE/PLAN AMENDMENT DRAFT EIS:
DESCRIPTION OF EXISTING MINING AND FORESEEABLE MINING USE OF
SELECTED LANDS**

INTRODUCTION

This paper describes ASARCO Incorporated's (Asarco) foreseeable use of the proposed Ray Land Exchange/Plan Amendment selected lands. This description provides background necessary to analyze impacts resulting from the alternatives in the Environmental Impact Statement (EIS). Descriptions of mining-related current condition and foreseeable use of selected lands parcels are based on currently available Asarco information gathered through personal communication with Neil Gambell, Ray Complex Technical Services Manager; Ed John, Ray Complex Technical Services, Hayden, AZ; David Skidmore, Santa Cruz and Special Projects Manager Asarco Copper Operations, Tucson, AZ and from written correspondence from Neil Gambell (Appendix).

Asarco has initiated the proposed Ray Land Exchange with the Bureau of Land Management (BLM) to support operations at the Ray Complex based in Hayden, Arizona and at the Santa Cruz In Situ Copper Mining Research Project near Casa Grande, Arizona. More specifically, the selected lands would be used to:

- Consolidate the Asarco land position to support the ongoing operation and expansion of the mine overburden and leach rock deposition areas at the Ray Mine through acquisition of BLM inholdings and adjacent lands;

- Consolidate the Santa Cruz Joint Venture (SCJV) land position surrounding the Santa Cruz In Situ Copper Mining Research Project and allow exploration to support future development of an in-situ copper mining operation;
- Allow expansion of the tailings deposition area at Hayden;
- Allow future development of the Copper Butte (near term), Buckeye and Chilito (long range) copper deposits;
- Allow future development at the Ray and Hayden limestone quarries; and
- Provide buffer zones around Ray Complex operations.

This memorandum first describes the classification system used to characterize Asarco's foreseeable use of the selected lands. The classification system divides foreseeable uses into four categories: Intermittent Use, Transition Use, Production, Operations and Support, and Long Range Prospect. Second, an inventory of the selected lands provides the following information for each parcel: Name, estate type (mineral only or mineral and surface), acreage, map label, location, current mining related use, and foreseeable use. Finally, Table 1 (at the end of the report), summarizes the selected parcel acreage within each foreseeable use category.

FORESEEABLE USE CLASSIFICATION SYSTEM

Foreseeable uses are described using a classification system dividing mining related land uses into five groups: Existing Mining, Production, Operation and Support, Transition, Intermittent, and Long Range Prospect. These terms are defined below. The foreseeable uses vary temporally (that is when they would be implemented), by degree of certainty (that is their stage of planning), and by the nature and extent of anticipated surface disturbance. The foreseeable use classifications make no assumptions about land ownership or administrative responsibilities.

If foreseeable mining uses are known with some degree of certainty, lands are classified as either Production, Operation and Support, Transition, or Intermittent based on anticipated surface disturbance. If surface disturbance has already been implemented due to mining activity in or adjacent to the Ray Mine, the foreseeable mining use is classified as Existing Mining. More detailed definitions of each category are provided below.

- Existing Mining areas are those selected lands which are disturbed by current mining activity either in or adjacent to the Ray Mine.

- **Production, Operation and Support** areas would be subject to significant disturbance from mining activity, resulting in 25 to 100 percent surface disturbance. Potential foreseeable uses include, but are not limited to, expansion of open pits, haul roads, leach and rock deposition areas, and overburden deposition areas.
- **Transition** areas would be subject to scattered mining activity, resulting in 5 to 25 percent surface disturbance. Potential foreseeable uses include, but are not limited to, raveling areas around overburden and leach rock deposition areas, access roads, storm water diversion ditches, right-of-ways, and administrative facilities.
- **Intermittent** areas would be subject to limited or no mining activity, resulting in less than 5 percent surface disturbance. Potential foreseeable uses include, but are not limited to, consolidation of Asarco ownership and buffering neighboring land owners from mining operations.

If foreseeable mining uses are not known, lands are classified Long Range Prospect as defined below.

- **Long Range Prospect** areas would potentially be used in the future for mine development with associated facilities. There is no current mining activity in these areas, nor has mine planning begun. The quantity of surface disturbance is unknown at this time.

INVENTORY OF SELECTED PARCELS

The inventory divides selected lands parcels into four geographic areas: Casa Grande, Chilito/Hayden, Copper Butte/Buckeye, and Ray Mine. To facilitate description of the selected lands, some parcels are combined as a group rather than discussed individually. Table 1 (at the end of the report) summarizes the selected lands inventory.

CASA GRANDE AREA (CG)

Name:	Casa Grande parcels	Map Label:	CG-1, CG-2, CG-3
Estate Type:	Mineral Only	Location:	Sections 12, 23, and 24 of T6S, R4E
Acreage:	637 acres	Foreseeable use:	Transition, Intermittent

Existing condition: The Casa Grande parcels are retired agricultural lands. The surface of these parcels is owned by Asarco Santa Cruz Inc. (ASCI), ASARCO Incorporated (Asarco), and Freeport-McMoRan Inc., doing business as the Santa Cruz Joint Venture (SCJV). There is no mining activity occurring on the parcels, however the Santa Cruz In Situ Research Project site is located adjacent to the selected parcels in Section 13, T6S, R4E (Figure 1). Mining claims are held by SCJV.

Foreseeable use: Asarco ownership of Parcels CG-1, CG-2, and CG-3 mineral estate would consolidate SCJV ownership around the Santa Cruz In Situ Copper Mining Research Project. No mining activity is planned for Parcels CG-1, CG-2, nor the south half of CG-3; therefore these parcels are classified Intermittent. The north half of CG-3 would potentially be disturbed by mineral exploration in the form of drilling; therefore this area is classified Transition (Figure 1).

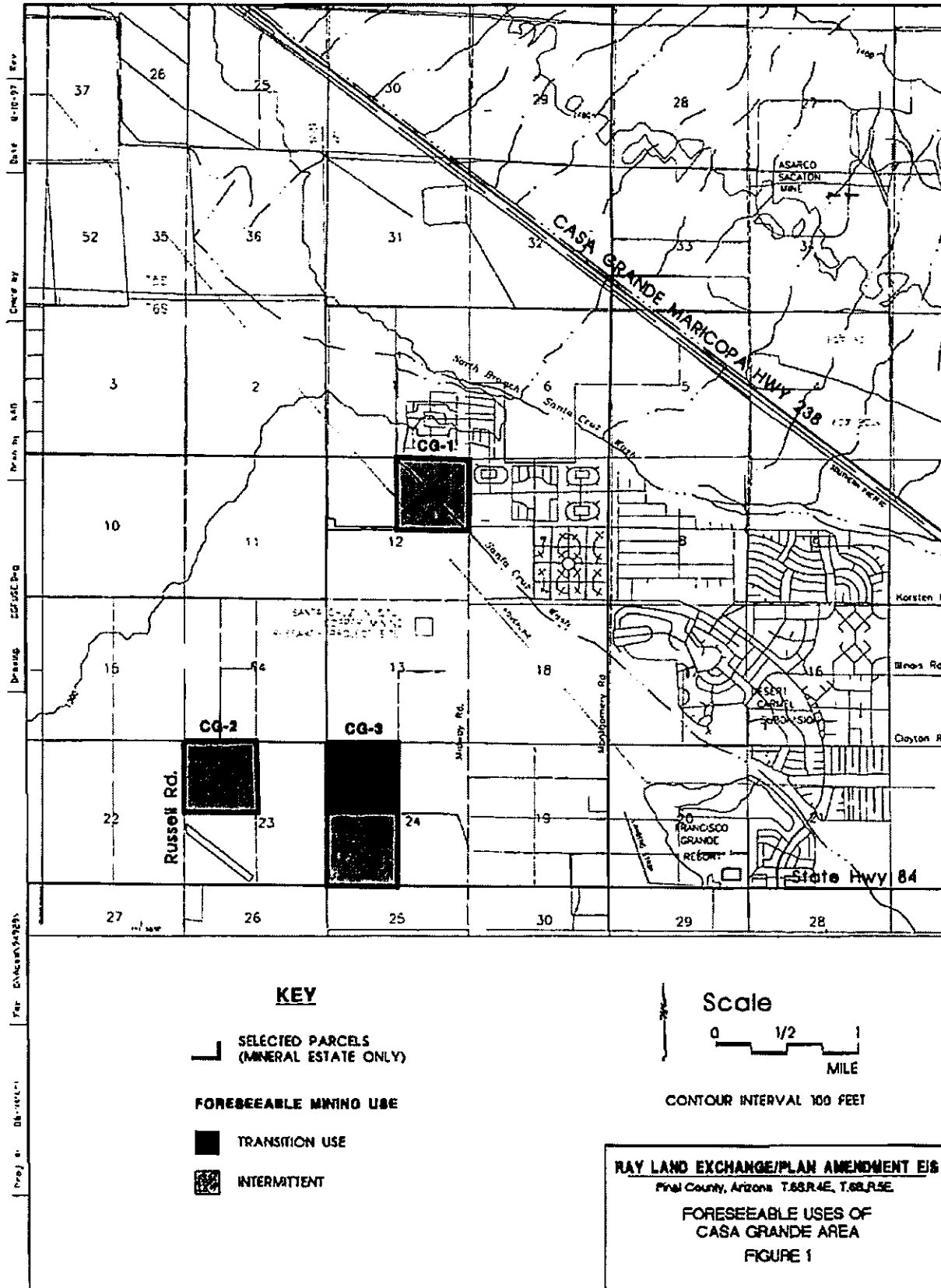
CHILITO/HAYDEN (CH) AREA

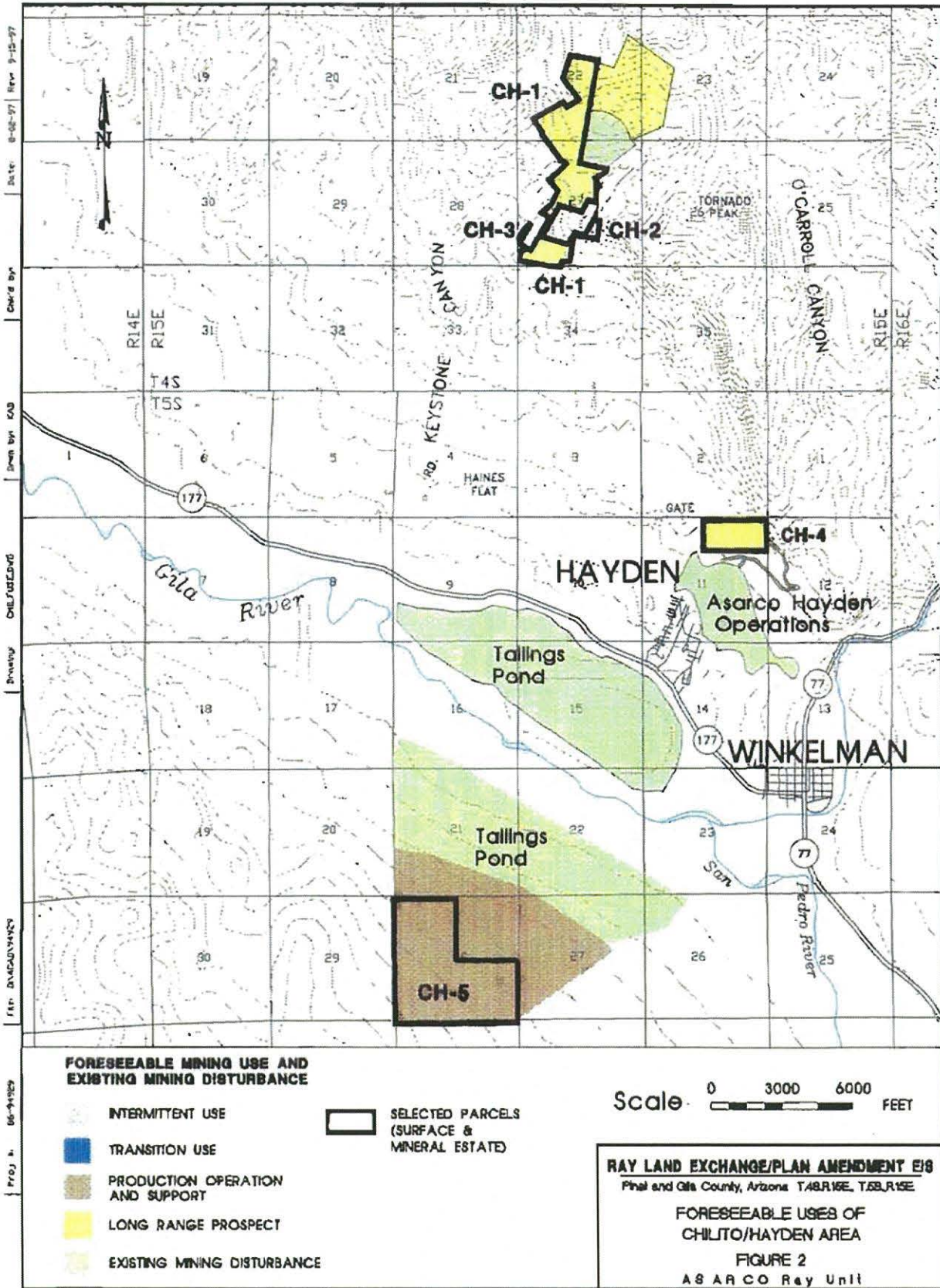
Name:	Chilito Parcels	Map Label:	CH-1, CH-2, CH-3
Estate Type:	Surface and Mineral	Location:	Sections 22 and 27 of T4S, R15E
Area:	274.76 acres	Foreseeable use:	Long Range Prospect, Intermittent

Existing condition: Parcels CH-1, CH-2, and CH-3, the "Chilito" parcels, have no current mining activity. Several roads and disturbances associated with past mining activity occur throughout the parcels. The parcels are adjacent to Asarco private land used for mining copper and/or silica flux (Figure 2). Most of the mining claims are held by Asarco, however there are currently three conflicting mining claims in the Chilito-Hayden area that involve Asarco and a third party.

Foreseeable use: Parcel CH-1, the northern parcel immediately adjacent to Asarco private land, could be used for future development of copper or silica flux deposits. Detailed planning for mining in Parcel CH-1 has not begun, and is not scheduled to begin in the foreseeable future. Therefore, Parcel CH-1 is classified Long Range Prospect. Parcels CH-2 and CH-3 would not be used for mining, but the current road could be used to support mining in CH-1. Therefore, Parcels CH-2 and CH-3 are classified Intermittent (Figure 2).

Name:	Administration	Map Label:	CH-4
Estate Type:	Surface and Mineral	Location:	Section 11 of T5S, R15E
Area:	80 acres	Foreseeable use:	Long Range Prospect





Existing condition: Parcel CH-4, the "Administration" parcel, is located approximately one quarter mile north of the Hayden smelter (Figure 2). Portions of the parcel are disturbed by mining related activity, including a small refuse dump site. Mining claims are held by Asarco.

Foreseeable use: A portion of parcel CH-4 would be used for expansion of the refuse dump site. Parcel CH-4 could also be used to mine limestone used in support of copper milling/smeltering operations. Mine planning has not begun and is not scheduled to begin in the foreseeable future (Figure 2). Therefore, Parcel CH-4 is classified Long Range Prospect (Figure 2).

Name:	Hayden D	Map Label:	CH-5
Estate Type:	Surface and Mineral	Location:	Section 28 of T5S, R15E
Area:	480 acres	Foreseeable use:	Production, Operation and Support

Existing condition: Parcel CH-5, the "Hayden D" parcel, is located adjacent to Asarco owned land used for tailings deposition from Hayden operations (Figure 2). Parcel CH-5 has no current mining disturbance. Asarco does not hold any mining claims within Parcel CH-5.

Foreseeable use: Parcel CH-5 would be used for long-range expansion of the current tailings deposition located between the selected parcel and the Gila River. Therefore, Parcel CH-5 is classified Production, Operation and Support (Figure 2).

COPPER BUTTE/BUCKEYE (CB) AREA

Overview. The Copper Butte/Buckeye Area includes two separate copper deposit areas, Copper Butte (near-term) and Buckeye (long-term). The proposed Copper Butte operation would consist of a 122-acre open pit copper mine and associated facilities, including a storm water catchment pond, haul and access roads and a mine life of eleven years. The Copper Butte copper deposit is located on Asarco private land surrounded by selected lands. Preliminary plans for the Copper Butte operation include a foot print of surface disturbance from the pit, locations of overburden deposition, locations of the storm water catchment pond and locations of haul roads. The recoverable copper over the life of the mine is determined to be 280 million pounds with approximately 89,647,000 tons of material ore and over burden removed (Appendix). The proposed Buckeye operation may be an underground mine. A foot print of surface disturbance for Buckeye does not exist at this time, nor have alternatives for access and haul roads been defined. Ore from both the proposed Copper Butte and Buckeye operations would be hauled to and processed at the existing Ray Complex facilities east of Highway 177.

Name:	Copper Butte 1	Map Label:	CB-1
Estate Type:	Surface and Mineral	Location:	Sections 25 and 26 of T3S, R12E
Area:	1,120 acres	Foreseeable use:	Long Range Prospect, Intermittent

Existing condition: Parcel CB-1, "Copper Butte 1", has no current mining disturbance (Figure 3). The White Canyon Area of Critical Environmental Concern (ACEC)¹ and the White Canyon Wilderness are adjacent to this parcel. Mining claims are held by Asarco.

Foreseeable use: A portion of Parcel CB-1 would be used to develop the proposed Buckeye operation, possibly an underground mine that would access the east Buckeye copper oxide reserve in the southeast part of Section 26 and the southwest part of Section 25. Since mine planning has not begun, nor is it planned in the near-term, the area of potential surface disturbance is indicated by a broad area west of Walnut Canyon that is classified Long Range Prospect. Remaining land within Parcel CB-1 would consolidate Asarco ownership, and is classified Intermittent (Figure 3).

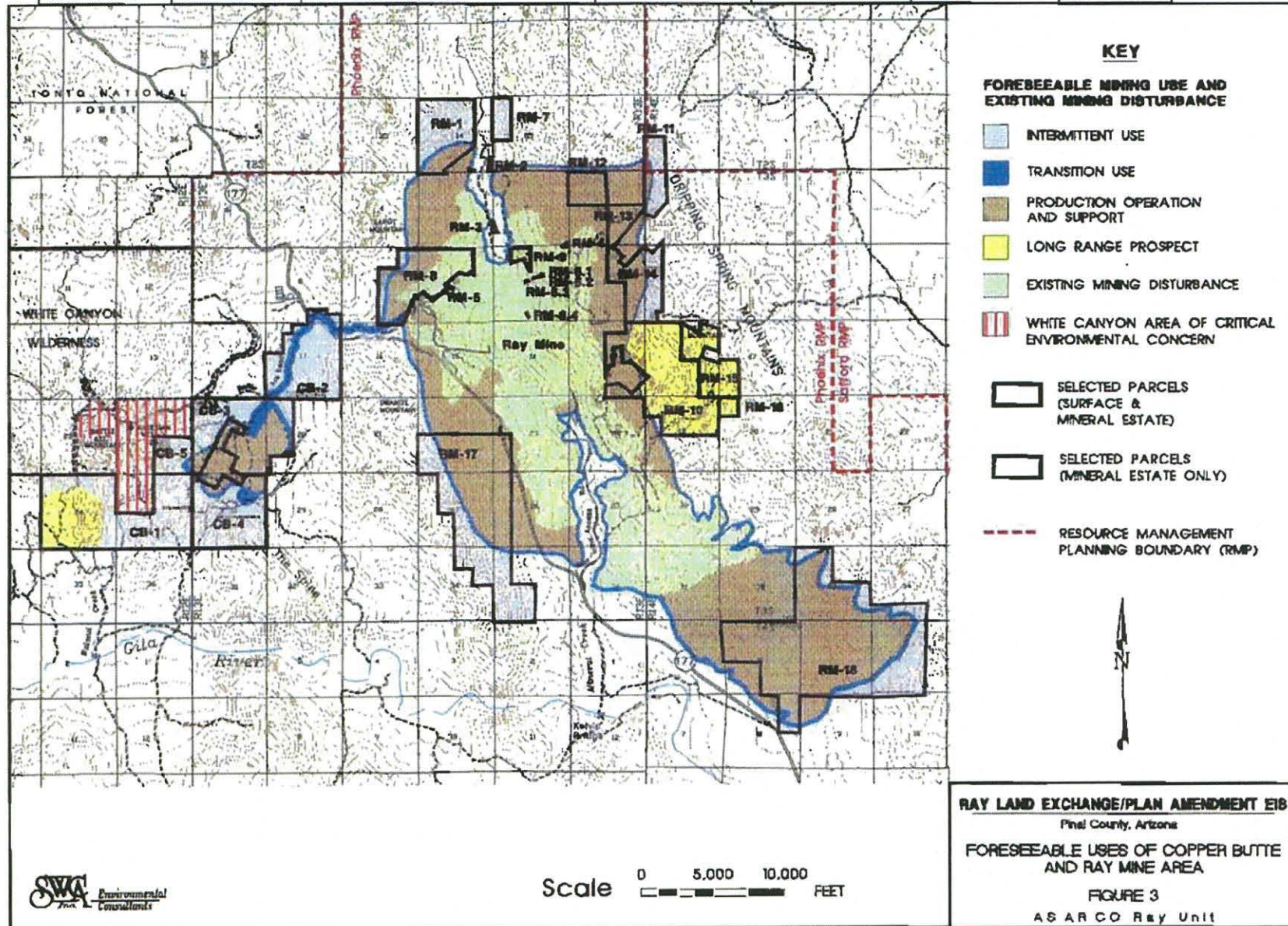
Name:	Copper Butte 2	Map Label:	CB-2
Estate Type:	Surface and Mineral	Location:	Section 17 of T3S, R13E
Area:	615 acres	Foreseeable use:	Transition, Intermittent

Existing condition: Parcel CB-2, "Copper Butte 2", has no current mining activity. Highway 177 and Battle Axe Road cross the parcel (Figure 3). Mining claims are held by Asarco.

Foreseeable use: Parcel CB-2 would be used to facilitate development of the Copper Butte copper deposit located on Asarco private land. Battle Axe Road would be the access and haul road corridor connecting the proposed Copper Butte operation in the near-term, and Buckeye in the long-term, with other Ray Complex operations. Water to support the operation would be delivered by pipeline from Ray Mine and would cross Parcel CB-2. The Battle Axe Road corridor is classified Transition. Remaining lands within Parcel CB-2 would consolidate Asarco ownership, and are classified Intermittent (Figure 3).

Name:	Copper Butte 3	Map Label:	CB-3
Estate Type:	Surface and Mineral	Location:	Sections 19 and 20 of T3S, R13E
Area:	691.97 acres	Foreseeable use:	Production, Operation and Support, Transition, Intermittent

¹ An ACEC is an area of critical environmental concern containing highly significant historic, cultural, scenic, hazardous or other natural values.



Existing condition: Parcel CB-3, "Copper Butte 3", has no current mining activity, however it surrounds Asarco private land that has been mined in the past (Figure 3). Mining claims are held by Asarco.

Foreseeable use: Parcel CB-3 would be used to support development of the Copper Butte copper deposit located on land currently owned by Asarco. Portions of CB-3 would be used for the proposed pit, waste-rock deposition areas, haul/access routes, and storm water diversion ditches. Water to support the operation would be delivered by pipeline from Ray Mine and would likely cross Parcel CB-3 in Section 19. Portions of CB-3 involved in the proposed Copper Butte operation are classified Production, Operation and Support, with a 250 foot buffer classified Transition. The Battle Axe Road corridor², the current road with a 250 foot buffer on both sides, is classified as Transition. Remaining lands within CB-3 would consolidate Asarco ownership³, and are classified as Intermittent (Figure 3).

Name:	Copper Butte 4	Map Label:	CB-4
Estate Type:	Mineral Only	Location:	Section 30 of T3S, R13E
Area:	595.46 acres	Foreseeable use:	Production, Operation and Support, Transition, Intermittent

Existing condition: Parcel CB-4 has no current mining activity. The surface is owned by Asarco, (Figure 3). Mining claims are held by Asarco.

Foreseeable use: A portion of Parcel CB-4 would be used to support development of the Copper Butte operation. Portions of CB-4 would be used for the proposed pit, waste-rock deposition areas, the storm water catchment pond, and haul/access routes. Portions of CB-4 involved in the proposed Copper Butte operation are classified Production, Operation and Support, with a 250 foot buffer classified Transition. The storm water catchment pond area is classified Transition. Remaining lands within CB-4 would consolidate Asarco ownership, and are classified Intermittent (Figure 3).

²To create a separate public access, the current Battle Axe Road would be realigned if the exchange occurs.

³Asarco has filed a patent application for approximately 387 acres of Parcel CB-3 and this application is currently being processed by BLM.

Name:	Copper Butte 5	Map Label:	CB-5
Estate Type:	Mineral Only	Location:	Section 24 of T3S, R13E
Area:	160 acres	Foreseeable use:	Production, Operation and Support, Transition, Intermittent

Existing condition: Parcel CB-5 has no current mining activity. The surface of Parcel CB-5 is currently owned by the Arizona State Land Department (ASLD), and Asarco has filed an application with ASLD to purchase all of Section 24 (640 acres). Asarco has stated that they intend to donate 480 acres of Section 24 to the BLM and retain 160 acres (CB-5) for use on the Copper Butte project. Mining claims are held by Asarco with some overlap with BHP Copper in the southeast corner.

Foreseeable use: A portion of Parcel CB-5 would be used to support development of the Copper Butte operation. Portions of CB-5 would be used for waste-rock deposition and would be classified as Production, Operation and Support. The remainder of lands within CB-5 would consolidate Asarco ownership, and are classified as Intermittent (Figure 3).

RAY MINE (RM) AREA

Overview. The Ray Mine Area selected parcels surround Asarco's existing Ray Pit open pit copper mining operation. Asarco would use the parcels to expand mine overburden and leach rock deposition areas, stormwater diversion and to support mine closure activities within the foreseeable future. The Limestone Quarry (RM-10) area could potentially be developed to provide limestone used in support of copper mining activity and portions of the Tortilla Foothills (RM-17) parcel would potentially be used for the realignment of Highway 177.

Name:	Ray Area 1	Map Label:	RM-1
Estate Type:	Surface and Mineral	Location:	Section 34 of T2S, R13E
Area:	423.03 acres	Foreseeable use:	Production, Operation and Support, Transition, Intermittent

Existing condition: Parcel RM-1 includes one unmaintained road across the southern half of the parcel and several small disturbed areas associated with past mining activity (Figure 3). Mining claims are held by Asarco.

Foreseeable use: Portions of Parcel RM-1 would be used for expansion of waste rock deposition areas. These portions of RM-1 are classified Production, Operation and Support, and include a 250 foot buffer

classified Transition. Remaining lands with RM-1 would be used to consolidate Asarco ownership and are classified Intermittent (Figure 3).

Name:	Red Bluff	Map Label:	RM-2
Estate Type:	Surface and Mineral	Location:	Section 34 of T2S, R13E
Area:	5.21 acres	Foreseeable use:	Intermittent

Existing condition: Parcel RM-2, the "Red Bluff" parcel, has no current mining (Figure 3). Mining claims are held by Asarco.

Foreseeable use: Parcel RM-2 would possibly be used for the Mineral Creek tunnel extension, discussions with EPA and ADEQ are currently in progress. Parcel RM-2 would also be used to consolidate Asarco land ownership and is classified Intermittent (Figure 3).

Name:	Red Hills Fraction	Map Label:	RM-3
Estate Type:	Surface and Mineral	Location:	Section 2 of T3S, R13E
Area:	5.16 acres	Foreseeable use:	Existing Mining

Existing condition: Parcel RM-3, the "Red Hills Fraction," is partially disturbed by current mining activity and by a road that crosses the parcel (Figure 3). Mining claims are held by Asarco.

Foreseeable use: Parcel RM-3 would be used to consolidate Asarco land ownership. This parcel is already disturbed by current mining activity.

Name:	Copper Zone No. 8 and Combination Lodes	Map Label:	RM-4
Estate Type:	Surface and Mineral	Location:	Section 2 of T3S, R13E
Area:	2.05 acres	Foreseeable use:	Existing Mining

Existing condition: Parcel RM-4, the "Copper Zone No. 8 and Combination Lodes" is within or adjacent to existing Ray Mine operations in an area previously disturbed by mining activity (Figure 3). Mining claims are held by Asarco.

Foreseeable use: Parcel RM-4 would be used to consolidate Asarco land ownership. This parcel is already disturbed by current mining activity.

Name:	Section 10 fragment	Map Label:	RM-5
Estate Type:	Surface and Mineral	Location:	Section 10 of T3S, R13E
Area:	0.02 acres	Foreseeable use:	Existing Mining

Existing condition: Parcel RM-5 is within or adjacent to existing Ray Mine operations in an area previously disturbed by mining activity (Figure 3). Mining claims are held by Asarco.

Foreseeable use: Parcel RM-5 would be used to consolidate Asarco land ownership. This parcel is already disturbed by current mining activity.

Name:	Copper Era 1 Tracts A, B, and C	Map Label:	RM-6.1, 6.2, and 6.3
Estate Type:	Surface and Mineral	Location:	Section 11 of T3S, R13E
Area:	0.962 acres	Foreseeable use:	Existing Mining

Existing condition: Parcels RM-6.1, 6.2, and 6.3, the "Copper Era 1" parcels, are within or adjacent to existing Ray Mine operations in an area previously disturbed by mining activity (Figure 3). Mining claims are held by Asarco.

Foreseeable use: Parcels RM-6.1, 6.2, and 6.3 would be used to consolidate Asarco land ownership. These parcels are already disturbed by current mining activity.

Name:	Wedge Lode	Map Label:	RM-6.4
Estate Type:	Surface and Mineral	Location:	Section 11 of T3S, R13E
Area:	0.02 acres	Foreseeable use:	Existing Mining

Existing condition: Parcel RM-6.4, the "Wedge Lode" parcel, is within or adjacent to existing Ray Mine operations in an area previously disturbed by mining activity (Figure 3). Mining claims are held by Asarco.

Foreseeable use: Parcel RM-6.4 would be used to consolidate Asarco land ownership. This parcel is already disturbed by current mining activity.

Name:	Section 35 fragment	Map Label:	RM-7
Estate Type:	Mineral Only	Location:	Section 35 of T2S, R13E
Area:	80 acres	Foreseeable use:	Intermittent

Existing condition: The surface of Parcel RM-7 is owned by Asarco, and has no current mining (Figure 3). Mining claims are held by Asarco. Portions of Parcel RM-7 can become inundated by the lake that forms behind Big Box Dam during rain events.

Foreseeable use: Parcel RM-7 would be used to consolidate Asarco land ownership, and there is no mining planned. Therefore, Parcel RM-7 is classified Intermittent (Figure 3).

Name:	Section 9/10 Mineral	Map Label:	RM-8
Estate Type:	Mineral Only	Location:	Sections 9 and 10 of T3S, R13E
Area:	482.48 acres	Foreseeable use:	Production, Operation and Support, Transition, Intermittent

Existing condition: The surface of Parcel RM-8 is owned by Asarco. Portions of Parcel RM-8 are disturbed by current mining (Figure 3). Mining claims are held by Asarco.

Foreseeable use: Portions of Parcel RM-8 would be used to expand the overburden/leach rock deposition area at the Ray Mine. These portions of RM-8 are classified Production, Operation and Support, and include a 250 foot buffer classified Transition. Remaining lands within RM-8 would be used to consolidate Asarco ownership and are classified Intermittent (Figure 3).

Name:	Section 11 fragment	Map Label:	RM-9
Estate Type:	Mineral Only	Location:	Section 11 of T3S, R13E
Area:	29.97 acres	Foreseeable use:	Existing Mining

Existing condition: The surface of Parcel RM-9 is owned by Asarco. Portions of Parcel RM-9 are disturbed by current mining (Figure 3). Mining claims are held by Asarco.

Foreseeable use: Parcels RM-9 would be used to consolidate Asarco land ownership.

Name:	Limestone Quarry	Map Label:	RM-10
Estate Type:	Surface and Mineral	Location:	Section 13 of T3S, R13E
Area:	862.48 acres		Sections 18 and 19 of T3S, R14E
		Foreseeable use:	Production, Operation and Support, Transition, Intermittent, Long Range Prospect

Existing condition: Parcel RM-10, the "Limestone Quarry," has no current mining activity, however the existing limestone deposit and quarry are covered by a BLM Mining Plan of Operations. Portions of RM-10 are disturbed by unpassable roads in the northern half of the parcel, and a maintained road near the northwestern and southern boundaries that are accessible from Asarco Ray Pit operations. Portions of Section 19 are disturbed from past limestone mining activity.

Foreseeable use: Parcel RM-10 would be used for expansion of the Ray pit and for waste rock deposition areas. These portions of RM-10 are classified Production, Operation and Support, and include a buffer classified Transition. Remaining land with RM-10 could be used to mine limestone used in support of copper mining operations. Since detailed planning for the limestone mining has not begun and is not scheduled to begin in the foreseeable future, this portion of RM-10 is classified Long Range Prospect (Figure 3).

Name:	Rustler Gulch	Map Label:	RM-11
Estate Type:	Mineral Only	Location:	Section 31 of T2S, R14E
Area:	158.90 acres		Section 7 of T3S, R14E
		Foreseeable use:	Production, Operation and Support, Transition, Intermittent

Existing condition: The surface of Parcel RM-11 is currently owned by the ASLD. Asarco has filed an application with the ASLD for the purchase of RM-11. Parcel RM-11 has no current mining activity. An impassable road runs along Rustlers Gulch.

Foreseeable use: Parcel RM-11 would be used for possible storm water drainage ditches and buffer zone. Use would be Production, Operation and Support, Transition and Intermittent (Figure 3).

Name:	Rustlers Gulch	Map Label:	RM-12
Estate Type:	Surface and Mineral	Location:	Section 1 of T3S, R13E
Area:	160 acres	Foreseeable use:	Production, Operation and Support, Transition, Intermittent

Existing condition: Parcel RM-12 has no current mining activity and has no current disturbance.

Foreseeable use: Portions of RM-12 would be used for expansion of waste rock deposition areas and for storm water drainage ditch construction. These portions are classified as Production, Operation and Support. A buffer zone would be classified as Transition. Remaining land would be used to consolidate Asarco ownership and are classified as Intermittent (Figure 3).

Name:	Rustlers Gulch	Map Label:	RM-13
Estate Type:	Surface and Mineral	Location:	Section 1 of T3S, R13E
Area:	118 acres	Foreseeable use:	Production, Operation and Support, Transition, Intermittent

Existing condition: Parcel RM-13 has no current mining activity. Several impassable roads exist throughout the parcel.

Foreseeable use: Portions of RM-13 would be used for expansion of waste rock deposition areas and for storm water drainage ditch construction. These portions are classified as Production, Operation and Support. A buffer zone would be classified as Transition. Remaining land would be used to consolidate Asarco ownership and are classified as Intermittent (Figure 3).

Name:	East Side	Map Label:	RM-14
Estate Type:	Mineral Only	Location:	Section 12 of T3S, R13E Section 7 of T3S, R14E
Area:	350.4 acres	Foreseeable use:	Production, Operation and Support, Transition, Intermittent

Existing condition: The surface of Parcel RM-14 is currently owned by the Arizona State Land Department (ASLD) which Asarco plans to purchase. Parcel RM-14 has no current mining activity or surface disturbance.

Foreseeable use: Portions of RM-14 would be used for expansion of the open pit, expansion of waste rock deposition areas and for storm water drainage ditch construction. These portions are classified as Production, Operation and Support. A buffer zone would be classified as Transition (Figure 3). Remaining land would be used to consolidate Asarco ownership and are classified as Intermittent.

Name:	Limestone Quarry	Map Label:	RM-15
Estate Type:	Mineral Only	Location:	Section 17 of T3S, R14E
Area:	286.08 acres		Section 18 of T3S, R14E
		Foreseeable use:	Long Range Prospect

Existing condition: The surface of Parcel RM-15 is currently owned by the ASLD. Asarco has filed an application with ASLD for purchase of RM-15. Parcel RM-15 has no current mining activity, however, Asarco acquired a one year term state plan of operations to cover exploration drilling and sampling of the limestone reserve for Parcel RM-15 (Appendix). Prior to additional surface disturbance, a new state plan of operations is required. The limestone quarry was developed in the south portion of Section 18 and is currently inactive.

Foreseeable use: Remaining land within RM-15 could be used to mine limestone used in support of copper mining operations. Since detailed planning for the limestone mining has not begun and is not scheduled to begin in the near future, this portion of RM-15 is classified as Long Range Prospect (Figure 3).

Name:	Limestone Quarry	Map Label:	RM-16
Estate Type:	Surface and Mineral	Location:	Section 20 of T3S, R14E
Area:	40 acres	Foreseeable use:	Long Range Prospect

Existing condition: Parcel RM-16 has no current mining activity or surface disturbance.

Foreseeable use: Portions of Parcel RM-16 would be used for expansion of the limestone quarry. Since mine planning for the limestone mining has not begun and is not scheduled to begin in the foreseeable future, RM-16 is classified as Long Range Prospect (Figure 3).

Name:	Tortilla Foothills	Map Label:	RM-17
Estate Type:	Surface and Mineral	Location:	Sections 22, 23, 26, 27, 34 and 35 of T3S, R13E
Area:	1320 acres	Foreseeable use:	Production, Operation and Support, Transition, Intermittent

Existing condition: Parcel RM-17 has no current mining activity, but has one unmaintained roadway through the middle to Highway 177.

Foreseeable use: Portions of Parcel RM-17 would be used for expansion of waste rock deposition areas and for construction of storm water diversion drain ditches and possible relocation of Highway 177. These portions of RM-17 are classified Production, Operation and Support, and include a buffer classified as Transition. Remaining lands within RM-17 would be used to consolidate Asarco ownership and are classified as Intermittent (Figure 3).

Name:	Hackberry Gulch	Map Label:	RM-18
Estate Type:	Surface and Mineral	Location:	Section 33 and 34 of T3S, R14E, Section 3,4,5 and 8 of T4S, R14E
Area:	2,001.6 acres	Foreseeable use:	Production, Operation and Support, Transition and Intermittent

Existing condition: Parcel RM-18 has no current mining activity. The abandoned Alice Mine is found at the north end of section 33 and the abandoned Gray Horse Mine is found in section 3. One four wheel drive road and trails in the Cane Springs Canyon access old vanadium mine workings from Highway 177. This access corridor is found in Sections 3, 4 and 8.

Foreseeable use: Parcel RM-18, is located adjacent to Asarco owned land and portions would be used for tailings deposition in Elder Gulch and would be used for mid-range expansion of tailings deposition. These portions of RM-18 are classified Production, Operation and Support, and include a buffer classified as Transition. Remaining lands within RM-18 would be used to consolidate Asarco ownership and are classified as Intermittent (Figure 3). The access corridor in Sections 3, 4 and 8 would be closed and would not be open for recreational use.

Table 1. Summary of Existing Mining and Foreseeable Use of Selected Lands

Approximately 2% of the selected lands are disturbed by current mining (EXIST). Approximately 33% of selected lands, within the Production, Operation and Support (POS) classification, would undergo 25% to 100% surface disturbance. Approximately 8% of selected lands, within the Transition (TRANS) classification, would undergo 5% to 25% surface disturbance. Approximately 41% of selected lands, within the Intermineral (INTER) classification, would undergo less than 5% surface disturbance. Approximately 16% of selected lands, within the Long Range Prospect (LRP classification), would undergo surface disturbance similar to POS and TRANS. The selected lands include approximately 8,196 acres of surface and mineral estate (SURF & MIN), approximately 2,143 acres of mineral estate (MIN only) and 637 acres of mineral estate only land (MIN ONLY), where the surface is owned by the Santa Cruz Joint Venture.

Label	Parcel Name	EXIST (acres)	POS (acres)	TRANS (acres)	INTER (acres)	LRP (acres)	SURF & MIN (acres)	MIN ONLY (acres)
CG-1	N/A				157			157
CG-2	N/A				160			160
CG-3	N/A			160	160			320
CASA GRANDE SUB-TOTAL				160	477			637
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	
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
RM-1	Ray Area 1		73	26	324		423	
RM-2	Red Bluff				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			482
RM-9	Section 11 Fragment	30						30
RM-10	Limestone Quarry	21	116	31		694	862	

Table 1. Summary of Existing Mining and Foreseeable Use of Selected Lands, continued

Approximately 2% of the selected lands are disturbed by current mining (EXIST). Approximately 33% of selected lands, within the Production, Operation and Support (POS) classification, would undergo 25% to 100% surface disturbance. Approximately 8% of selected lands, within the Transition (TRANS) classification, would undergo 5% to 25% surface disturbance. Approximately 41% of selected lands, within the Intermittent (INTER) classification, would undergo less than 5% surface disturbance. Approximately 16% of selected lands, within the Long Range Prospect (LRP classification), would undergo surface disturbance similar to POS and TRANS. The selected lands include approximately 8,196 acres of surface and mineral estate (SURF & MIN), approximately 2,143 acres of mineral estate (MIN only) and 637 acres of mineral estate only land (MIN ONLY), where the surface is owned by the Santa Cruz Joint Venture.

Label	Parcel Name	EXIST (acres)	POS (acres)	TRANS (acres)	INTER (acres)	LRP (acres)	SURF & MIN (acres)	MIN ONLY (acres)
RM-11	Rustler 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	409	1,836	1,018	4,937	1,387
GRAND TOTAL		272	3,614	875	4,481	1,733	8,196	2,780

APPENDIX

FORESEEABLE USE CORRESPONDENCE WITH ASARCO

ASARCO

Ray Complex

Neil A. Gambell
Environmental Services Manager

July 21, 1997

HAND DELIVERED

Ms. Shela McFarlin
Project Manager
Bureau of Land Management
U. S. Department of Interior
222 North Central Avenue
Phoenix, Arizona 85004-2003

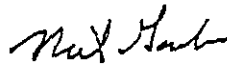
RECEIVED AUG - 6 1997

RE: FORESEEABLE LAND USES

Dear Ms. McFarlin:

Asarco's response to the questions asked in your June 11 memo regarding foreseeable land uses for the selected lands is attached, along with the response to SWCA covering parcels CB-5 and RM-10 through RM-20.

Sincerely,



Neil A. Gambell

NAG:mbp

Attachment

pc: T. E. Erskine, w/attach.
T. E. Scartaccini, w/attach.
E. C. John, "
SWCA - Noel Sanders, w/attach.

NBLMFLUSELTR

1. Why did Asarco propose enlarging the exchange from the original proposed in 1994?

RESPONSE

The Asarco-BLM land exchange has always been a phased process. Phase I was completed in June 1992, Phase II was begun in 1994 and Phase III was initiated in 1997. Asarco was unable to acquire the offered lands for Phase II and Phase II fell behind schedule to the point that it was necessary to combine Phase II and Phase III.

2. What discussions with other state or federal agencies (EPA, Fish and Wildlife, AZ Game and Fish, Army Corps of Engineers, State Lands, State Highways, etc.) are ongoing which involve commitments, permits, applications, agreements or other actions relating to the selected lands?

RESPONSE

EPA - Asarco is conducting settlement negotiations with EPA and ADEQ regarding the protection of Mineral Creek water quality and the associated projects that Asarco may need to undertake. One of these projects (Mineral Creek tunnel extension) would involve exchange parcel RM-2.

There have been no discussions with the Army Corps of Engineers, Fish and Wildlife Service or AZ Game and Fish relating to the selected lands.

State Lands - Asarco desires to purchase section 24, T. 3S, R. 12E (640 acres) from the Arizona State Land Department (ASLD). Asarco would donate 480 acres of Section 24 to the BLM and retain 160 acres (SE 1/4 - exchange parcel CB-5) for use in Copper Butte project. Asarco and the BLM met with ASLD to explain the purchase and on March 21, 1997, ASLD advised Asarco that it would continue to process the application and asked Asarco to proceed with archaeological data recovery.

There have been no discussions with the State Highway Department.

3. Are any proposed changes or agreements that involve Mineral Creek or Gila River tied to the selected lands due to changes?

RESPONSE

No.

4. On the expanded selected lands, will any new mine pits established? Will any leach pads be established?

RESPONSE

At the Ray Mine the existing pit will expand into section 12, T3S R13E (State surface, BLM mineral). New leach, overburden or tailings piles may be constructed or expanded up to the 3000 foot elevation in sections 1, 12, 22, 23, 26, 27, 34, and 35, T3S R13E, sections 20, 33, and 34, T3S R14E and sections 3, 4, 5 and 8, T4S R14E (BLM surface and mineral).

5. Will Asarco continue to lease out grazing on the selected lands prior to copper production? During post reclamation? Who are the allottees and will this change?

RESPONSE

Asarco controls the Sleeping Beauty and Hildalgo grazing allotments which are used by the Asarco JI Ranch. Within the boundaries of both allotments, there are state sections on which Asarco holds the grazing leases. Grazing will continue on a major portion of these allotments and leases. Cattle grazing is included in Asarco's mined land reclamation plans as a post mine land use. Non Asarco BLM grazing allotments include the Battle Ax, BEN, Smith Wash and Rafter 6. The ranchers that hold the Smith Wash (Haversfield) and Rafter 6 (Dunn) allotments also lease Asarco property for grazing. Asarco expects that the grazing allottees will remain the same however, the size of the allotments will decrease to accommodate the exchange.

6. Are there any selected land parcels (Phase III) that currently provide access to public lands? Once the lands are traded, will these same access corridors be available? Will these access points and parcels be open to any recreational uses such as hunting, off-road vehicle use, etc.? Which access will remain open?

RESPONSE

Yes. One four wheel drive road and trails in Cane Springs Canyon (sections 3, 4, and 8, T4S R14E) access old vanadium mine workings from Highway 177. This access corridor will be closed after completion of the land exchange and the parcels will not be open for recreational use.

7. About the state reclamation plan, how do the expanded selected lands (Phase III) support the reclamation or other closure plans. For example, storm water drainage, highway realignment, retention basins, bench recontouring?

RESPONSE

The Arizona mined land reclamation plan rules do not apply to federal and state lands, — just private lands however. Asarco has incorporated some of the planed surface disturbances as we now know them into the Ray and Hayden plans (relocation of diversion ditches, new impoundments, pit expansion, etc.). Copper Butte, Chilito and the tailings sites near Ray will be done at a later date by plan amendment. A state highway realignment project is not subject to the mined land reclamation rules.

8. Does an MPO or APP application exist that includes or pertains to the expanded or original selected lands?

RESPONSE

The Ray limestone deposit and quarry (exchange parcel RM-10) is covered by a BLM Mining Plan of Operations (MPO-81-P002). Asarco acquired a one year term state plan of operations to cover exploration drilling and sampling of the limestone reserve for exchange parcel RM-15. Prior to additional surface disturbance, a new state plan of operations is required.

The limestone quarry is currently inactive and there are no discharging facilities present that would require an Aquifer Protection Permit (APP).

9. Will production levels change at the Ray Mine? Will mining/production levels at Copper Butte offset declining Ray production? Or, will Copper Butte add to the production levels?

RESPONSE

World metal markets are the determinative factor for establishing the production levels at the Ray Mine. Realizing this, at this time there are no current plans to change the production levels at the Ray Mine.

The Copper Butte orebody consists entirely of copper oxide and silicate mineralization. Reserves of this ore type are generally declining at Ray therefore, Copper Butte ore may offset the Ray oxide ore production.

10. For Copper Butte mining, will additional water be required, if so what sources? Does Asarco have these water rights? Are production wells foreseeable on the selected lands? Or pipelines or other facilities?

RESPONSE

Current plans call for the Copper Butte oxide ore to be processed at the Ray Mine in existing facilities utilizing the existing water supply. No additional water will be required and Asarco does not anticipate drilling any new water wells on the selected lands. Water to support the Copper Butte mining operation will be delivered by pipeline from the Ray Mine. This pipeline will cross selected land parcels (CB-2 and CB-3) in sections 17 and 18, T3S R12E.

11. Will production at Copper Butte be covered by existing air quality permits? What changes to air quality as measured by particulates, etc. are anticipated?

RESPONSE

Mining operations at Copper Butte are not covered by the existing air operating permit for the Ray Operations or the pending Title V permit application. At such time the operating plan for Copper Butte is prepared, it will be reviewed for permitting requirements which should be minimal and relate only to blasting and haulroad traffic.

Current plans envision the processing of Copper Butte ore at Ray utilizing existing crushing, screening and conveying equipment which is covered by both the air operating permit and the Title V application. As Copper Butte ore processing is anticipated to replace current silicate ore production at Ray, there should be no increase in emissions.

Shela McFarlin
May 5, 1997
Page 15 of 18

Name: Copper Butte 5 Map Label CB-5

Existing condition: Parcel CB-5 has no existing mining activity. The surface belongs to the State of Arizona.

Foreseeable use: A portion of CB-5 would be used to support development of the Copper Butte operation. Portions of CB-5 would be used for waste rock deposition and would be classified as Production Support. A buffer would be classified as Transition. The remainder of lands within CB-5 would consolidate ASARCO ownership, and be classified as Intermittent.

Shela McFarlin
May 5, 1997
Page 21 of 18

Name: Limestone Quarry *Map Label:* RM-10
Estate Type: Surface and Mineral *Location:* Section 13 of T3S, R13E
Section 18 and 19 of T3S, R14E

Area: 862.68 acres *Foreseeable use:* Production Operation and Support
Transition, Intermittent, Long Range Prospect

Existing condition: Parcel RM-10, the "Limestone Quarry, has no existing mining activity. Portions of RM-10 are disturbed by unpassable roads in the northern half of the parcel and maintained roads near the northwestern and southern boundaries that are accessible from Asarco Ray Pit operations. Portions of Section 19 are disturbed from past limestone mining activity.

Foreseeable use: Parcel RM-10 would be used for expansion of the Ray pit and for waste rock deposition areas. These portions of RM-10 are classified Production Operation and Support, and include a buffer classified Transition. Remaining land with RM-10 could be used to mine limestone used in support of copper mining operations. Since conceptual planning for the limestone mining has not begun and is not scheduled to begin in the foreseeable future, this portion of RM-10 is classified Long Range Prospect (Figure 6).

Name: Rustler Gulch Map Label: RM-11
Estate Type: Mineral Location: Section 31 of T2S, R14E
Section 7 of T3S, R14E

Area: Foreseeable use:

Existing condition: Parcel RM-11 has no existing mining activity. An impassable road runs along Rustlers Gulch.

Foreseeable Use: Parcel RM-11 would be used for possible stormwater drainage ditches and buffer zone. Use would be Production Operation and Support, Transition and Intermittent.

Name: Rustlers Gulch Map Label: RM-12
Estate Type: Surface and mineral Location: Section 1 of T3S, R15E
Area: Foreseeable use:

Existing condition: Parcel RM-12 has no existing mining activity and has no existing disturbance.

Foreseeable use: Portions of RM-12 would be used for expansion of waste rock deposition areas and for stormwater drainage ditch construction. These portions are classified Production Operation Support. A buffer zone would be classified as Transition. Remaining land would be used to consolidate Asarco ownership and would be classified as Intermittent.

Name: Rustlers Gulch Map Label: RM-13
Estate Type: Location:
Area: Foreseeable use:

Existing condition: Parcel RM-13 has no existing mining activity. Several unpassable roads exist throughout the parcel.

Foreseeable Use: Portions of RM-13 would be used for expansion of waste rock deposition areas and for stormwater drainage ditch construction. These portions are classified Production Operation Support. A buffer zone would be classified as Transition. Remaining land would be used to consolidate Asarco ownership and would be classified as Intermittent.

Name: East side Map Label: RM-14
Estate Type: Mineral Location: Section 12 of T3S, R13E
Section 17 of T3S, R14E
Area: 0.88 Foreseeable use:

Existing condition: Parcel RM-14 has no existing mining activity or surface disturbance.

Foreseeable use: Portions of RM-14 would be used for expansion of the open pit, expansion of waste rock deposition areas and for stormwater drainage ditch construction. These portions are classified Production Operation Support. A buffer zone would be classified as Transition (Figure 3). Remaining land would be used to consolidate Asarco ownership and would be classified as Intermittent.

Name: Limestone Quarry Map Label: RM-15
Estate Type: Location: Section 17 T3S, R14E
Section 18 T3S, R14E
Area: Foreseeable use:

Existing condition: Parcel RM-15 has no existing mining activity. A limestone quarry was developed in the south portion of Section 18, but it is currently inactive.

Foreseeable Use: Remaining land within RM-15 could be used to mine limestone used in support of copper mining operations. Since conceptual planning for the limestone mining has not begun and is not scheduled to begin in the foreseeable future, this portion of RM-15 is classified Long Range Prospect.

Name: Limestone Quarry Map Label: RM-16
Estate Type: Surface and Mineral Location: Section 20 of T3S, R14E
Area: Foreseeable use:

Existing condition: Parcel RM-16 has no existing mining activity or surface disturbance.

Foreseeable Use: Portions of Parcel RM-16 would be used for expansion of the limestone quarry. Since conceptual planning for the limestone mining has not begun and is not scheduled to begin in the foreseeable future, RM-16 is classified Long Range Prospect.

Name:	Tortilla Footnills	Map Label:	RM-17
Estate Type:		Location:	Sections 22, 23, 27, 26, 34, and 35 of T3S, R13E
Area:		Foreseeable use:	

Existing Condition: Parcel RM-17 no existing mining activity, but has one unmaintained roadway across the middle and embraces State Highway 117.

Foreseeable Use: Portions of Parcel RM-17 would be used for expansion of waste rock deposition areas and for construction of stormwater diversion drain ditches and possible relocation of State Road 177. These portions of RM-1 are classified Production Operation and Support, and include a buffer classified Transition. Remaining lands with RM-17 would be used to consolidate Asarco ownership and are classified Intermittent (Figure 6).

Name:	Hackberry Gulch	Map Label:	RM-18
Estate Type:		Location:	Sections 33 and 34 of T3S, R14E Sections 3, 4, 5, and 8 of T4S, R14E
Area:		Foreseeable use:	

Existing condition: Parcel RM-18 has no existing mining activity. The abandoned Alice Mine is found at the north end of section 33 and the abandoned Gray Horse Mine is found in section 3. Unmaintained roads are found in sections 3 and 4.

Foreseeable Use: Parcel RM-18, is located adjacent to Asarco owned land used for tailings deposition in Elder Gulch and would be used for mid-range expansion of tailings deposition. Therefore, Parcel RM-18 is classified Production Operation and Support.

Name:	Section 36 (State)	Map Label:	RM-19
Estate Type:	Surface (State)	Location:	Section 36 of T2S, R13E
Area:	Foreseecable use:		

Existing condition: Parcel RM-19 has no existing mining activity.

Foreseeable use: Portions of Parcel RM-19 would be used for expansion of waste rock deposition areas and for stormwater drainage ditch construction. These portions are classified Production Operation Support. A buffer zone would be classified as Transition. Remaining land would be used to consolidate Asarco ownership and would be classified as Intermittent.

Name: Section 20 (State) Map Label: RM-20
Estate Type: Surface (State) Location: Section 16 of T3S, R13E

Area: 160 acres Foreseeable use:

Existing condition: Parcel RM-20 has no existing mining activity.

Foreseeable use: Portions of Parcel RM-20 would be used for expansion of waste rock deposition areas and for construction of stormwater diversion drain ditches and possible relocation of State Road 177. These portions of RM-20 are classified Production Operation and Support, and include a buffer classified Transition. Remaining land with RM-20 would be used to consolidate ASARCO ownership and are classified Intermittent (Figure 6).

ASARCO

Ray Complex

Neil A. Gambell
Environmental Services Manager

September 15, 1997

BY FACSIMILE

Ms. Shela McFarlin, Project Manager
Bureau of Land Management
Native American Minerals/Arizona Exchange Team
Arizona State Office
222 North Central Avenue
Phoenix, Arizona 85004

Dear Ms McFarlin:

Answers to the questions in your fax of August 11, 1997, are as follows:

- I. Map is correct. Land should be Foreseeable Use, mainly Production, Operation and Support, with a buffer zone classified as Transition and a remaining area of Intermittent Use.
- II. 2A: No new pits are planned. Leach pads will be established and will be within the Production, Operation and Support areas shown.


2B: New pits are anticipated at Copper Butte and Chilito, plus a possible pit for the Limestone Quarry.

2C: Potential use of Section 34 in RM17 is possible realignment of State Highway 177 and possible mine dump expansion. Use, where necessary, would be to the 3,000 foot elevation.
- III. Production levels will not change at the Ray Mine. As oxide mineralization decreases, the leaching of secondary sulfide ores will increase to maintain the present total tonnage of copper produced.

Ms. Sheila McFarlin
Page 2
September 15, 1997

Copper Butte will be a stand alone project, and your questions regarding Copper Butte raised in your September 4 memorandum will be answered separately.

Sincerely,



Neil A. Gambell

NAG:mbp

pc: T. E. Erskine
T. E. Scartaccini
E. C. John
R. S. Rhoades (By FAX)
Noel Sanders - SWCA (By FAX)

MBLMA11FXLTR



RAY LAND EXCHANGE EXISTING MINING AND FORESEEABLE MINING USE OF SELECTED LANDS

December 19, 2013

Prepared By:

J. Chris Pfahl, PE
Corporate Land Manager
ASARCO LLC

ASARCO

RECEIVED OCT 3 1997

Ray Complex

Neil A. Gambell
Environmental Services Manager

October 2, 1997

Ms. Shela McFarlin, Project Manager
Arizona State Office
Bureau of Land Management
U. S. Department of Interior
222 North Central Avenue
Phoenix, Arizona 85004-2003

RE: COPPER BUTTE

Dear Ms. McFarlin:

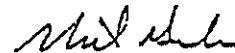
In response to your memorandum of September 4, Asarco has reviewed the 1993 Mining Plan of Operations (MPO) on file with the BLM as a basis for answering your questions as follows:

1. The mine life is 11 years which includes 3 years of prestripping (over burden only).
2. Actual commencement of mining at Copper Butte cannot be determined until long range drilling at Ray is completed and the land exchange is finalized.
3. The ultimate pit will occupy 122 acres.
4. 89,647,000 tons of material ore and (over burden) will be removed.
5. The recoverable copper over the life of mine is 280 million pounds.
6. Cathode production will range from 13 million pounds in year 4 to 53 million pounds in the last year.
7. Copper Butte will eventually provide 44% of the Ray Complex cathode production thus off setting declining production from the Ray Mine.
8. The equipment and manpower has not changed from the 1993 MPO listing.
9. The mine will operate 16 hours (2 shifts) per day 7 days per week.

Ms. Shela McFarlin
Page Two
October 2, 1997

10. Noise will be associated with production loaders (2), haul trucks (4), water trucks (2) and blasting.
11. There will be 110 truck loads of material moved each day.
12. The effect of particulates (dust) should be minimal due to controls (haul road watering and the use of banks sprays were needed).

Sincerely,



Neil A. Gambell

NAG:mbp

pc: T. E. Erskine
T. E. Scartaccini
E. C. John
R. S. Rhoades
Noelle Sanders (SWCA)

MBLMLTR.DOC

ASARCO

RECEIVED OCT 3 1997

Ray Complex

Neil A. Gambell
Environmental Services Manager

October 2, 1997

Ms. Shela McFarlin, Project Manager
Arizona State Office
Bureau of Land Management
U. S. Department of Interior
222 North Central Avenue
Phoenix, Arizona 85004-2003

RE: COPPER BUTTE

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Ms. Shela McFarlin
Page Two
October 2, 1997

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Sincerely,



Neil A. Gambell

NAG:mbp

pc: T. E. Erskine
T. E. Scartaccini
E. C. John
R. S. Rhoades
Noelle Sanders (SWCA)

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Appendix D

CUMULATIVE ACTIONS

PAST, PRESENT, AND REASONABLY FORESEEABLE FUTURE PROJECTS AND RESOURCE CONDITIONS CONSIDERED IN THE CUMULATIVE EFFECTS ANALYSIS

The cumulative impact analysis considered the projects and activities described below. Updated information is provided for projects that were listed in the Ray Land Exchange/Plan Amendment Final environmental impact statement (FEIS) Appendix G. Note that since the issuance of the FEIS, some of the anticipated projects have been completed, modified, or cancelled. The projects below are grouped by primary activity (such as Federal Land Tenure, mining, grazing, etc.), but may involve impacts applicable to multiple resources (such as water use, vegetation removal, development of roads, etc.).

Federal Land Tenure Projects

Land Exchanges/Disposals:

Cerbat Mountain Land Exchange. The Bureau of Land Management (BLM) exchanged 5,144 acres for 5,661 acres in Mohave County. Completed.

Cyprus State-wide Land Exchange. The BLM exchanged 9,657 acres for 10,000 acres in Pima, Yavapai, and Gila Counties. Completed.

Hualapai Mountains Exchange. The BLM exchanged 70,000 acres of public land for roughly 70,000 acres of private land in Mohave County. Completed.

Morenci Land Exchange. The BLM exchanged 3,605 acres for 1,040 acres of private land in Graham, Greenlee, Cochise, and Pima Counties. Completed.

Safford Dos Pobres/San Juan Mine. The BLM exchanged 17,000 acres of selected BLM lands for roughly 3,858 acres of private land owned by Phelps Dodge in La Paz, Greenlee, and Graham Counties. Completed.

Saguaro National Park Land Exchange. The BLM exchanged 4,322 acres of land for 632 acres of private land in Pima County. Completed.

Silver Bell-Cienega. Approximately 4,953 acres of federal lands in Pima and Pinal Counties exchanged for approximately 1,600 acres of private lands within Pinal and Pima Counties. Completed.

Resolution Copper Land Exchange. The National Defense Authorization Act of 2015 committed the exchange of 2,400 acres of U.S. National Forest for 5,340 acres of private land in Maricopa, Coconino, Yavapai, Gila, Pinal, and Santa Cruz Counties to be transferred to BLM and U.S. Forest Service administration. Present and future.

Winkelman Community Expansion. The BLM Tucson Field Office considered a proposal by the community of Winkelman for sale of approximately 80 acres of public land for community expansion. Cancelled.

Black Mountain Range and Bullhead City Land Exchange Act of 2019. The Kingman Field Office is undertaking a land exchange of approximately 345 acres of federal land in Bullhead City, Arizona, for 1,100 acres of private land in the Black Mountain Range as mandated by the John D. Dingell Jr. Conservation, Management and Recreation Act of 2019.

Land Acquisitions:

Arizona Wilderness Inholding Acquisition Project. BLM acquired 3,400 acres, mostly in the Mount Tipton and Wabayuma Peak Wildernesses in Mohave County. Completed.

Mining Projects

Cyprus Miami Mine Expansion. BLM and the Tonto National Forest completed a Mine Plan of Operations for three leach pad facilities affecting 770 acres of BLM lands (approximately 15 miles northeast of Ray Mine). Present and future.

Mineral Creek Consent Decree/404 Permit Expansion. ASARCO constructed a 13,300-foot extension diversion tunnel at the Ray Mine in Pinal County. Completed.

Superior Underground Mine. In 1996, the mine closed when proven ore reserves were exhausted. Resolution Copper completed reclamation in 2018 with the removal of the chimney stack. Completed.

Resolution Copper Mine. Proposed copper mine east of Superior, Arizona, using underground block-caving methods (Resolution Copper 2016), approximately 10 miles north of Ray Mine. The mine as proposed would occupy roughly 6,900 acres for all facilities (e.g., extraction operations, processing, transport of tailings and of copper concentrate, power lines, pipelines, and a large, permanent tailings disposal facility). Present and future.

Florence Copper. An in-situ copper recovery operation in Florence, Arizona, approximately 20 miles southwest of Kearny. Construction of Florence Copper began in late 2017; mine life is projected for 28 years. Present and future.

Miami Mine. Open-pit copper mine north of Miami-Globe. Present and future.

Pinto Valley Mine. Open-pit copper mine west of Miami-Globe; closed in 2009 and reopened in 2012. Present and future.

Carlota Mine. Open-pit copper mine near Miami-Globe. Present and future.

Ripsey Wash Tailing Storage Facility. ASARCO is proposing a 2,636-acre tailings storage facility at Ripsey Wash (4 miles south of Ray Mine). Parcel RM-18 (Hackberry Gulch) is analyzed as a practicable alternative in the Ripsey Wash FEIS. A ROD was published in December 2018. The FEIS noted ASARCO intended to use Ray Mine parcel RM-18 as a tailings storage facility. RM-18 is no longer considered as a tailings storage facility under the Proposed Action. Present and future.

Comprehensive Plans

Las Cienegas Resource Management Plan. BLM manages 49,000 acres of public land, resources, and uses within the Las Cienegas National Conservation Area. The plan was approved in 2003.

Kingman Resource Area Resource Management Plan. The BLM Kingman Resource Area Resource Management Plan covering parts of Mohave, Yavapai, and Coconino Counties was approved in 1995.

Phoenix Resource Management Plan. BLM approved the Phoenix Resource Management Plan in 1989.

Safford District Resource Management Plan. BLM approved the Safford District RMP in 1992 and 1994, for the management of approximately 1,400,000 acres in southeastern Arizona.

White Canyon Resource Conservation Area Coordinated Management Plan. BLM Tucson Field Office considered an interdisciplinary activity plan for the White Canyon Resource Conservation Area. Cancelled.

Pinal County Comprehensive Plan. Adopted in November 2009; amended in November 2015.

Gila County Comprehensive Master Plan. Adopted in November 2003; amended in July 2018.

Mohave County General Plan. Adopted in 2009.

Lower Sonoran Resource Management Plan. The BLM approved the Lower Sonoran Resource Management Plan in September 2012.

Middle Gila Canyons Travel Management Plan. The Tucson Field Office completed the travel management plan in October 2010.

Development/Land Use

Superstition Vistas. Master-planned community proposed for 176,000 acres in northeast Pinal County. Future.

Regional Population/Community Growth or Decline. Population growth in Pinal County has been robust, but growth in Gila County and the smaller communities in the region has been modest and in many mining-dependent areas, declining for decades (U.S. Census 2000–2010). Mohave County is also experiencing strong population growth. Present and future.

- Superior: Population declined from 3,254 in 2000 to 2,799 in 2010 (–14%).
- Kearny: Population declined from 2,249 in 2000 to 2,090 in 2010 (–7%).
- Mammoth: Population declined from 1,762 in 2000 to 1,099 in 2010 (–38%).
- Pinal County: Population increased from 179,727 in 2000 to 326,297 in 2010 (+81%).
- Gila County: Population increased from 51,335 in 2000 to 53,597 in 2010 (+4%).
- Mohave County: Population increased from 155,032 in 2000 to 200,186 in 2010 (+29%).

Livestock Grazing. Approximately 2,865,121 acres of land is used for livestock within the cumulative impact assessment area (CIAA). This area has been grazed for over a century and grazing is expected to continue on rangelands except where lands are converted to other uses such as mining or residential development. Past, present, and future.

Transportation/Access. Major highways within the CIAA include portions of Interstate (I-) 8, I-10, I-40, U.S. Route 60, and State Routes 77 and 177. Widening, repaving, and bridge replacements are anticipated to continue for these facilities (including Pinto Creek Bridge). Present and future.

Off-Highway Vehicles (OHVs). OHV use is expected to increase in the entire region. Present and future.

Recreation. OHV use, day use, recreational driving, hiking, and other forms of outdoor recreation in the CIAA. Present and future.

Natural Processes/Other

Wildland Fire and Suppression. Annual acreage varies. Present and future.

Noxious Weeds (including invasive non-native grasses). OHV use, surface disturbance from mining and community development, and livestock grazing have introduced noxious and invasive weeds into the CIAA. Present and future.

Appendix E

SUMMARY OF THWELLS HYDROLOGIC MONITORING RESULTS

MEMORANDUM

To: File

CC:

From: DeAnne Rietz, SWCA Environmental Consultants

Date: January 2, 2013; revised June 29, 2018

Re: **THWELLS modeling of groundwater pumping in support of the Ray Land Exchange Supplemental Environmental Impact Statement**

Groundwater pumping will be necessary to meet the water demands for ASARCO's future mining activities on the selected parcels as described in the Ray Land Exchange Supplemental Environmental Impact Statement (SEIS). The purpose of this memo is to document how anticipated groundwater level declines due to the pumping were estimated using THWELLS (a two-dimensional, analytical groundwater model programmed for solution on a personal computer) and geographical information system (GIS) applications. It is understood that this model oversimplifies a complex groundwater situation. It is also understood that a three-dimensional model approach that allows for multiple variable inputs would be a more appropriate approach for predicting impacts to groundwater; however, at this time there are not enough detailed data available regarding possible water demand from future mining activities to create a reliable model. The modeling method used is intended to provide a qualitative order of magnitude for changes that might occur and does not identify definitive expectations.

Water demand for future mining activities is estimated to be 500 acre feet per year and will be withdrawn from ASARCO's existing Hayden well field.¹ There are 20 wells in the well field, but because it is unknown at this time which well(s) will be used to accommodate the future mining activities, only the centermost well in the well field, #617366, was modeled as the pumping well; two boundary wells were included in the model to represent the extent of the alluvial aquifer associated with the Gila River in which the pumping well lies. The intent of this modeling was to only look at the incremental change in groundwater levels that could be attributable to the water use required for mining of the Chilito and Copper Butte deposits as described in the SEIS. It is not intended to fully predict actual water levels based on all sources and stresses in the aquifer.

THWELLS makes use of the Theis non-equilibrium equation to calculate drawdown due to pumpage and requires the following model inputs:

- transmissivity – the rate at which groundwater flows horizontally through an aquifer expressed in gallons per day per foot (gal/day/ft);
- storage coefficient – a unitless representation of the volume of water that an unconfined aquifer releases from storage (usual range is 0.01–0.30);²
- aquifer thickness – measured in feet; and
- the pumping rate – measured in gallons per day (gal/day).

¹ Personal correspondence with Chris Pfahl, emails dated October 3 and December 13, 2012.

² Freeze, R.A., and J.A. Cherry. 1979. *Groundwater*. Prentice-Hall, Inc., New Jersey. (page 61)

For this model, transmissivity of the local aquifer was estimated with pumping data from four wells located within 1 mile of the ASARCO well field (Table 1) to calculate transmissivity³ using Driscoll's equation:

$$T = Q/S_w \times 1500$$

Where: T = transmissivity in gal/day/ft

Q = constant discharge rate in gallons per minute (gal/min)

S_w = drawdown at the pumped well in feet.

Table 1. Estimates of Transmissivity using Driscoll's Equation

Well Register No.	Q* (gal/min)	S _w * (feet)	Estimated T (gal/day/ft)
508339	1,500	37	60,750
525279	1,500	21	107,100
541572	1,300	54	36,150
541573	650	65	15,000
Average			54,750

* From Arizona Department of Water Resources (ADWR) Well 55 Registry online GIS database updated April 27, 2012. Accessed August 21, 2012.

A storage coefficient of 0.20 was chosen to represent the unconfined aquifer conditions and the young alluvium deposits found at the well field.⁴ A saturated thickness of 100 feet was used, which represents the average well depth at the ASARCO well field. It is unknown how long groundwater pumping for the future mining activities will continue, but for the purposes of this estimate the model was run for a period of 100 years. A summary of the model input parameters is provided in Table 2.

Table 2. THWELL Model Inputs

Pumping Rate (gal/day)	Transmissivity (gal/day/ft)	Storage Coefficient	Aquifer Thickness (feet)	Years of Pumping
446,400*	54,750	0.2	100	100

* Equivalent to 500 acre-feet per year

A hydrograph of water levels changes to the pumping well (#617366) based on the THWELLS modeling results is provided in the project record. Model output for the THWELLS model is included in the Draft SEIS.

³ Driscoll, F. 1995. *Groundwater and Wells*. Second Edition. Johnson Screens, St. Paul. (page 1021)

⁴ Arizona Land Resource Information System GIS geology data.

Appendix F

FINAL SEIS FIGURES

CHAPTER 1.

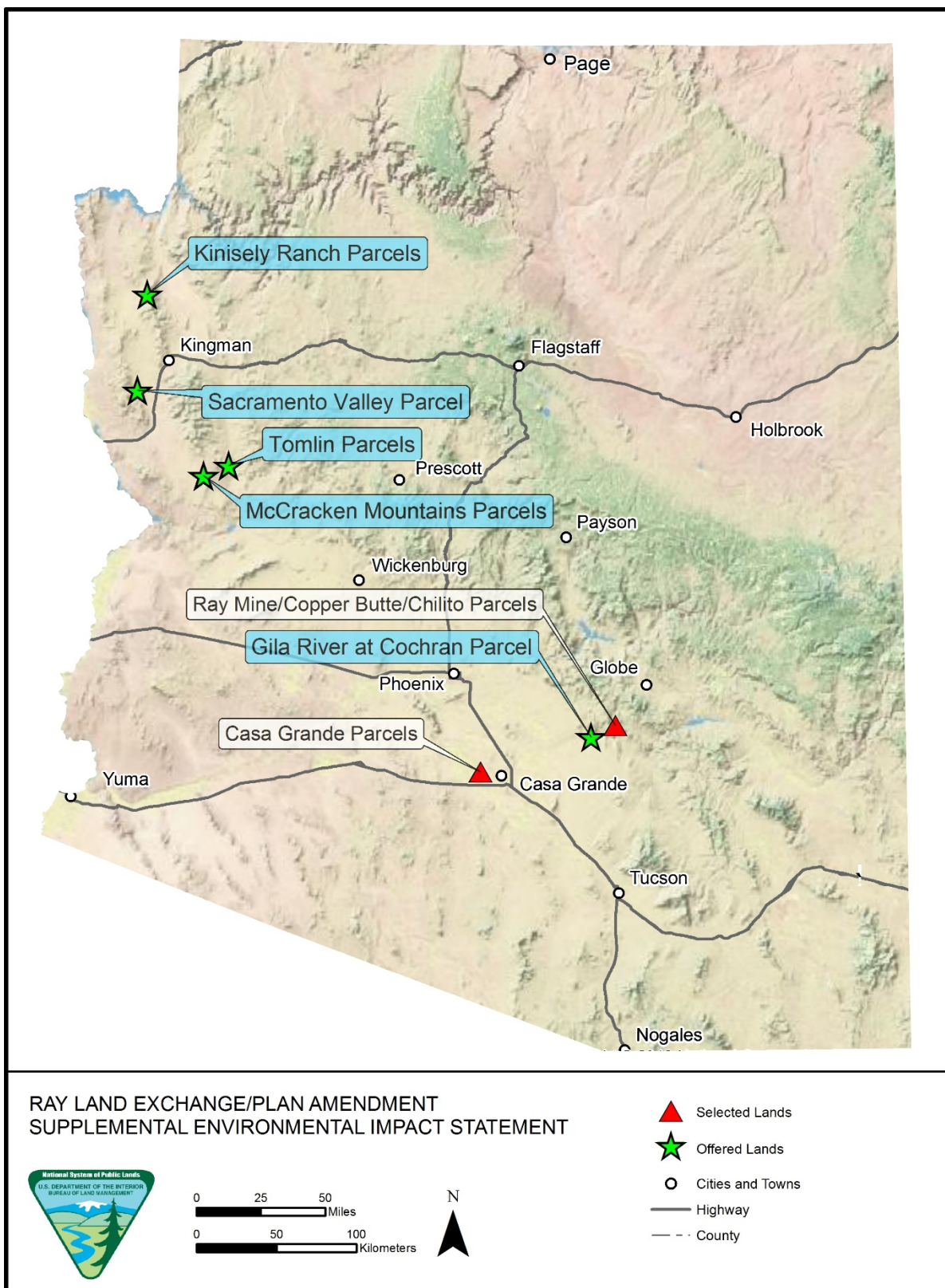


Figure 1.6-1. Ray Land Exchange/Plan Amendment SEIS project location map.

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CHAPTER 2.

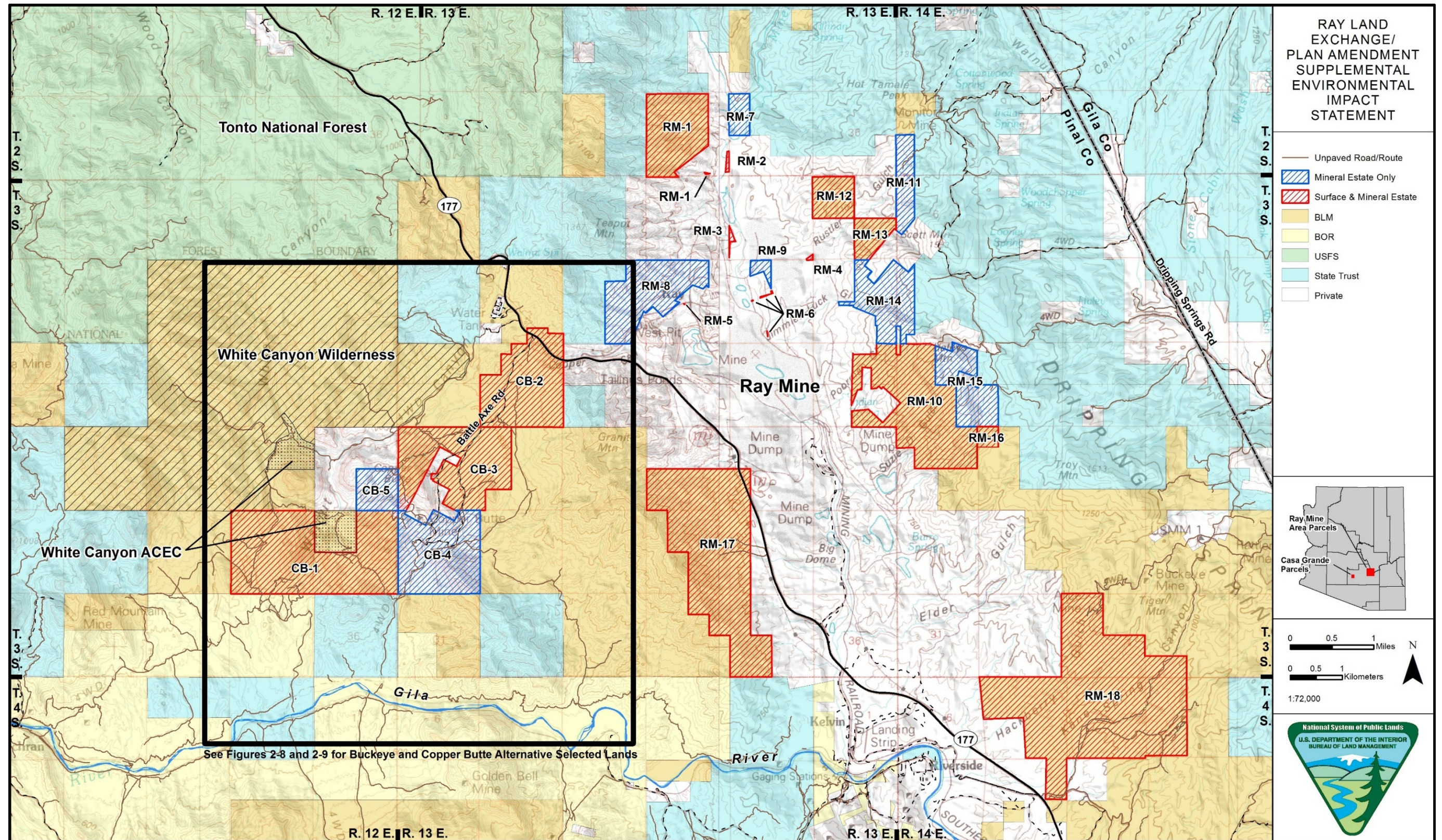


Figure 2.1-1. Proposed Action Selected Lands in the Ray Mine Complex and Copper Butte/Buckeye areas.

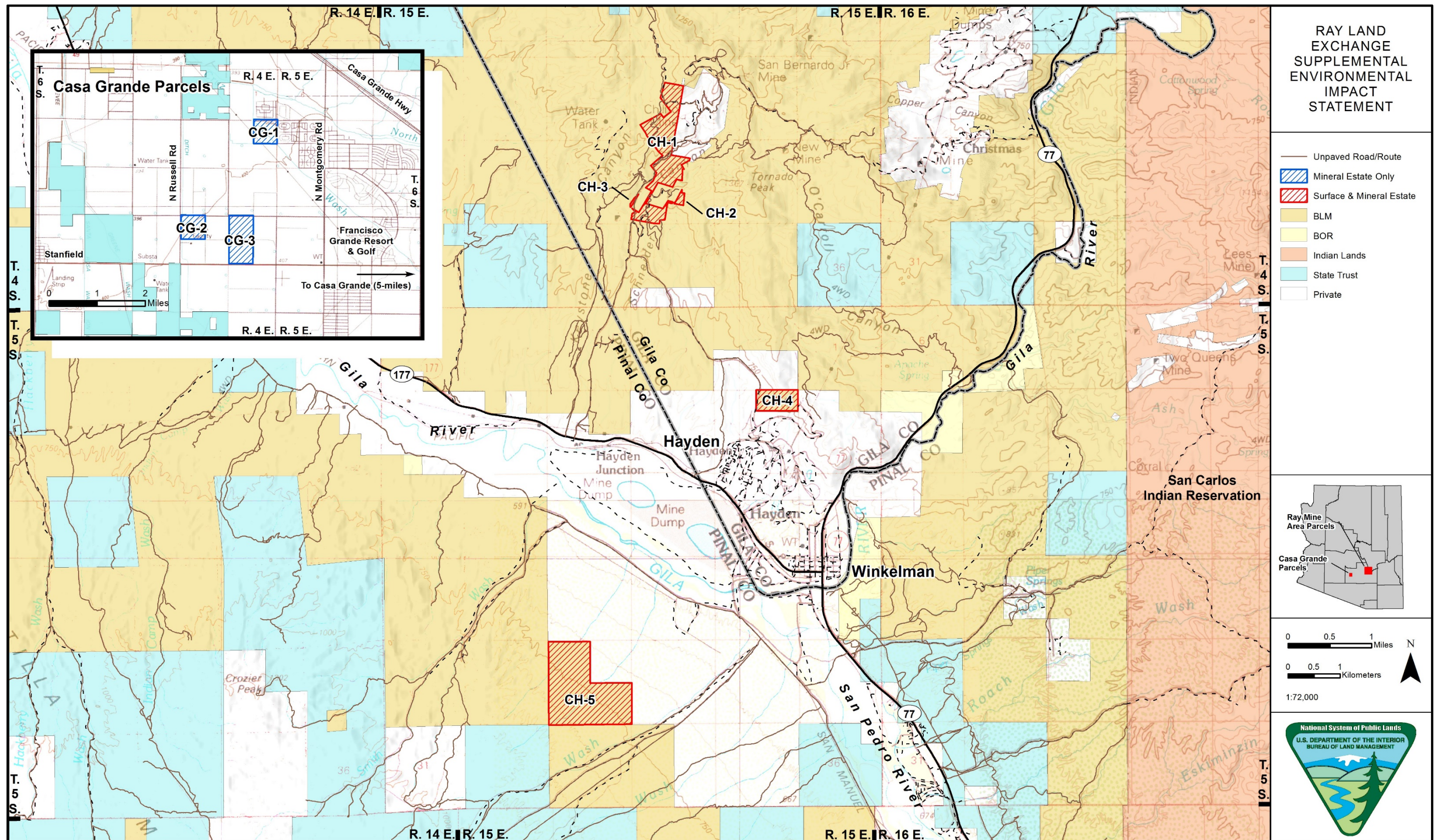


Figure 2.1-2. Proposed Action Selected Lands in the Chilito/Hayden and Casa Grande areas.

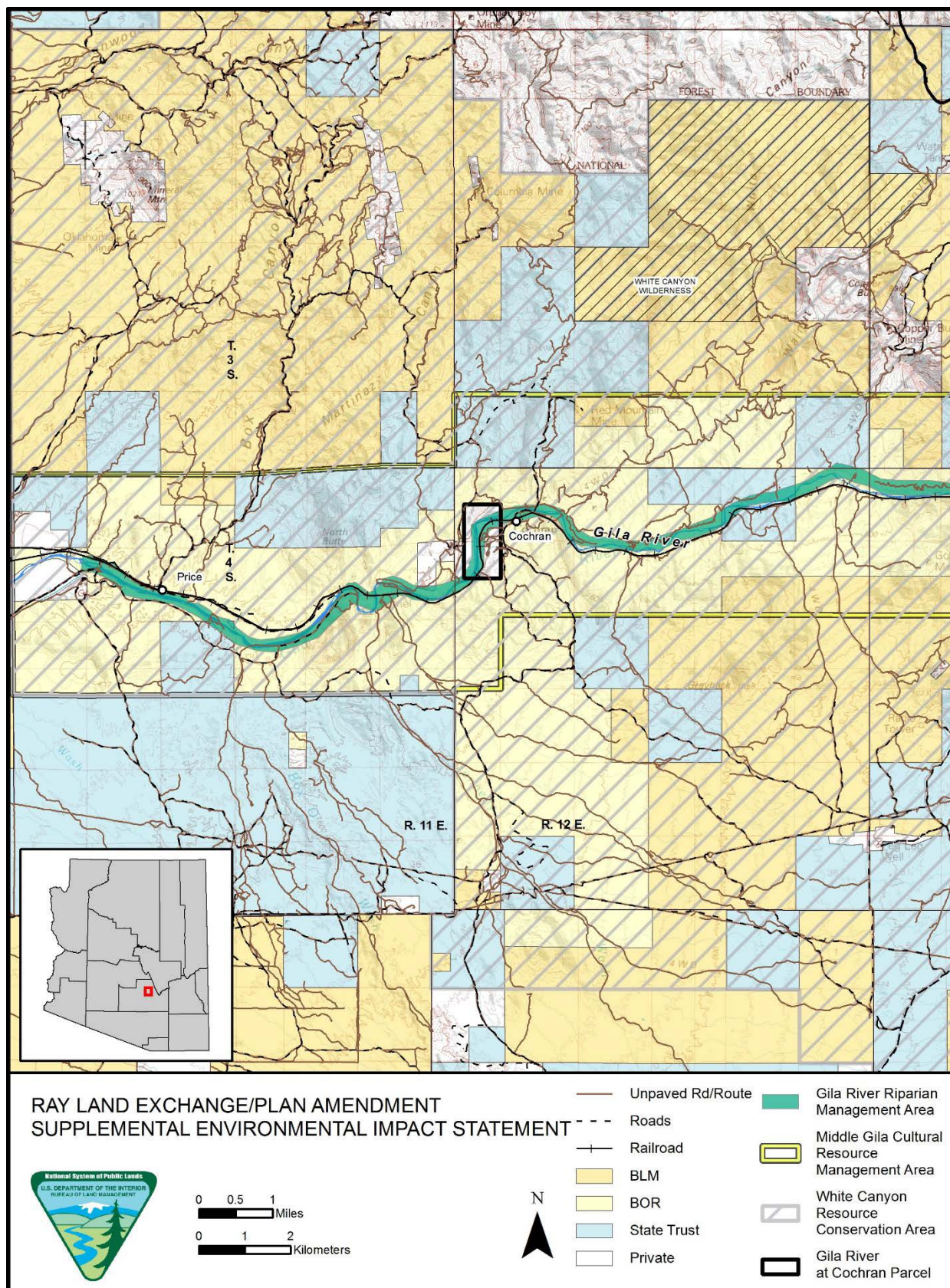


Figure 2.1-3. Offered Lands—Gila River at Cochran parcel.

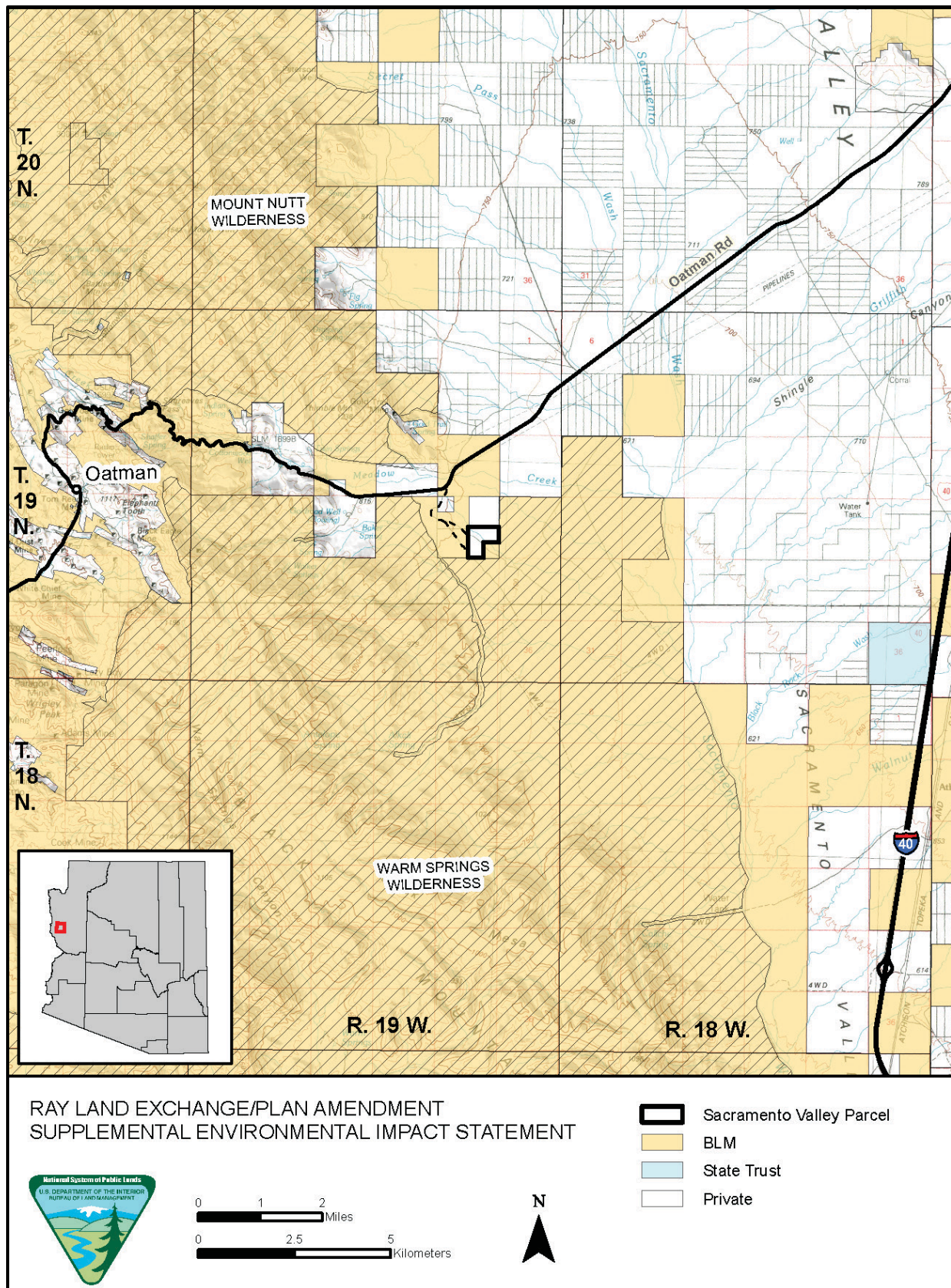


Figure 2.1-4. Offered Lands—Sacramento Valley parcel.

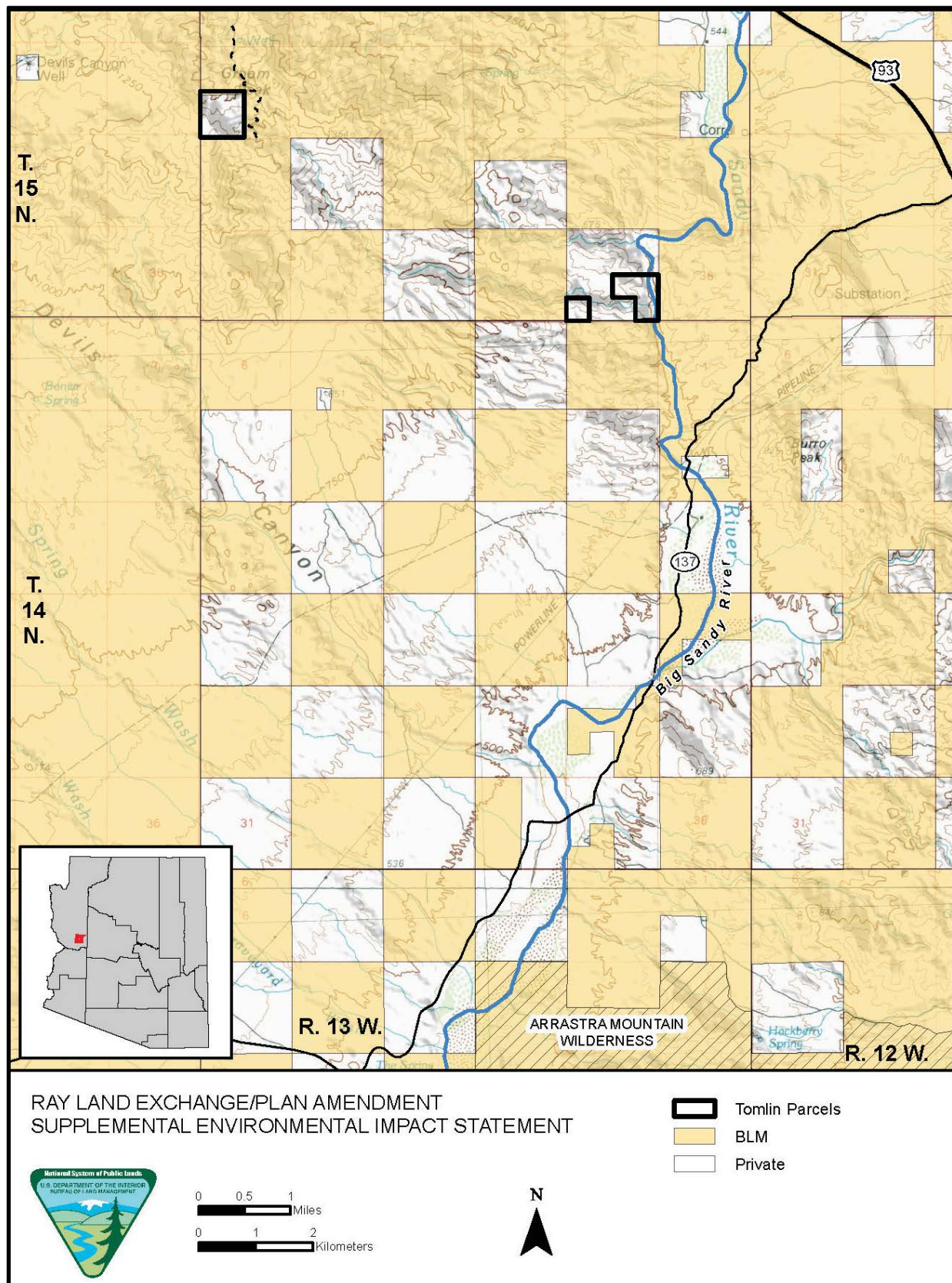


Figure 2.1-5. Offered Lands—Tomlin parcel group.

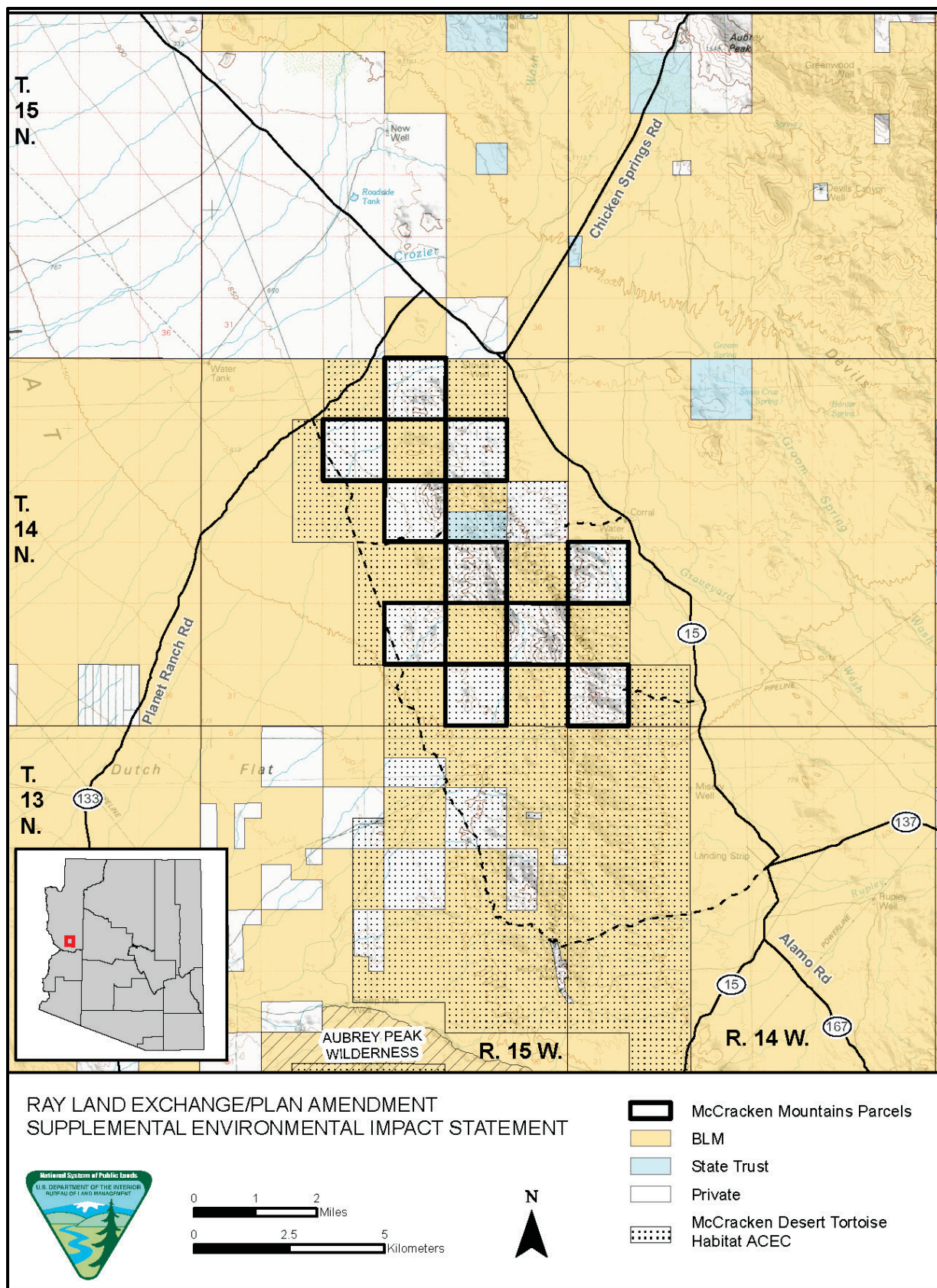


Figure 2.1-6. Offered Lands—McCracken Mountains parcel group.

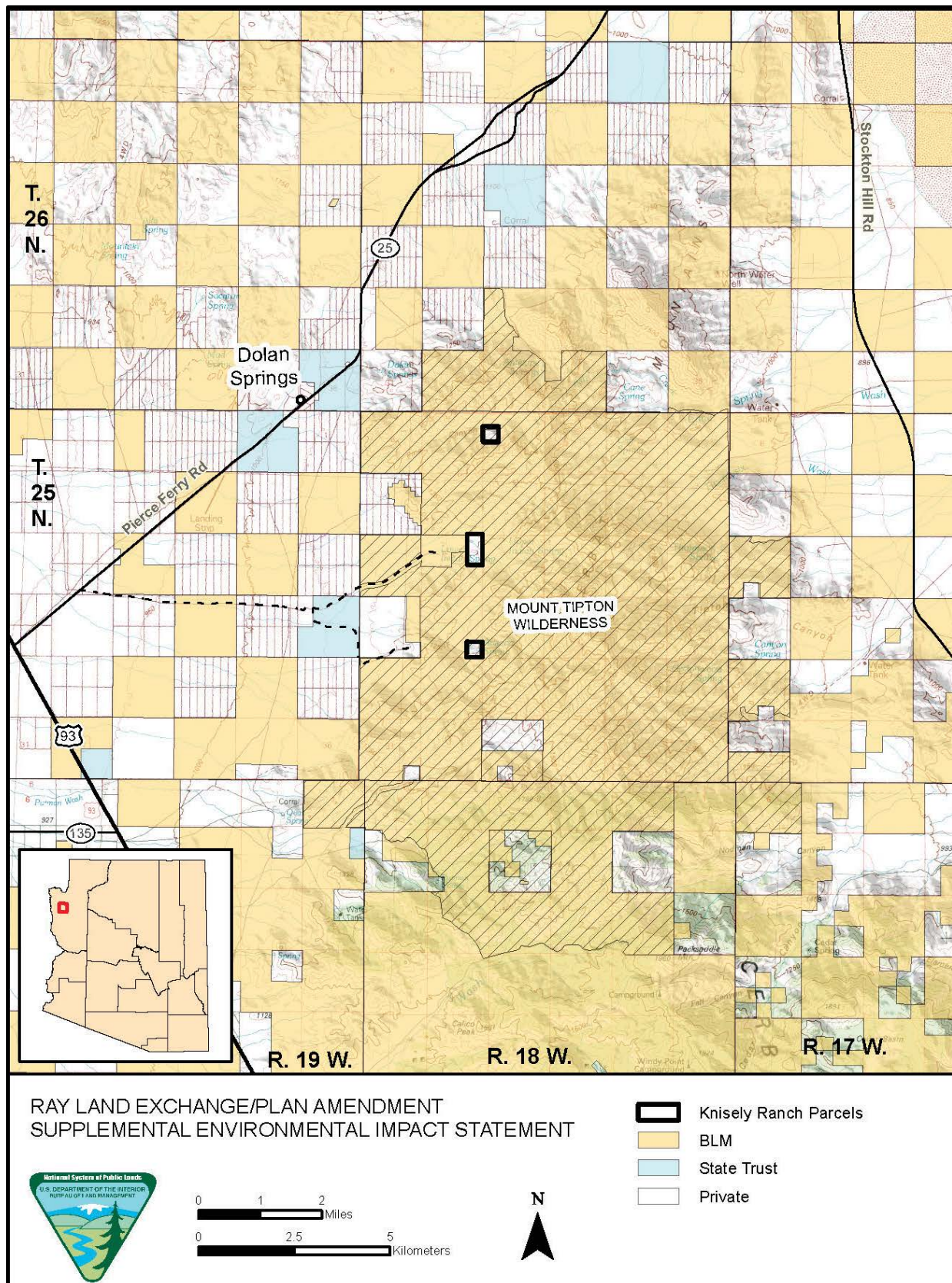


Figure 2.1-7. Offered Lands—Knisely Ranch parcel group.

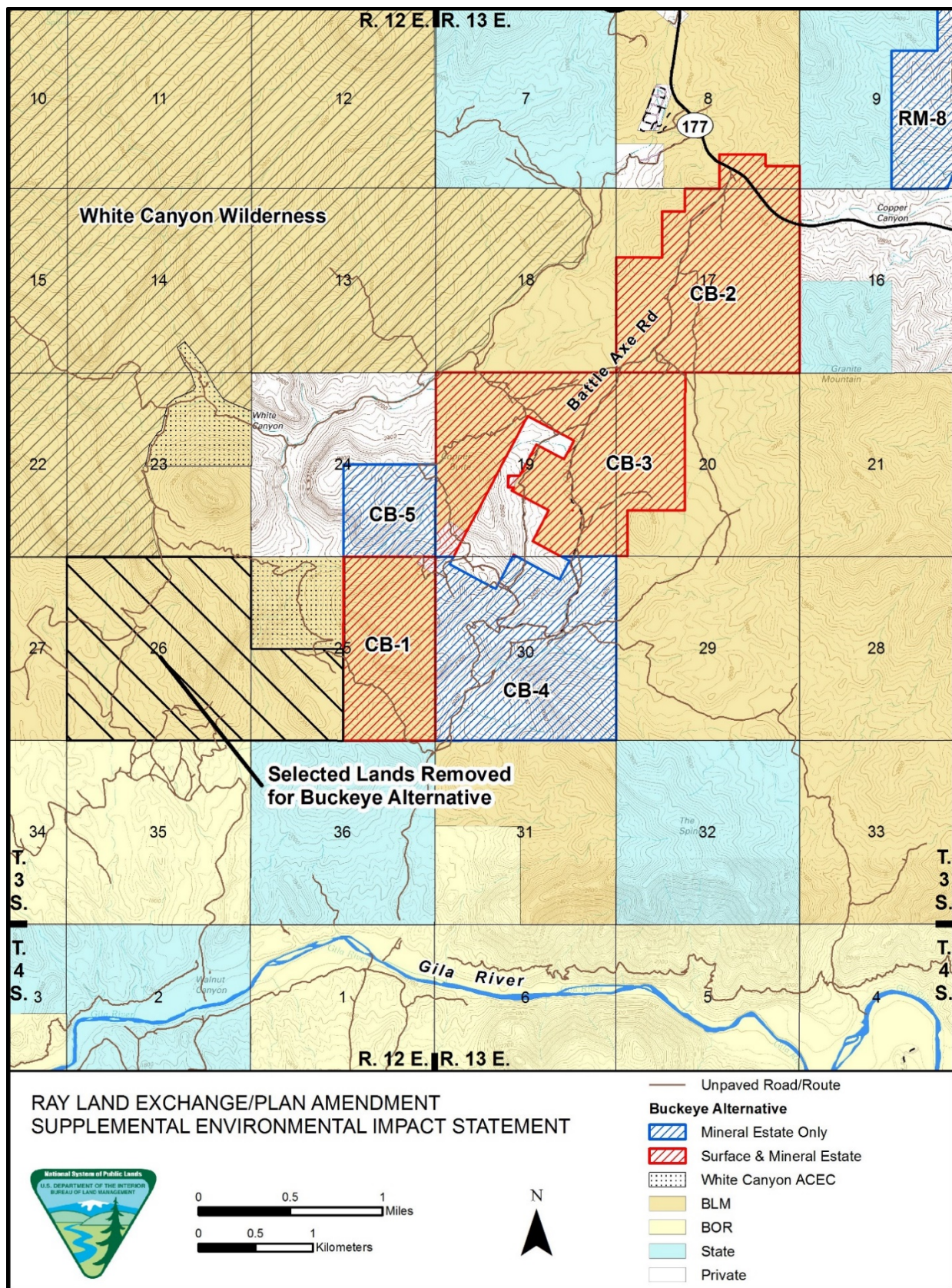


Figure 2.1-8. Selected Lands in the Buckeye Alternative.

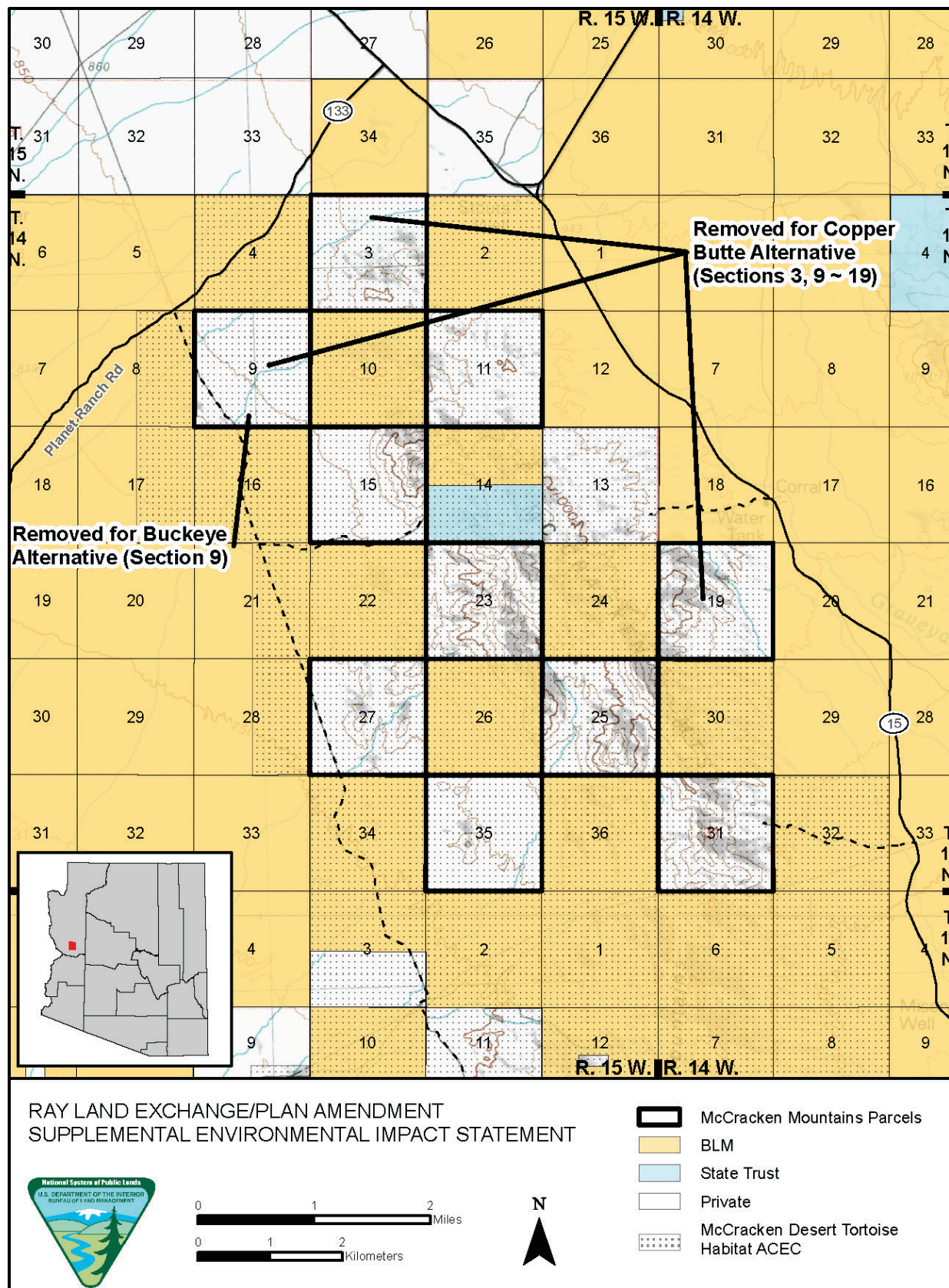
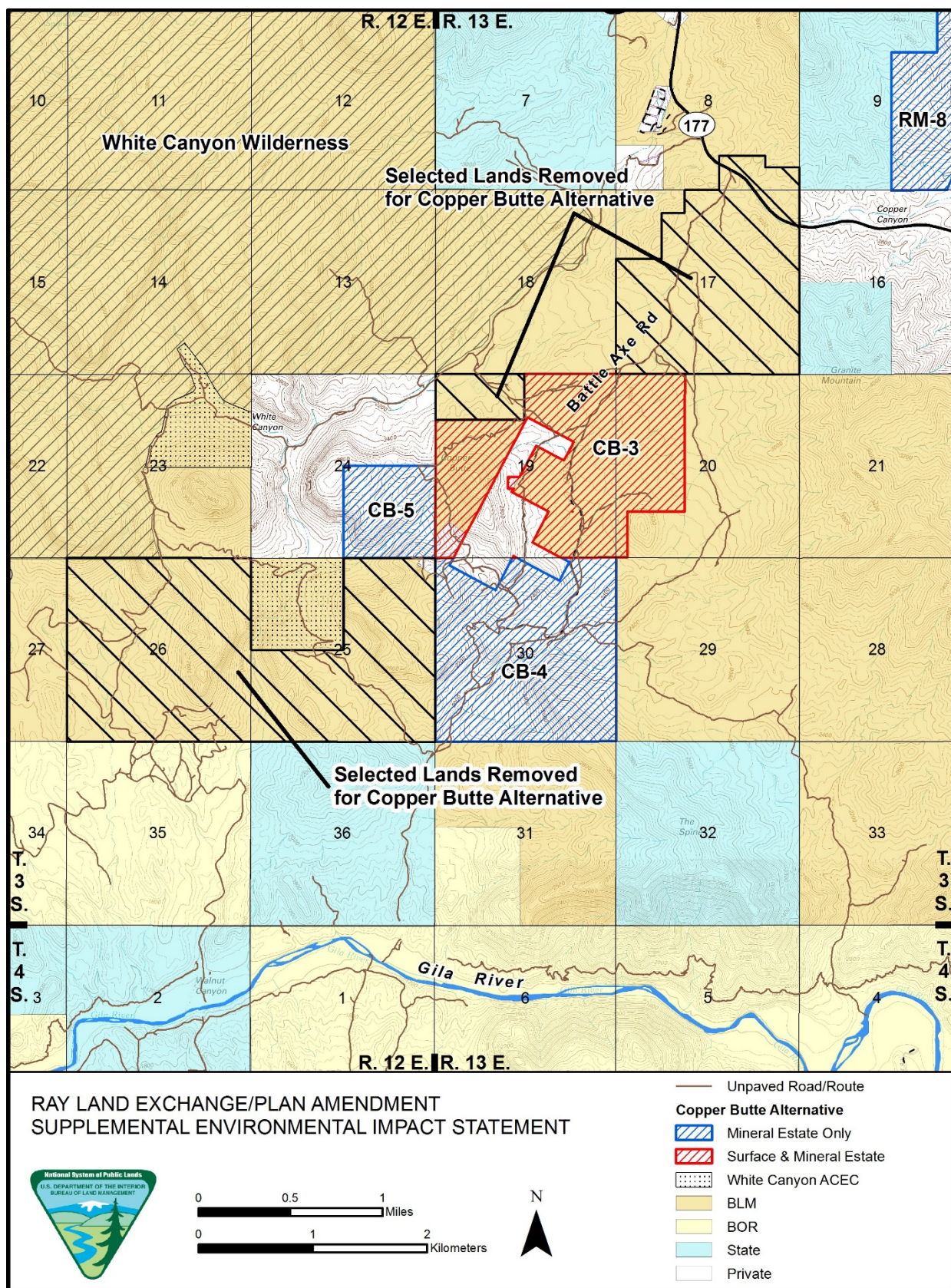


Figure 2.1-9. Offered Lands removed in the Buckeye and Copper Butte Alternatives.



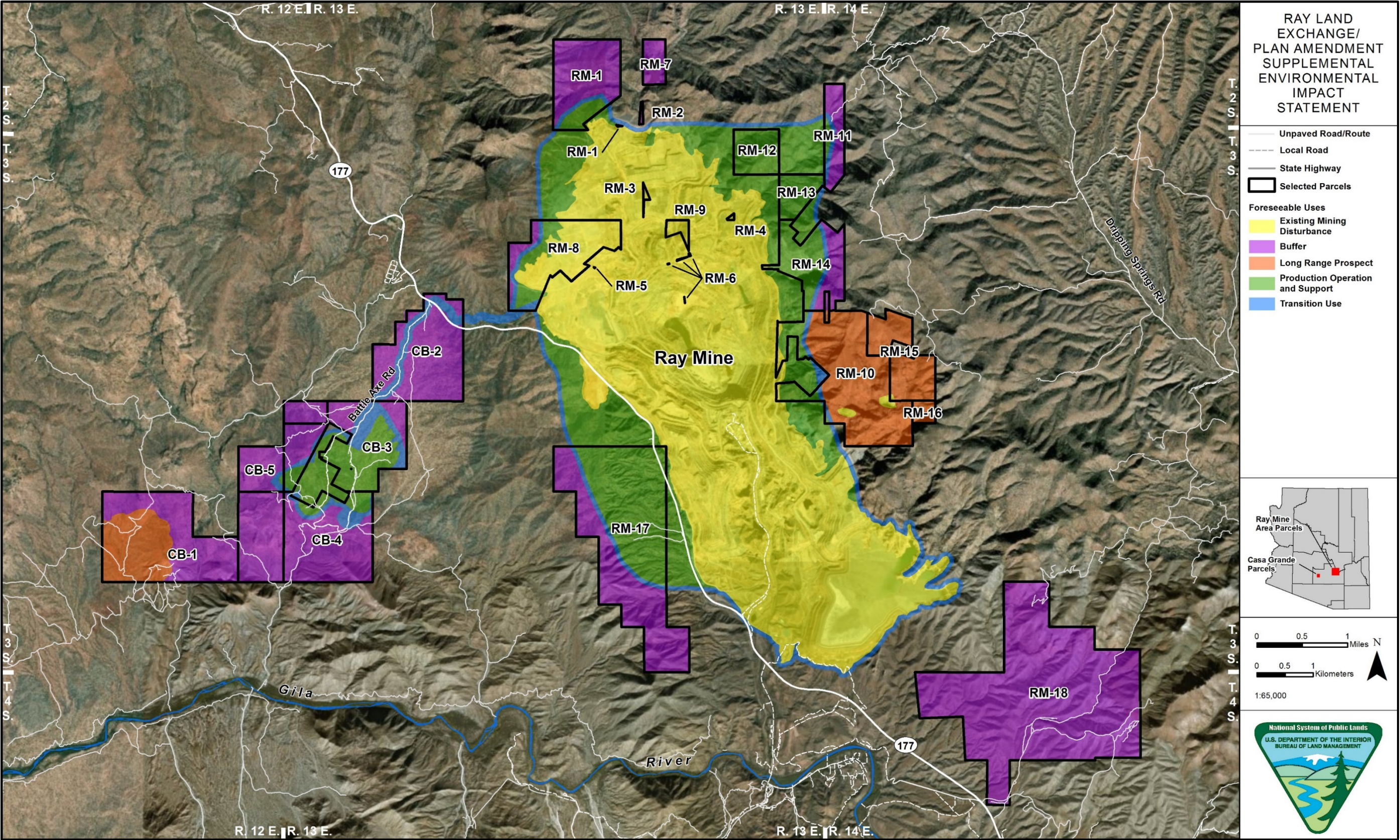


Figure 2.1-11. Foreseeable uses for the Ray Mine Complex and Copper Butte/Buckeye areas.

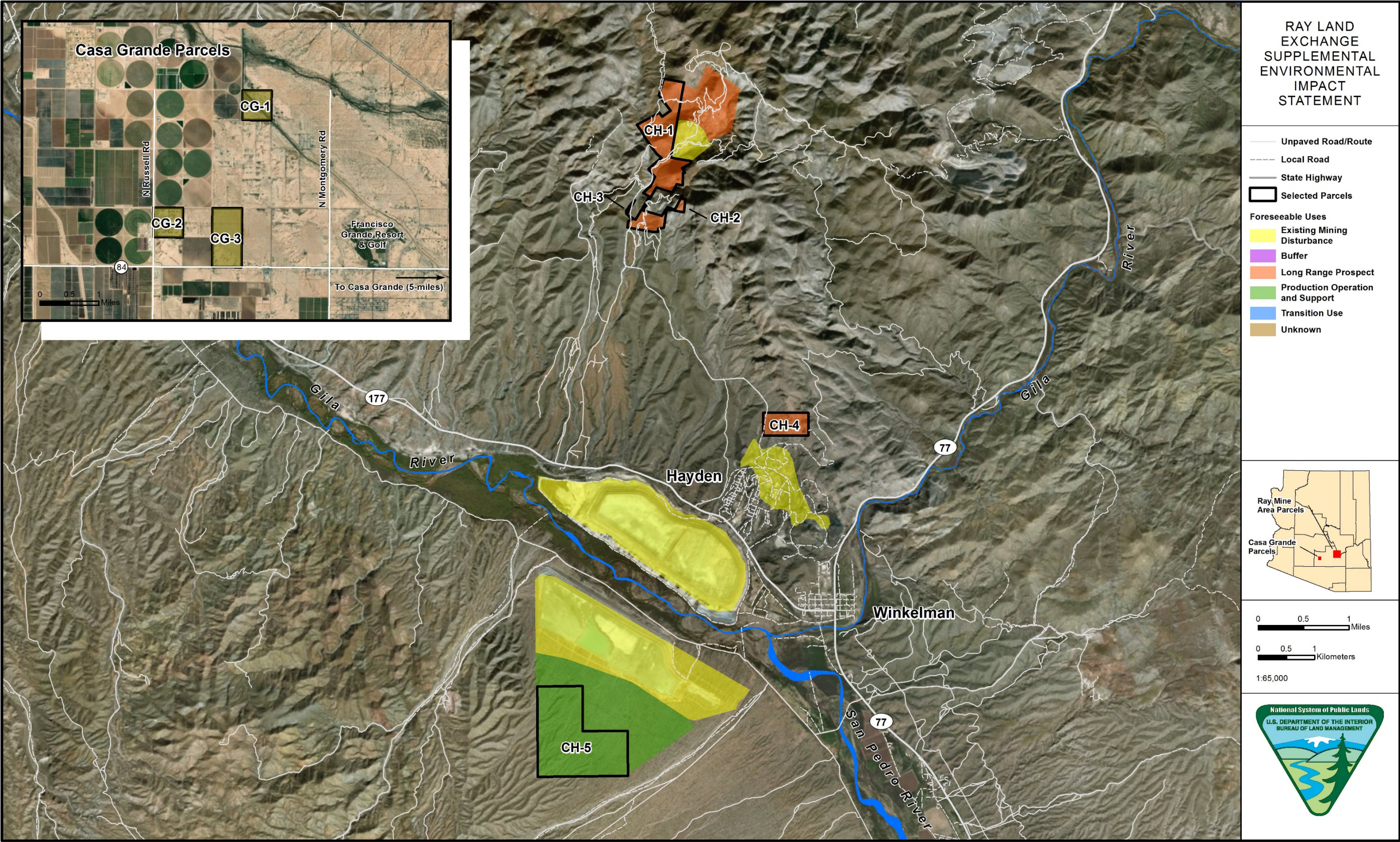


Figure 2.1-12. Foreseeable uses for the Chilito/Hayden and Casa Grande areas.

CHAPTER 3.

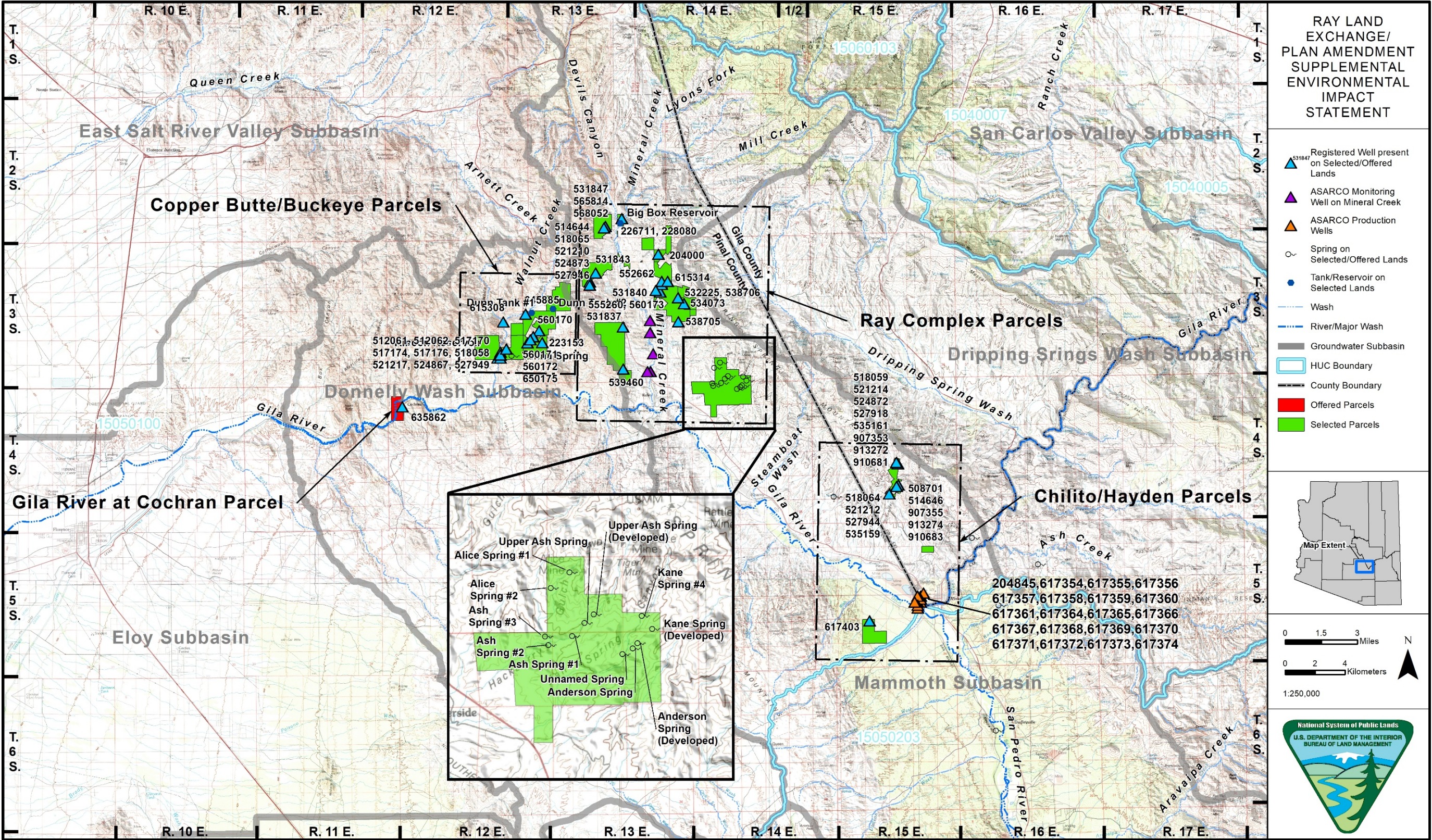


Figure 3.3-1. Surface water and wells in the vicinity of Ray Mine Complex Selected Lands and Gila River at Cochran parcel Offered Lands.

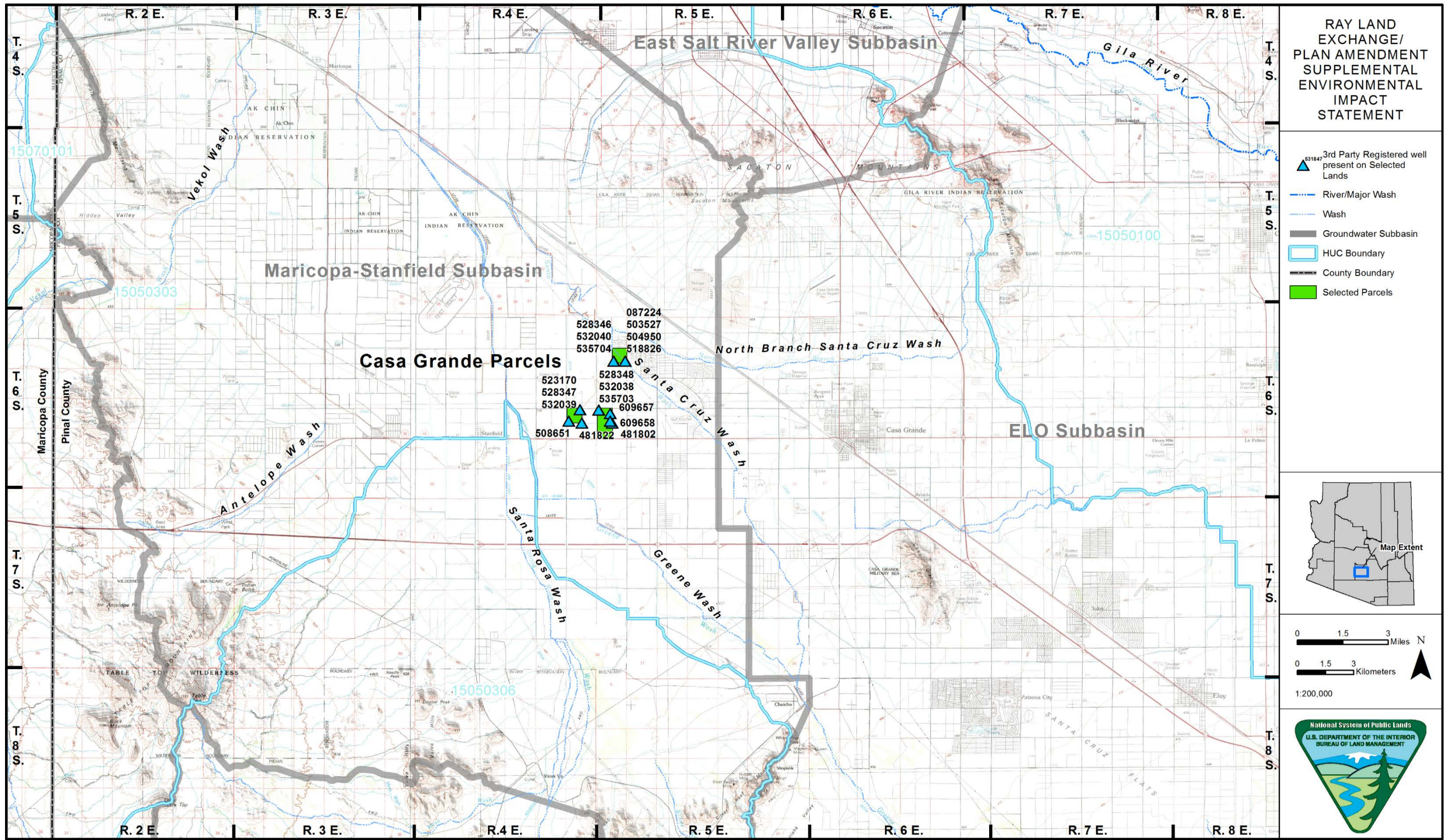
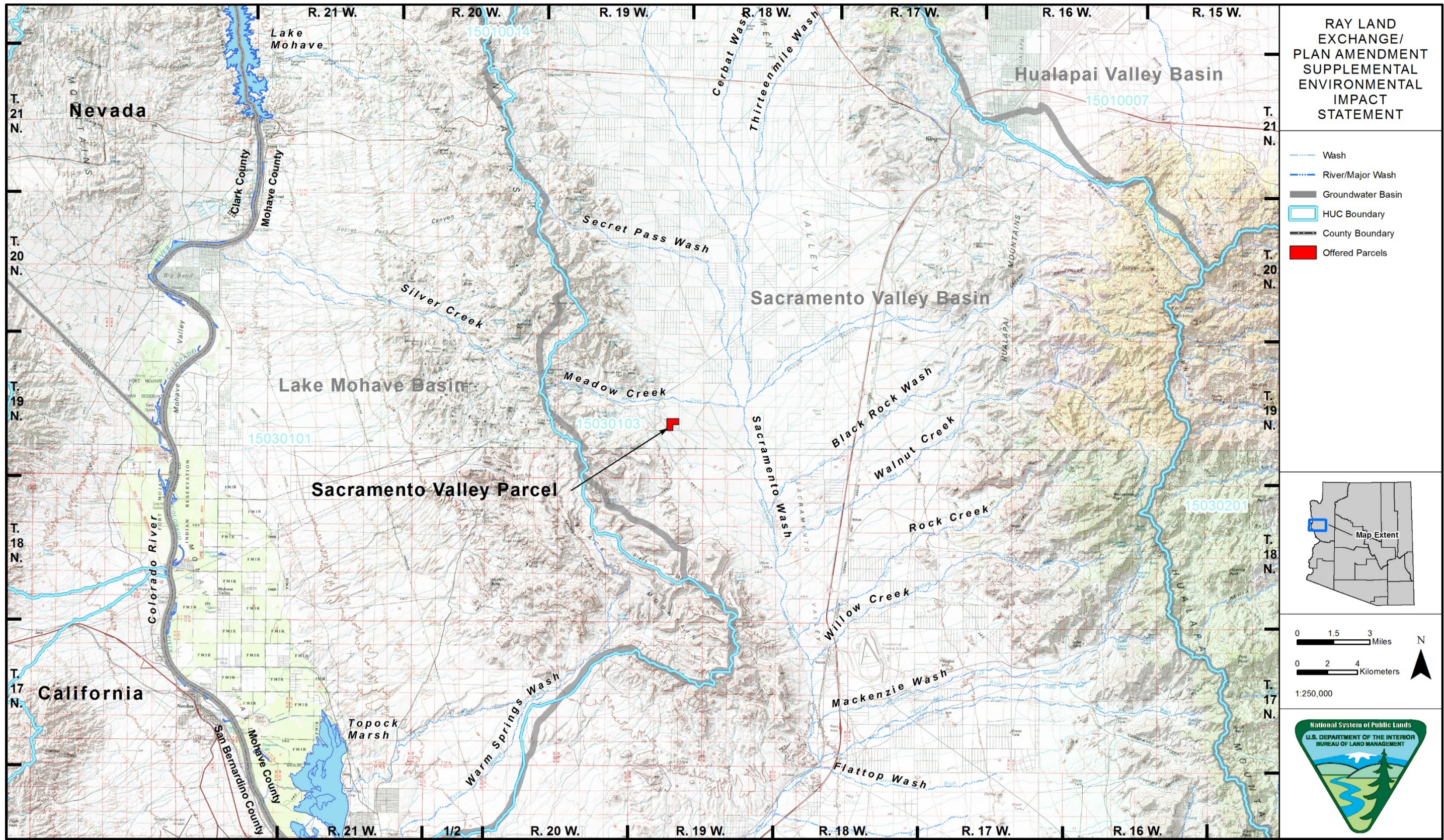


Figure 3.3-2. Surface water and wells in the vicinity of Casa Grande Selected Lands.



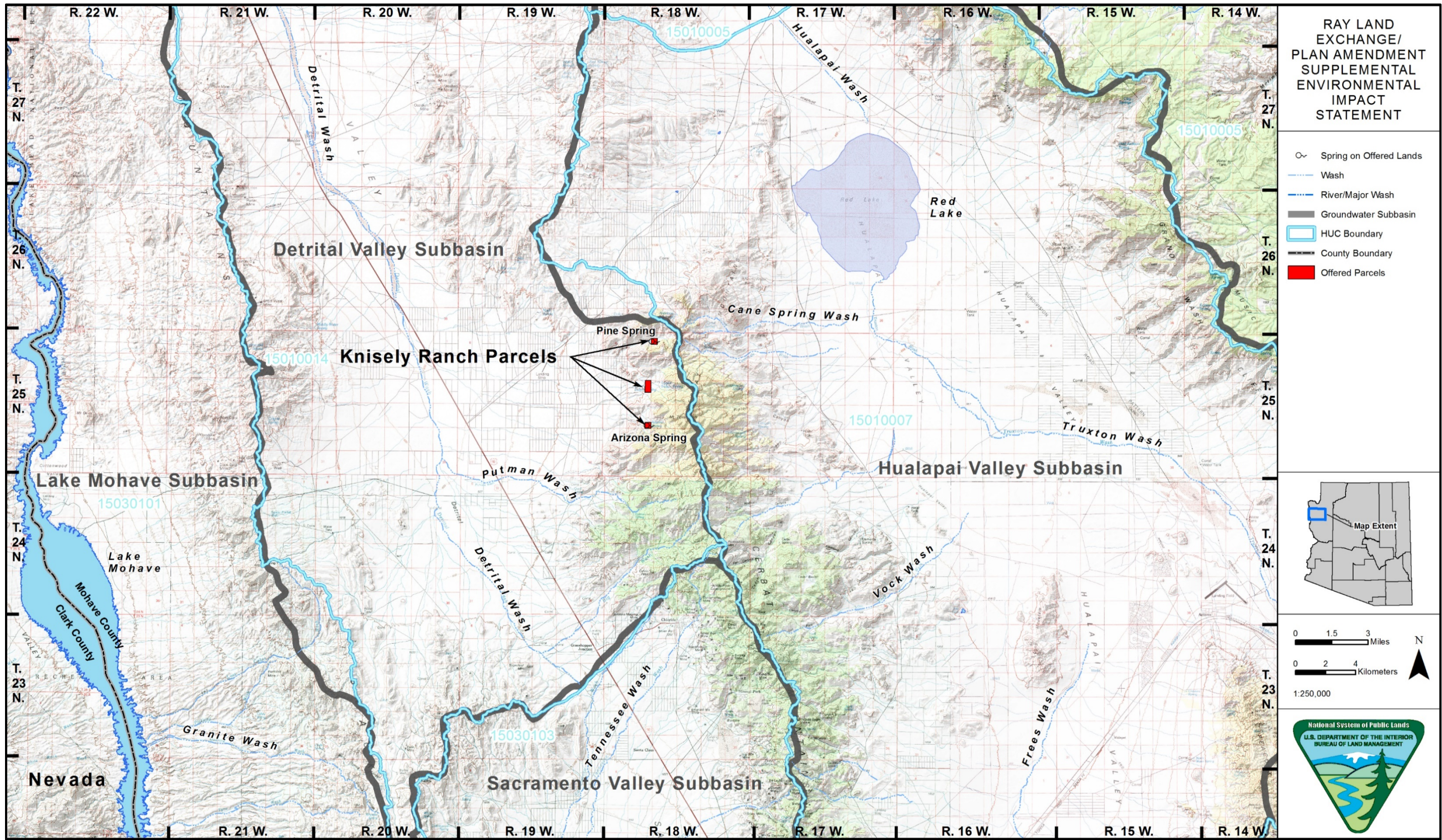


Figure 3.3-4. Surface water and wells in the vicinity of Knisely Ranch Offered Lands.

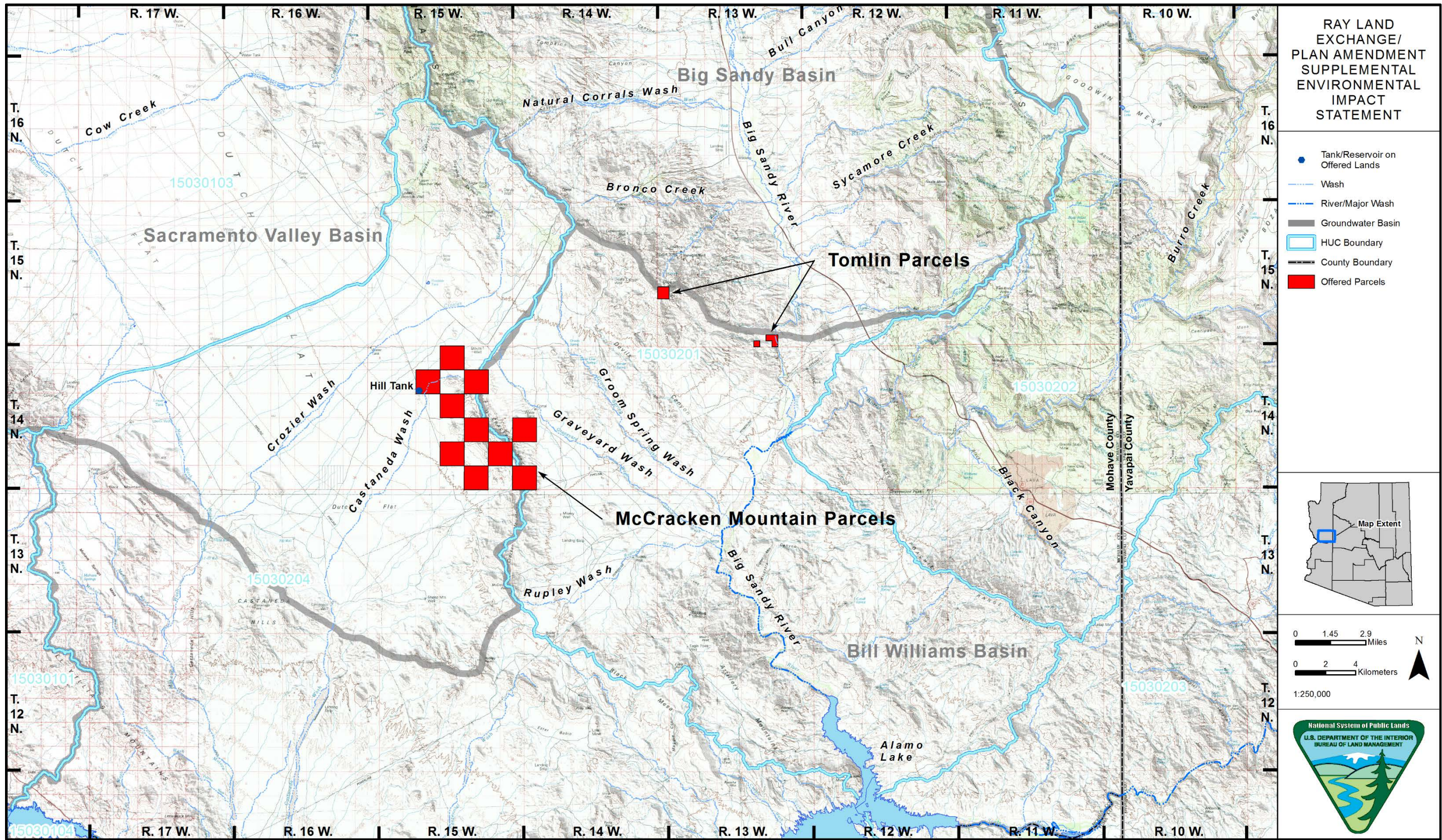


Figure 3.3-5. Surface water and wells in the vicinity of Tomlin and McCracken Mountains Offered Lands.

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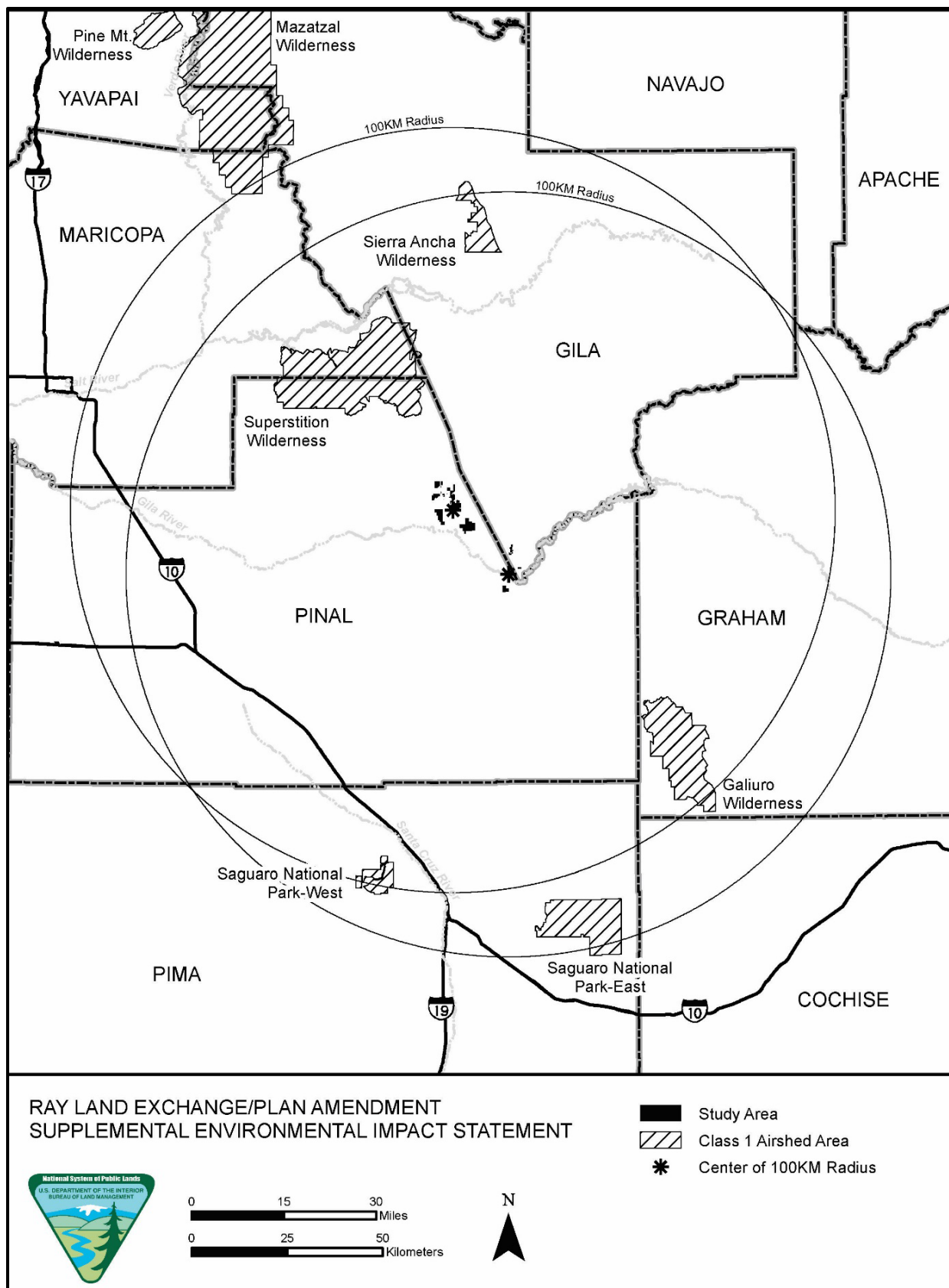


Figure 3.4-1. Location of mandatory Class I airsheds relative to the Selected Lands.

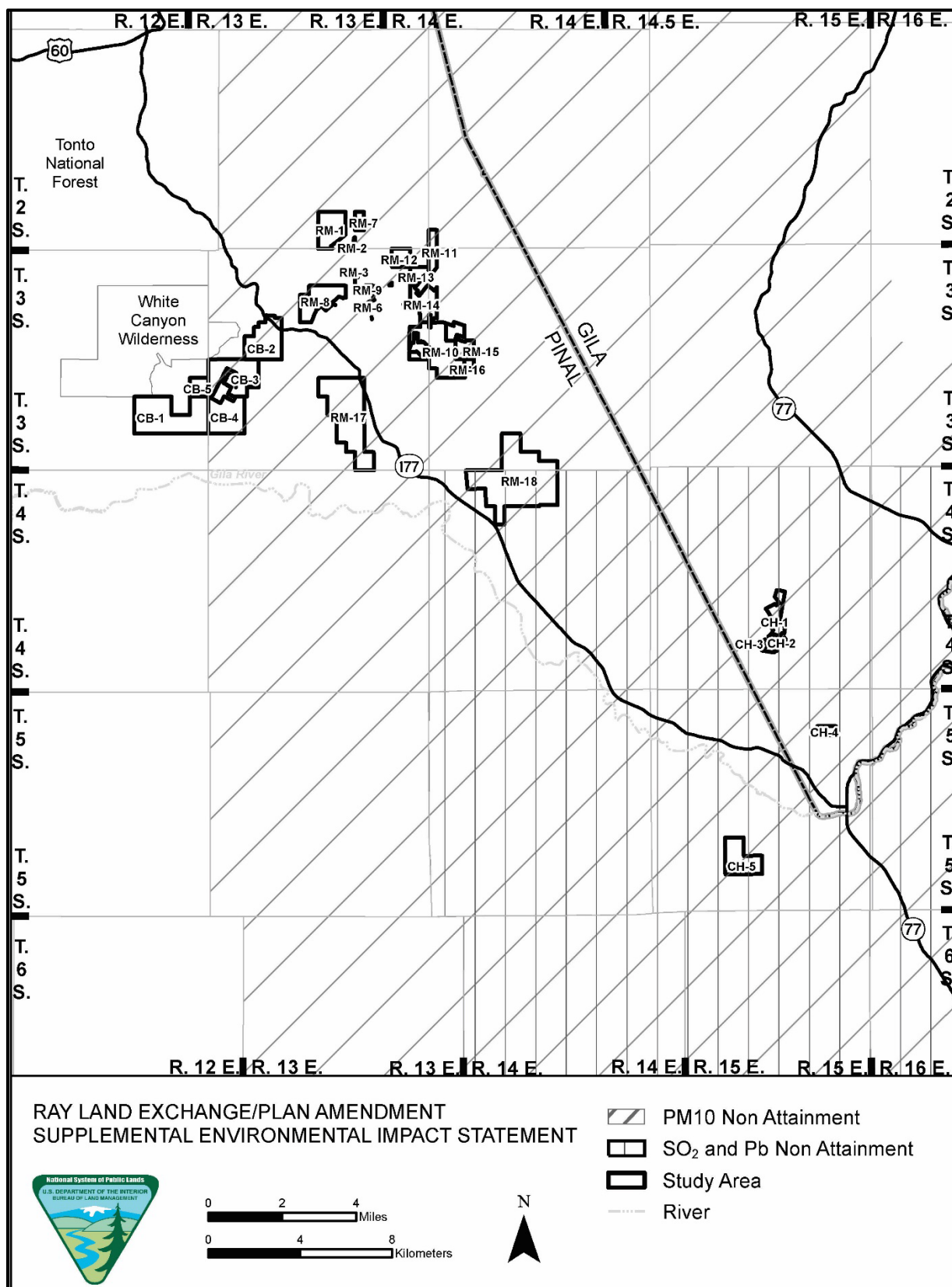


Figure 3.4-2. Air quality attainment status relative to Selected Lands in the Ray Mine Complex area.

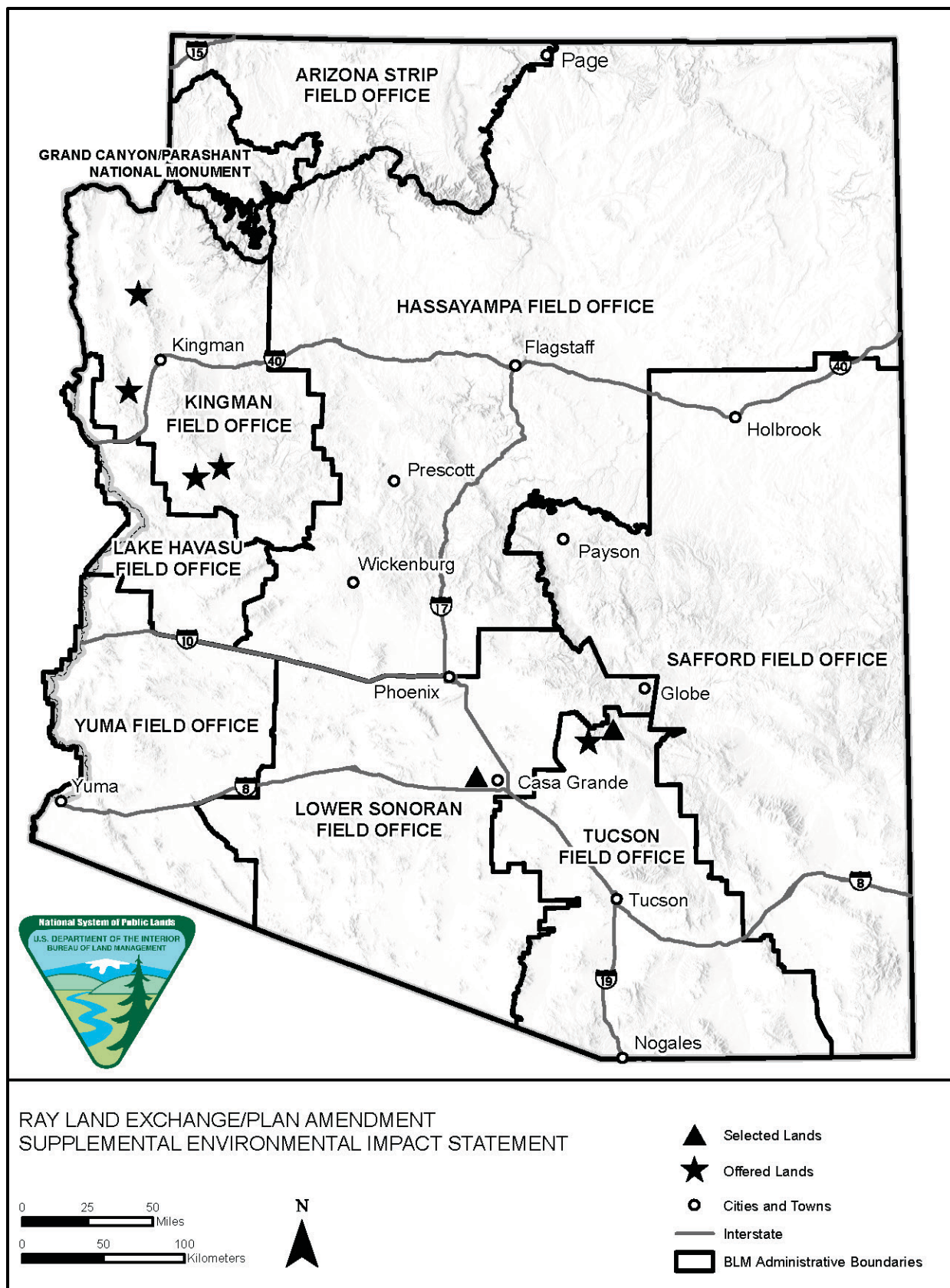


Figure 3.6-1. BLM Administrative Boundaries.



Figure 3.6-2. KOP 1—view from SR 177, facing southeasterly.



Figure 3.6-3. KOP 2—view from North Battle Axe Road, facing west.

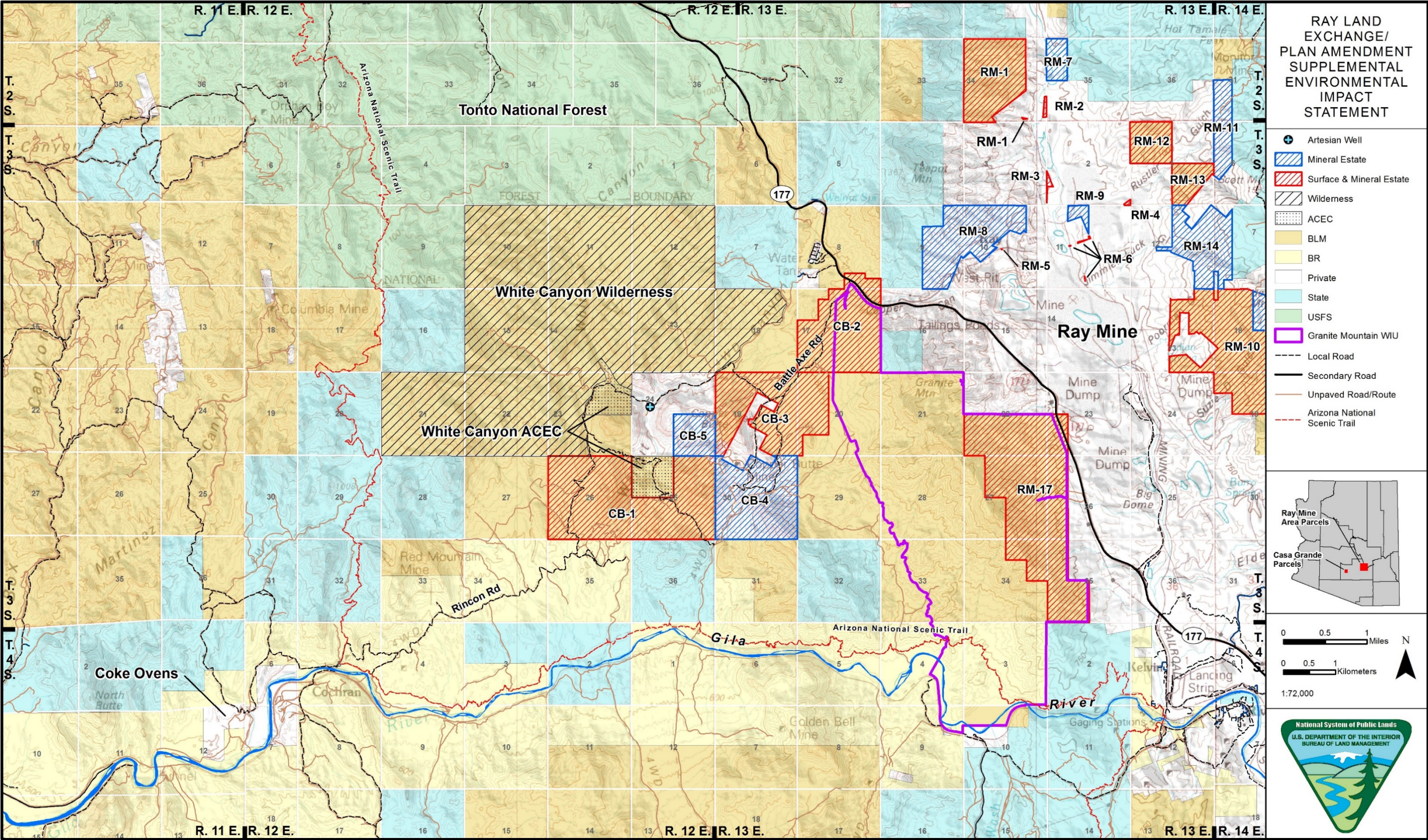


Figure 3.7-1. Recreation in the vicinity of Copper Butte/Buckeye Selected Lands.

CHAPTER 4.

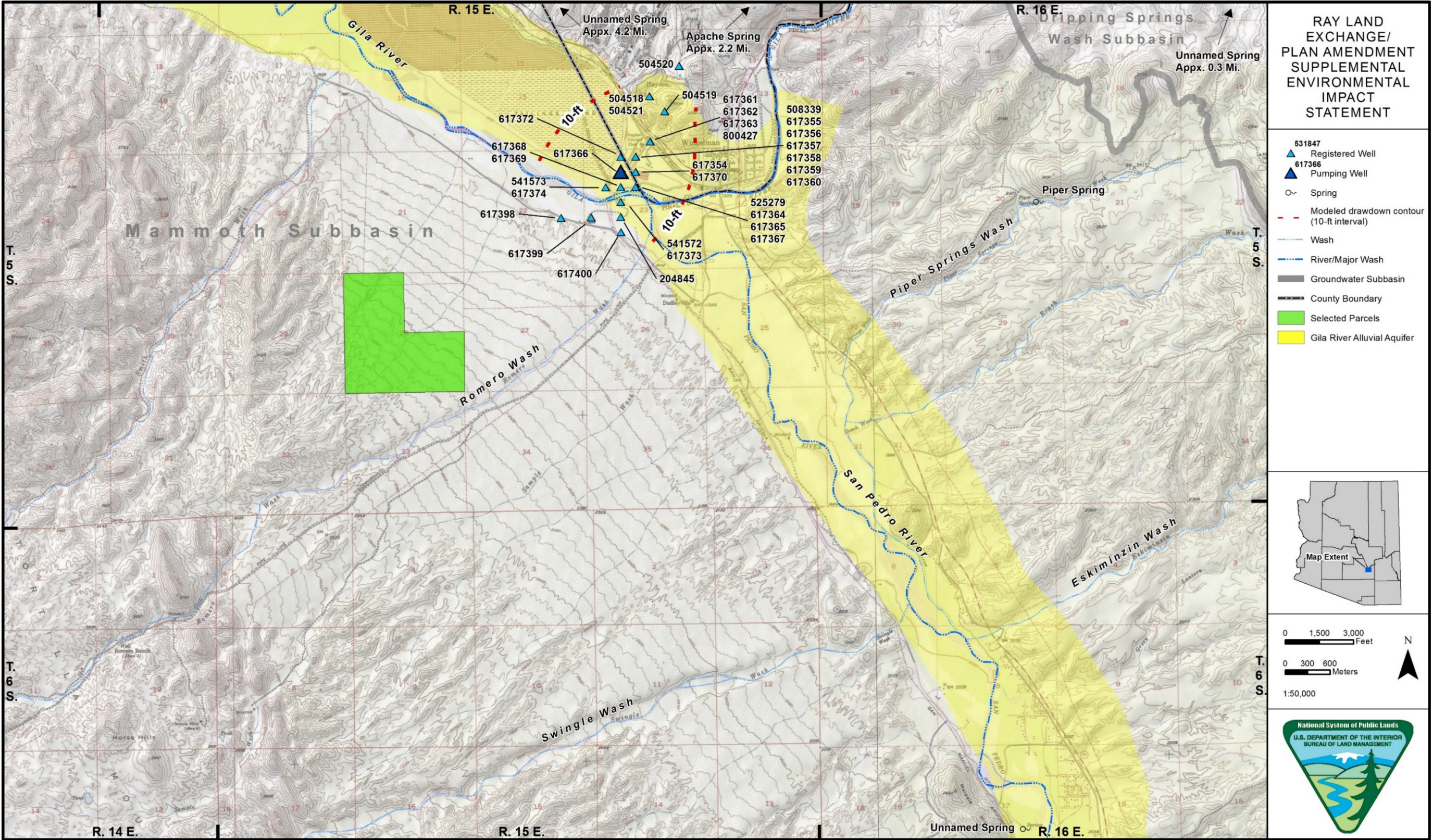


Figure 4.3-1. Order-of-magnitude assessment of drawdown from additional groundwater production.

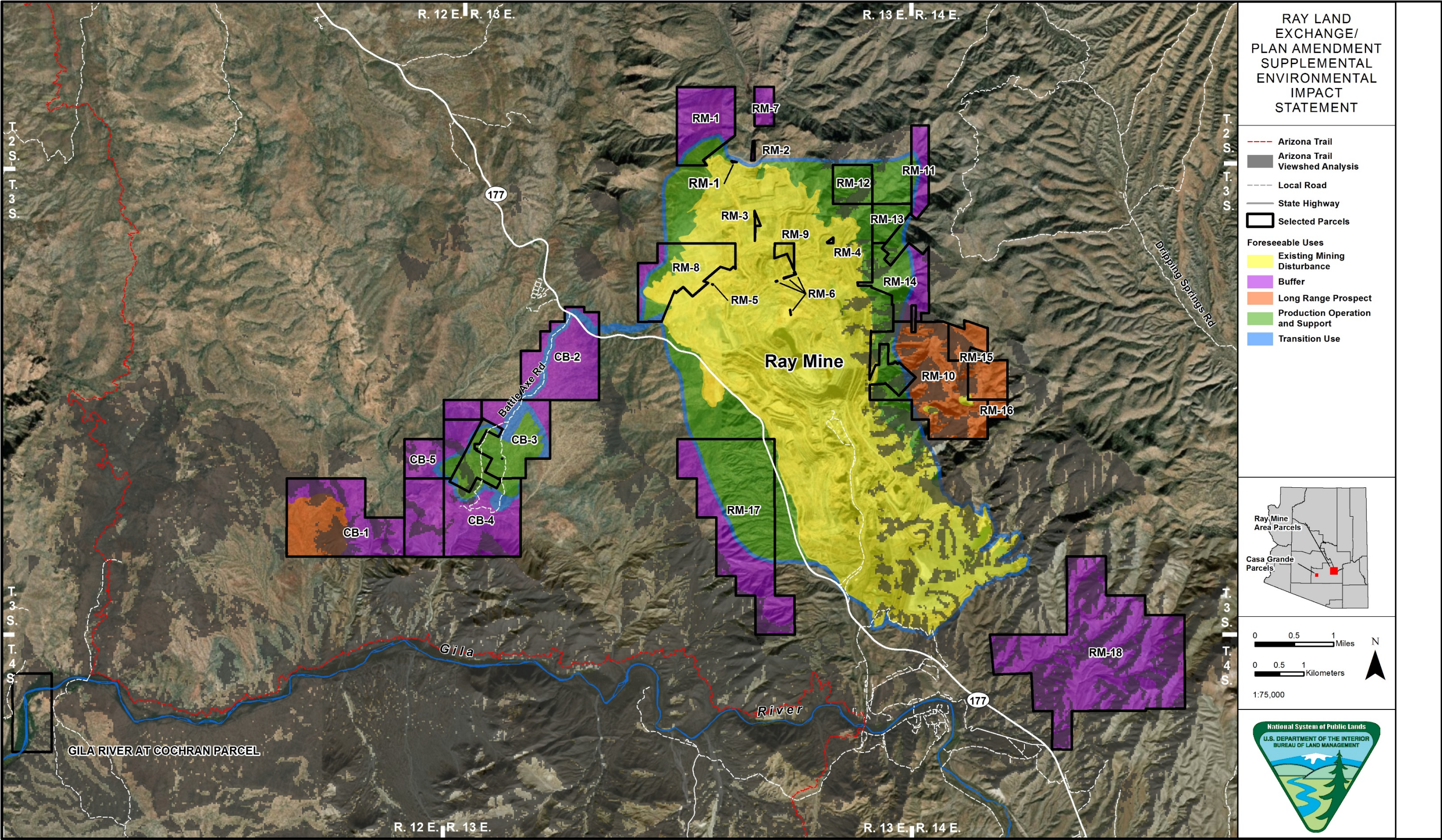


Figure 4.6-1. Arizona Trail viewshed analysis.

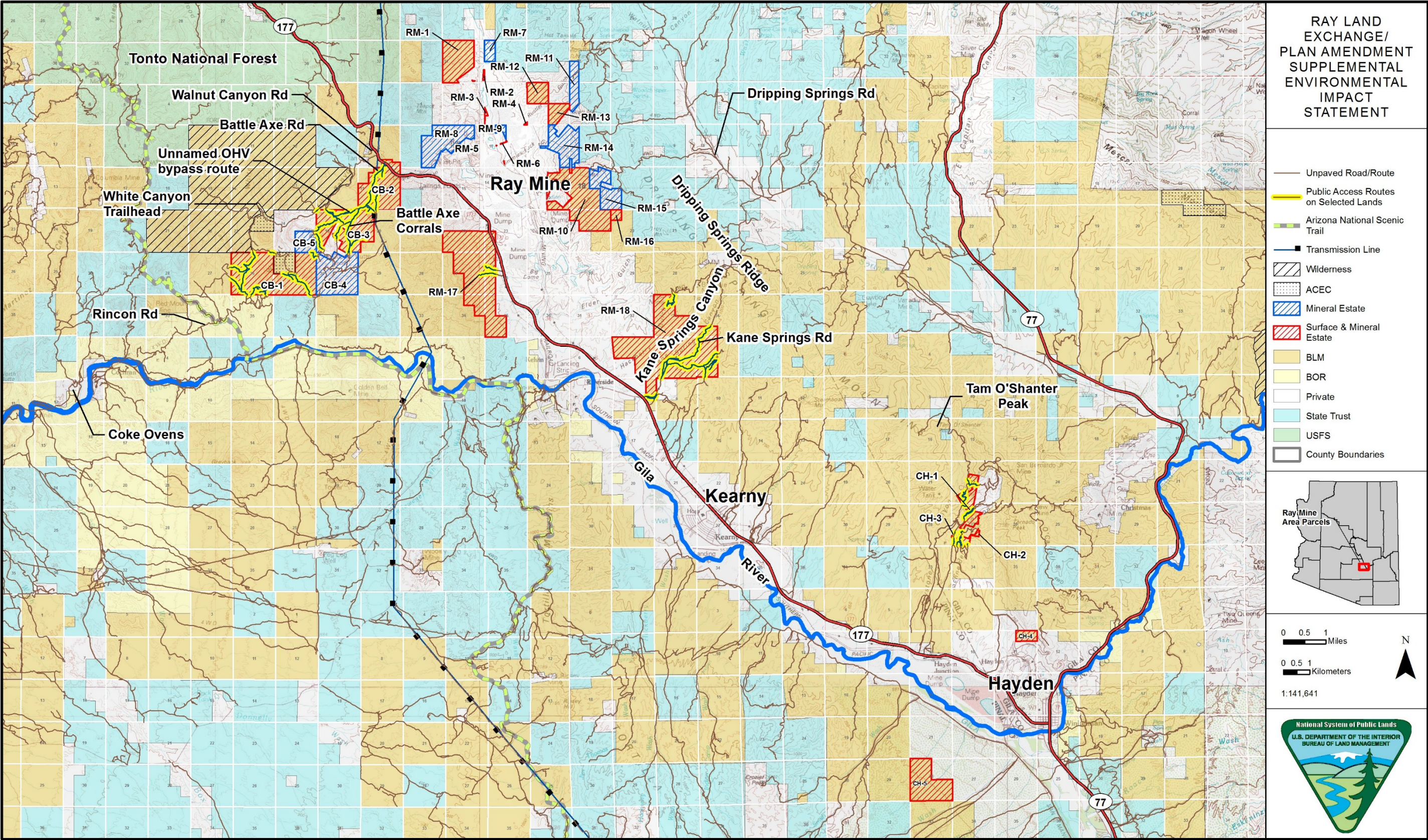


Figure 4.7-1. Public access routes impacts overview.

Appendix G

FINAL SEIS TABLES

CHAPTER 1.

Table 1.8-1. Principal Laws Relating to the Ray Land Exchange/Plan Amendments

Law	Applies to
American Indian Religious Freedom Act of 1978 (42 United States Code [USC] 1996)	Native American religious places and access
Archaeological Resources Protection Act of 1979 (16 USC 470)	Archaeological resources
Clean Air Act of 1970 (42 USC 7401 <i>et seq.</i> , as amended)	Air quality
Clean Water Act of 1972 (33 USC 1251 <i>et seq.</i> , as amended)	Surface water quality
Endangered Species Act of 1973 (16 USC 1531 <i>et seq.</i> , as amended)	Threatened and endangered species
Federal Land Policy and Management Act of 1976 (43 USC 1701), as amended by Federal Land Exchange Facilitation Act of 1988 (43 USC 1716, 1740)	Federal lands, special management areas, federal land exchanges
General Mining Act of 1872 (30 USC 22-42, as amended)	Mining claims
Mining and Mineral Policy Act of 1970 (30 USC 21 <i>et seq.</i>)	Mining
National Environmental Policy Act of 1969 (42 USC 4321 <i>et seq.</i> , as amended)	Federal undertakings
National Historic Preservation Act of 1966 (16 USC 470 <i>et seq.</i>)	Archaeological and historic properties
National Materials and Minerals Policy, Research and Development Act of 1980 (30 USC 1601)	Mineral resources
National Trails System Act of 1968 (16 USC 1241–1251)	National recreational, scenic, and historic trails
Native American Graves Protection and Repatriation Act of 1990 (25 USC 3001 <i>et seq.</i>)	Treatment of human remains and associated cultural items
Resource Conservation and Recovery Act of 1986 (42 USC 6901 <i>et seq.</i> , as amended)	Hazardous or solid waste
Safe Drinking Water Act (42 USC 300f <i>et seq.</i>)	Drinking water quality
Superfund Amendment and Reauthorization Act of 1986 (42 USC 9601 <i>et seq.</i> , as amended)	Identifies and manages Superfund sites
Wild and Scenic Rivers Act (16 USC 1271 <i>et seq.</i>)	Wild and scenic rivers
Wilderness Act (16 USC 1131 <i>et seq.</i>)	Wilderness

Table 1.8-2. 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 that contain 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 that contain significant cultural and paleontological properties

Source: BLM (1989).

Table 1.8-3. Summary of Key Required Permits/Approvals for ASARCO to Operate the Ray Mine Complex on Private Lands

Permit or Approval	Authorizing Agency
Arizona Pollutant Discharge Elimination System (AZPDES) stormwater and point source discharge permits	Arizona Department of Environmental Quality (ADEQ)
Waste and Hazardous Waste Management	ADEQ
Clean Water Act (CWA) Section 404 Permit (including Endangered Species Act and National Historic Preservation Act compliance)	U.S. Army Corps of Engineers/U.S. Fish and Wildlife Service/Arizona State Historic Preservation Office
Aquifer Protection Permit	ADEQ
Spill Prevention and Countermeasure Control	U.S. Environmental Protection Agency (EPA)
CWA State 401 Certification	ADEQ
Clean Air Act (CAA) Air Quality Permits	ADEQ and Pinal County Air Quality Control Division
Mined Land Reclamation Plan	Arizona State Mine Inspector

Table 1.8-4. Permits Issued at the Ray Mine

Type	Name	Issued by	Permit No.
MPO	Ray Mine Plan of Operations	BLM	AZA-025674
Consent Decree	Ray Consent Decree	Department of Justice	CV-98-0137-PHX-ROS (D. Ariz.)
Right-of-Way	Tram Road – Chilito to Hayden	BLM	AZA-001000
Air	Hayden Monitoring Station	BLM	AZA-012451
Air	Title V	Pinal County Air Quality Control Division	V20654
Water	Ray Mine – Aquifer Protection Permit (APP)	ADEQ	P-100525
Water	404 Permit – Elder Gulch Tailings Dam	U.S. Army Corps of Engineers (USACE)	SDL- 1990- 4008400
Water	404 Permit – Ray Mine / Ray Mine Rock Deposition Area (RDA) / Mineral Creek	USACE	904-0084-MB
Water	AZPDES	ADEQ	AZ0000035

Appendix G.
Ray Land Exchange/Plan Amendment Final SEIS – Final SEIS Tables

Type	Name	Issued by	Permit No.
Water	AZPDES – Inactive Copper Butte	EPA Region IX	AZR05A762
Water	AZPDES – Inactive Pioneer Alabama	EPA Region IX	AZR05B144
Mine Land Reclamation	Ray Mine Reclamation Plan	Arizona State Mine Inspector	Plan
HAZMAT	Hazardous Waste	ADEQ	AZD000626606
Waste	Special Waste	ADEQ	300107
Waste	Solid Waste Landfill	ADEQ	Restrictive Covenant

Table 1.8-5. Permits Issued at Hayden Operations

Type	Name	Issued by	Permit No.
Air	Title V – Smelter	ADEQ	1000042 – Expired, pending combined smelter and concentrator permit
Air	Title V – Concentrator	ADEQ	M070399P-99 – Expired, pending combined smelter and concentrator permit
Water	Hayden Operations Aquifer Protection Permit	ADEQ	P-100507
Water	Hayden Operations Wastewater Treatment Plant (WWTP) for Concentrator	ADEQ	P-511223
Water	Potable Water – Smelter Water System	ADEQ	PWS 04-001
Water	Potable Water – Concentrator Water System	ADEQ	PWS 04-012
Water	AZMSG2010-002 – Smelter	ADEQ	AZMSG-10083
Water	AZMSG2010-003 – Concentrator	ADEQ	AZMSG-10083
Water	National Pollutant Discharge Elimination System – Inactive Hayden Limestone Quarry	ADEQ	AZMSG-10083
Water	AZPDES – Chilito/Black Eagle-AZMSG 2010-003	ADEQ	AZMSG-62127
Water	ASARCO82 Dam (04.14)	Arizona Department of Water Resources	License
Water	WWTP – Slag Tunnel	ADEQ	34-123
Water	WWTP – Yard	ADEQ	34-122
Water	WWTP – Shop	ADEQ	31-124
Lab	Hayden Environmental Laboratory License	Arizona Department of Health Services	AZ0086
Waste	Hazardous Waste – Smelter & Concentrator	EPA Region IX	AZD008397127
Waste	Solid Waste Landfill – Smelter	ADEQ	LF-0028
Waste	Solid Waste Landfill – Concentrator	ADEQ	LF-0030
Waste	Disposal General Permit- Smelter & Concentrator (Non-municipal Solid Waste Landfill at Mining Operations)	ADEQ	LTF #64154
Waste	Special Waste: Asbestos – Smelter	ADEQ	300,105
Waste	Special Waste: Asbestos – Concentrator	ADEQ	300, 106
Reclamation	Hayden Mine Reclamation Plan	Arizona State Mine Inspector	Plan

Table 1.8-6. Key Resource Areas that may Lack Analysis without BLM NEPA Review Associated with Approval of an MPO under 43 CFR subpart 3809

Applicable BLM Regulation	Key Resource Area / Issue
3809.411(a)(3)(iii); 3809.420(b)(7)	Threatened and endangered species and U.S. Fish and Wildlife Service consultation
3809.411(a)(3)(iii); 3809.420(b)(8)	Cultural and paleontological resources and Arizona State Historic Preservation Office consultation
3809.411(a)(3)(ii)	Socioeconomics
3809.411(a)(3)(ii)	Visual resources
3809.411(a)(3)(ii)	Recreational resources
3809.411(a)(3)(iii); 3809.420(b)(7)	Wildlife resources – upland habitat

CHAPTER 2.

Table 2.1-1. Summary of Selected and Offered Lands Parcels

	No. of Parcels	Full Estate Acreage	Split-estate Acreage	Location	Applicable BLM RMP
Selected Lands	31	8,196 acres (parcels range from <1 acre to >2,001 acres)	Mineral Estate Only: 2,780 acres (parcels range from 30 acres to 595 acres)	28 parcels in Pinal County; 3 parcels in Gila County	Lower Sonoran RMP, Phoenix RMP, Safford RMP
Offered Lands	18 (2 parcels and 3 parcel groups)	6,384 acres (McCracken Mountains parcels)	Surface Estate Only: 920 acres (320 acres of Gila River parcel at Cochran; 160 acres of Knisely Ranch parcels; 120 acres of Sacramento Valley; 320 acres of Tomlin parcels, of which 160 acres includes a 50% right in mineral estate)	2 parcels in Pinal County, 3 parcel groups in Mohave County	Mohave County Parcels: Kingman RMP Pinal County Parcel: Phoenix RMP

Table 2.1-2. Offered Lands Parcels for Acquisition by the BLM

Parcels	Description
Knisely Ranch Parcel Group	Knisely Ranch Parcel Group consists of inholdings within the Mount Tipton Wilderness. The Wilderness is currently 30,760 acres.
Gila River Parcel at Cochran	Gila River parcel at Cochran would become a part of several special management areas, including the Gila River Riparian Management Area, the Middle Gila Cultural Resource Management Area, and the White Canyon Resource Conservation Area. In general, this parcel provides high-value wildlife habitat for special status species, including the southwestern willow flycatcher. Management goals for the Gila River Riparian Management Area are to improve the condition of riparian vegetation and aquatic habitat for native fishes, enhance water quality, and limit salinity discharges. This area is also designated critical habitat for the southwestern willow flycatcher under the Endangered Species Act (ESA). Management goals for the Middle Gila Cultural Resource Management Area is to conserve cultural resources and to protect the information potential and public use values of the area. The White Canyons Resource Conservation Area provides outstanding scenic, wildlife, and cultural values. The parcel is encumbered by the existing Copper Basin Railway right-of-way (PHX 08661; 100 feet), which covers approximately 24.5 acres of the parcel.
Tomlin Parcels Nos. 3, 4, and 5	All parcels contain Category II Desert Tortoise Habitat, and two of the three parcels contain designated critical habitat for the southwestern willow flycatcher under the ESA.

Parcels	Description
Sacramento Valley Parcel	Sacramento Valley parcel is an inholding within the Black Mountains Herd Management Area that has high-value Category I Desert Tortoise Habitat.
McCracken Mountains Parcel Group	McCracken Mountains Parcel Group consists of inholdings within the McCracken Desert Tortoise Habitat Area of Critical Environmental Concern (ACEC) (Category I).

Table 2.1-3. Potential Disposition of the Offered Lands by ASARCO Under the No Action Alternative

Private Parcel	Retain Parcel for Mitigation	Sale for Development Purposes
Gila River Parcel at Cochran	Likely	Unlikely
Sacramento Valley Parcel*	Possible	Likely
Knisely Ranch Parcels	Possible	Possible
Tomlin Parcels	Unlikely	Likely
McCracken Mountains Parcels	Unlikely	Likely

Source: ASARCO, personal communication with Robin Barnes, 2019.

* This parcel would likely be marketed either as a single large parcel with possible future exchange possibilities or as smaller parcels.

Table 2.1-4. Selected Lands Parcels Requiring Plan Amendments

Parcel	Name	Size (acres)	Estate Status	Land Status	Other Owner	County	Applicable RMP
Ray Mine							
RM-1	Ray Area 1	423.03	full	BLM Surface and Mineral	N/A	Pinal	Phoenix RMP
RM-2	Red Bluff	5.23	full	BLM Surface and Mineral	N/A	Pinal	Phoenix RMP
RM-3	Red Hills Fraction	5.15	full	BLM Surface and Mineral	N/A	Pinal	Phoenix RMP
RM-4	Copper Zone 8/Combination	2.06	full	BLM Surface and Mineral	N/A	Pinal	Phoenix RMP
RM-5	Section 10 Fragment	0.02	full	BLM Surface and Mineral	N/A	Pinal	Phoenix RMP
RM-6.1–6.3	Copper Era 1 – Tracts A, B, C	0.96	full	BLM Surface and Mineral	N/A	Pinal	Phoenix RMP
RM-6.4	Wedge Lode	0.02	full	BLM Surface and Mineral	N/A	Pinal	Phoenix RMP
RM-7	Section 35 Fragment	80	split	BLM Mineral	Surface: State of Arizona	Pinal	Phoenix RMP
RM-8	Section 9/10 Mineral	482.48	split	BLM Mineral	Surface: State of Arizona	Pinal	Phoenix RMP
RM-9	Section 11 Fragment	29.97	split	BLM Mineral	Surface: State of Arizona	Pinal	Phoenix RMP
RM-10	Limestone Quarry	859.4	full	BLM Surface and Mineral	N/A	Pinal	Phoenix RMP
RM-11	Rustlers Gulch	95.9	split	BLM Mineral	Surface: State of Arizona	Pinal	Safford RMP (north); Phoenix RMP (south)
RM-12	Rustlers Gulch	159.34	full	BLM Surface and Mineral	N/A	Pinal	Phoenix RMP

Appendix G.
Ray Land Exchange/Plan Amendment Final SEIS – Final SEIS Tables

Parcel	Name	Size (acres)	Estate Status	Land Status	Other Owner	County	Applicable RMP
RM-13	Rustlers Gulch	118.9	full	BLM Surface and Mineral	N/A	Pinal	Phoenix RMP
RM-14	East Side	350.37	split	BLM Mineral	Surface: State of Arizona	Pinal	Phoenix RMP
RM-15	Limestone Quarry	286.08	split	BLM Mineral	Surface: State of Arizona	Pinal	Phoenix RMP
RM-16	Limestone Quarry	40	full	BLM Surface and Mineral	N/A	Pinal	Phoenix RMP
RM-17	Tortilla Foothills	1,320	full	BLM Surface and Mineral	N/A	Pinal	Phoenix RMP
RM-18	Hackberry Gulch	560	full	BLM Surface and Mineral	N/A	Pinal	Phoenix RMP
Copper Butte							
CB-1	Copper Butte 1	1,120	full	BLM Surface and Mineral	N/A	Pinal	Phoenix RMP
CB-2	Copper Butte 2	615	full	BLM Surface and Mineral	N/A	Pinal	Phoenix RMP
CB-3	Copper Butte 3	691.97	full	BLM Surface and Mineral	N/A	Pinal	Phoenix RMP
CB-4	Copper Butte 4	595.46	split	BLM Mineral	Surface: ASARCO Inc	Pinal	Phoenix RMP
CB-5	Copper Butte 5	160	split	BLM Mineral	Surface: State of Arizona	Pinal	Phoenix RMP
Chilito/Hayden							
CH-1	Chilito 1	262.72	full	BLM Surface and Mineral	N/A	Gila	Safford RMP
CH-2	Chilito 2	7.55	full	BLM Surface and Mineral	N/A	Gila	Safford RMP
CH-3	Chilito 3	1.91	full	BLM Surface and Mineral	N/A	Gila	Safford RMP
CH-4	Administration	80	full	BLM Surface and Mineral	N/A	Gila	Safford RMP
CH-5	Hayden D	480	full	BLM Surface and Mineral	N/A	Pinal	Phoenix RMP
Casa Grande							
CG-1	Casa Grande 1	156.87	split	BLM Mineral	Surface: Legends Property, LLC	Pinal	Lower Sonoran RMP
CG-2	Casa Grande 2	160	split	BLM Mineral	Surface: Legends Property, LLC	Pinal	Lower Sonoran RMP
CG-3	Casa Grande 3	320	split	BLM Mineral	Surface: Legends Property, LLC	Pinal	Lower Sonoran RMP

Table 2.1-5. Summary of Existing Mining and Foreseeable Uses of Selected Lands

Parcel	Name	EXIST (acres)	POS (acres)	TRANS (acres)	BUFFER (acres)	LRP (acres)	Unknown (acres)	SURF & MIN (acres)	MIN Only (acres)
RM-1	Ray Area 1	<1	73	26	324			423	
RM-2	Red Bluff	2*			3*			5	

Appendix G.
Ray Land Exchange/Plan Amendment Final SEIS – Final SEIS Tables

Parcel	Name	EXIST (acres)	POS (acres)	TRANS (acres)	BUFFER (acres)	LRP (acres)	Unknown (acres)	SURF & MIN (acres)	MIN Only (acres)
RM-3	Red Hills Fraction	5						5	
RM-4	Copper Zone 8/Combination	2						2	
RM-5	Section 10 Fragment	<1						<1	
RM-6.1–6.3	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	295*	90*	47*	50*				482*
RM-9	Section 11 Fragment	30							30
RM-10	Limestone Quarry	61*	116	31		652*		860*	
RM-11	Rustlers Gulch		16	21	122				159
RM-12	Rustlers Gulch		159*					159*	
RM-13	Rustlers Gulch		119*					119*	
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			1,320	
RM-18	Hackberry Gulch				2,001*			2,001	
Ray Mine subtotal		398	1,388	216	3,344	976		4,935	1,387
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 subtotal			345	306	2,168	363		2,427	755
CH-1	Chilito 1					263*		263*	
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 subtotal			480			353		833	
CG-1	Casa Grande 1						157*		157
CG-2	Casa Grande 2						160*		160
CG-3	Casa Grande 3						320*		320
Casa Grande subtotal							637		637
Total		398	2,213	522	5,512	1,692	637	8,195	2,779

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

* These numbers were updated in the SEIS to reflect changes in the use category or acreage calculations.

Table 2.1-6. Mining Operations 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, Copper Butte waste rock deposition areas, stormwater	RM-1, RM-8, RM-10, RM-11, RM-12, RM-13, RM-14, RM-17 CB-3, CB-4, CB-5, CH-5
Transition Rights-of-way, haul/access routes, pipeline, Copper Butte catchment pond, traveling areas around overburden and leach rock deposition areas	RM-1, RM-8, RM-10, RM-11, RM-14, RM-17 CB-2, CB-3, CB-4, CB-5
Buffer Consolidate holdings, buffer zone, existing road	RM-7, RM-8, RM-11, RM-14, RM-17, RM-18 CB-1, CB-2, CB-3, CB-4, CB-5
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-2, CH-3, CH-4
Unknown Third-party ownership—foreseeable uses unknown	CG-1, CG-2, CG-3

Source: ASARCO (2013).

CHAPTER 3.

Table 3.2-1. Special Status Species with Documented Occurrences within 5 Miles of the Selected Lands

Common Name	Scientific Name	ESA Status [†]	BLM Status [†]	State Status [†]	Parcel(s) [‡]
Plants					
Pima Indian mallow	<i>Abutilon parishii</i>		S	SR	CH
Arizona hedgehog cactus	<i>Echinocereus triglochidiatus</i> var. <i>arizonicus</i>	LE		HS	RM
San Carlos wild buckwheat	<i>Eriogonum capillare</i>			SR	RM, CH
Huachuca water umbel	<i>Lilaeopsis</i> <i>schaffneriana</i> spp. <i>recurva</i>	LE		HS	CH
Varied fishhook cactus	<i>Mammillaria viridiflora</i>			SR	RM, CH
Staghorn cholla	<i>Opuntia versicolor</i>			SR	RM, CB
Fishes					
Gila longfin dace	<i>Agosia chrysogaster</i> <i>chrysogaster</i>		S	SGCN	RM, CH, CB
Desert sucker	<i>Catostomus clarkii</i>		S	SGCN	RM, CH, CB
Sonora sucker	<i>Catostomus insignis</i>		S	SGCN	RM, CH, CB
Desert pupfish	<i>Cyprinodon macularius</i>	LE		SGCN	CH
Gila chub	<i>Gila intermedia</i>	LE		SGCN	RM, CH
Spikedace	<i>Meda fulgida</i>	LE		SGCN	CB
Gila topminnow	<i>Poeciliopsis occidentalis</i> <i>occidentalis</i>	LE		SGCN	RM
Amphibians					
Lowland leopard frog	<i>Rana yavapaiensis</i>		S	SGCN	RM, CH, CB
Reptiles					
Tucson shovel-nosed snake	<i>Chionactis occipitalis</i> <i>klauberi</i>		S	SGCN	CG

Appendix G.
Ray Land Exchange/Plan Amendment Final SEIS – Final SEIS Tables

Common Name	Scientific Name	ESA Status [†]	BLM Status [†]	State Status [†]	Parcel(s) [‡]
Sonoran Desert tortoise	<i>Gopherus morafkai</i>	CCA	S	SGCN	CG, RM, CH, CB
Desert mud turtle	<i>Kinosternon sonoriense sonoriense</i>			SGCN	RM
Gila monster	<i>Heloderma suspectum</i>			SGCN	RM, CB
Reticulate Gila monster	<i>Heloderma suspectum suspectum</i>			SGCN	CB
Desert box turtle	<i>Terrapene ornata luteola</i>		S	SGCN	RM, CH
Birds					
Common black-hawk	<i>Buteogallus anthracinus</i>			SGCN	RM, CH
Golden eagle	<i>Aquila chrysaetos</i>	BGA	S	SGCN	RM, CH, CB
Western burrowing owl	<i>Athene cunicularia hypugaea</i>		S	SGCN	CG
Yellow-billed cuckoo (Western United States DPS*)	<i>Coccyzus americanus</i>	LT		SGCN	RM, CH
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	LE		SGCN	RM, CH, CB
Bald eagle (Sonoran Desert population)	<i>Haliaeetus leucocephalus</i> pop. 3	BGA	S	SGCN	CH
Bald eagle (Winter population)	<i>Haliaeetus leucocephalus</i>	BGA	S	SGCN	RM, CH
Mississippi kite	<i>Ictinia mississippiensis</i>			SGCN	RM, CH, CB
Osprey	<i>Pandion haliaetus</i>			SGCN	CH
Tropical kingbird	<i>Tyrannus melancholicus</i>			SGCN	CH
Mammals					
Pale Townsend's big-eared bat	<i>Corynorhinus townsendii pallescens</i>		S	SGCN	RM, CH
Western red bat	<i>Lasiurus blossevillei</i>			SGCN	CH
Lesser long-nosed bat	<i>Leptonycteris curasoae yerbabuenae</i>	LE		SGCN	CG
Antelope jackrabbit	<i>Lepus alleni</i>			SGCN	CG
California leaf-nosed bat	<i>Macrotus californicus</i>		S	SGCN	RM, CH, CB
Cave myotis	<i>Myotis velifer</i>		S	SGCN	RM, CB
Yuma myotis	<i>Myotis yumanensis</i>			SGCN	RM, CB
Pocketed free-tailed bat	<i>Nyctinomops femorosaccus</i>			SGCN	RM, CH, CB

Note: Status data taken from HDMS (AZHGIS 2018).

* DPS = Distinct Population Segment: a portion of a species' or subspecies' population or range.

† BGA = Bald and Golden Eagle Protection Act; CCA = Candidate Conservation Agreement; LE = Listed Endangered; LT = Listed Threatened; SC = Species of Concern; S = BLM Special Status (BLM State Office 2010 list [BLM 2010c]); HS = Highly Safeguarded: no collection allowed; SR = Salvage Restricted: collection only with permit; SGCN = Species of Greatest Conservation Need (Tiers 1A, 1B, and 1C) in Arizona.

‡ CG = Casa Grande Parcels; RM = Ray Mine Parcels; CH = Chilito/Hayden Parcels; CB = Copper Butte/Buckeye Parcels.

Table 3.2-2. Special Status Species with Documented Occurrences within 5 Miles of the Offered Lands

Common Name	Scientific Name	USFWS Status [†]	BLM Status [†]	State Status [†]	Parcel(s) [†]
Plants					
Pima Indian mallow	<i>Abutilon parishii</i>		S	SR	C
Acuña cactus	<i>Echinomastus erectocentrus</i> var. <i>acunensis</i>	LE		HS	C
Kingman's prickly pear	<i>Opuntia superbospina</i>			SR	T
Invertebrates					
Kingman spring snail	<i>Pyrgulopsis conica</i>		S	SGCN	S
Fishes					
Gila longfin dace	<i>Agosia chrysogaster</i> <i>chrysogaster</i>		S	SGCN	C, T
Desert sucker	<i>Catostomus clarkii</i>		S	SGCN	C, T
Sonora sucker	<i>Catostomus insignis</i>		S	SGCN	C
Desert pupfish	<i>Cyprinodon macularius</i>	LE		SGCN	C
Spikedace	<i>Meda fulgida</i>	LE		SGCN	C
Speckled dace	<i>Rhinichthys osculus</i>		S	SGCN	T
Amphibians					
Lowland leopard frog	<i>Rana yavapaiensis</i>		S	SGCN	C, T, M
Arizona toad	<i>Anaxyrus microscaphus</i>		S	SGCN	T
Reptiles					
Sonoran Desert tortoise	<i>Gopherus morafkai</i>	CCA	S	SGCN	C, T, M, S, K
Banded Gila monster	<i>Heloderma suspectum</i> <i>cinctum</i>			SGCN	T, S
Reticulate Gila monster	<i>Heloderma suspectum</i> <i>suspectum</i>			SGCN	C
Desert mud turtle	<i>Kinosternon sonoriense</i> <i>sonoriense</i>		S	SGCN	T
Northern Mexican gartersnake	<i>Thamnophis eques</i> <i>megalops</i>	LT	S	SGCN	T
Birds					
Golden eagle	<i>Aquila chrysaetos</i>	BGA	S	SGCN	C, T, M, S, K
Western burrowing owl	<i>Athene cunicularia hypugaea</i>		S		K
Yellow-billed cuckoo (Western United States DPS*)	<i>Coccyzus americanus</i>	LT		WSC	C, T
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	LE		SGCN	C, T
American peregrine falcon	<i>Falco peregrinus anatum</i>		S	WSC	K
Bald eagle (Sonoran Desert population)	<i>Haliaeetus leucocephalus</i> pop. 3	BGA	S	WSC	T
Yuma Ridgeway's rail	<i>Rallus obsoletus yumanensis</i>	LE	S	SGCN	T
Mammals					
Pale Townsend's big-eared bat	<i>Corynorhinus townsendii</i> <i>pallascens</i>		S	SGCN	T
Spotted bat	<i>Euderma maculatum</i>		S	SGCN	T
Greater western bonneted bat	<i>Eumops perotis californicus</i>		S	SGCN	T
California leaf-nosed bat	<i>Macrotus californicus</i>		S	SGCN	T, M

Appendix G.
Ray Land Exchange/Plan Amendment Final SEIS – Final SEIS Tables

Common Name	Scientific Name	USFWS Status [†]	BLM Status [†]	State Status [†]	Parcel(s) [‡]
Plants					
Pima Indian mallow	<i>Abutilon parishii</i>		S	SR	C
Acuña cactus	<i>Echinomastus erectocentrus</i> var. <i>acunensis</i>	LE		HS	C
Kingman's prickly pear	<i>Opuntia superbospina</i>			SR	T
Invertebrates					
Kingman spring snail	<i>Pyrgulopsis conica</i>		S	SGCN	S
Fishes					
Gila longfin dace	<i>Agosia chrysogaster</i> <i>chrysogaster</i>		S	SGCN	C, T
Desert sucker	<i>Catostomus clarkii</i>		S	SGCN	C, T
Sonora sucker	<i>Catostomus insignis</i>		S	SGCN	C
Desert pupfish	<i>Cyprinodon macularius</i>	LE		SGCN	C
Spikedace	<i>Meda fulgida</i>	LE		SGCN	C
Speckled dace	<i>Rhinichthys osculus</i>		S	SGCN	T
Cave myotis	<i>Myotis velifer</i>		S	SGCN	T
Pocketed free-tailed bat	<i>Nyctinomops femorosaccus</i>			SGCN	T, M
Brazilian free-tailed bat	<i>Tadarida brasiliensis</i>			SGCN	T

Note: Status data taken from HDMS (AZHGIS 2018).

* DPS = Distinct Population Segment: a portion of a species' or subspecies' population or range.

† BGA = Bald and Golden Eagle Protection Act; CCA = Candidate Conservation Agreement; LE = Listed Endangered; LT = Listed Threatened; SC = Species of Concern; S = BLM Special Status (BLM State Office 2010 list [BLM 2010c]); HS = Highly Safeguarded: no collection allowed; SR = Salvage Restricted: collection only with permit; SGCN = Wildlife of Special Concern in Arizona. Species of Greatest Conservation Need (Tiers 1A, 1B, and 1C) in Arizona; WSC = Wildlife of Special Concern.

‡ C = Gila River at Cochran Parcel; K = Knisely Ranch Parcels; T = Tomlin Parcels; M = McCracken Mountains Parcels; S = Sacramento Valley Parcel.

Table 3.3-1. Wells Located in Ray Mine and Chilito/Hayden Parcels

Parcel	Township/ Range/Section	Registry No.	Owner	Well Depth (feet bgs)	Water Level (feet bgs)	Pump Rate (gpm)	Well Type
RM-3	3S/13E/1	204000	ASARCO Inc.–Ray Complex	–	–	–	Exempt
RM-17	3S/13E/23	531837	ASARCO Inc.	300	23	–	Monitor
RM-10	3S/13E/13	531840	ASARCO Inc.	300	132	–	Monitor
RM-1	2S/13E/34	531847	ASARCO Inc.	300	200	–	Monitor
RM-14	3S/13E/12	552662	ASARCO–Ray Complex	–	–	–	Exempt
RM-14	3S/14E/7	615314	ASARCO Inc.	–	–	–	Exempt
CH-5	5S/15E/28	617403	ASARCO Inc.	500	360	–	Exempt

Source: ADWR (2012a) (exploration/geotechnical wells are not included).

Notes: bgs = below ground surface; gpm = gallons per minute; – = data not available.

Table 3.3-2. ASARCO Non-exempt Production Wells Located at the Hayden Well Field

Township/ Range/Section	Registry No.	Owner	Well Depth (feet bgs)	Water Level (feet bgs)	Pump Rate (gpm)	Well Type
5S/15E/23	204845	ASARCO Inc.–Ray Complex	N/A	N/A	N/A	Non-Exempt
5S/15E/23	617354	ASARCO Inc.	96	26	900	Non-Exempt

Township/ Range/Section	Registry No.	Owner	Well Depth (feet bgs)	Water Level (feet bgs)	Pump Rate (gpm)	Well Type
5S/15E/23	617355	ASARCO Inc.	101	26	900	Non-Exempt
5S/15E/23	617356	ASARCO Inc.	100	26	900	Non-Exempt
5S/15E/23	617357	ASARCO Inc.	100	27	900	Non-Exempt
5S/15E/23	617358	ASARCO Inc.	100	27	900	Non-Exempt
5S/15E/23	617359	ASARCO Inc.	100	38	900	Non-Exempt
5S/15E/23	617360	ASARCO Inc.	100	40	900	Non-Exempt
5S/15E/14	617361	ASARCO Inc.	105	39	900	Non-Exempt
5S/15E/23	617364	ASARCO Inc.	100	38	1,500	Non-Exempt
5S/15E/23	617365	ASARCO Inc.	100	39	1,500	Non-Exempt
5S/15E/23	617367	ASARCO Inc.	100	29	1,500	Non-Exempt
5S/15E/23	617368	ASARCO Inc.	100	36	1,500	Non-Exempt
5S/15E/23	617369	ASARCO Inc.	100	36	1,500	Non-Exempt
5S/15E/23	617370	ASARCO Inc.	100	44	1,500	Non-Exempt
5S/15E/23	617371	ASARCO Inc.	97	39	1,500	Non-Exempt
5S/15E/23	617372	ASARCO Inc.	96	37	1,500	Non-Exempt
5S/15E/23	617374	ASARCO Inc.	80	21	1,500	Non-Exempt
5S/15E/23	617373	ASARCO Inc.	90	22	1,500	Non-Exempt
5S/15E/23	617366	ASARCO Inc.	110	41	1,500	Non-Exempt

Source: ADWR (2012a).

Notes: bgs = below ground surface; gpm = gallons per minute; N/A = data not available.

Table 3.3-3. Well Located in Copper Butte/Buckeye Parcels

Parcel	Township/ Range/Section	Registry No.	Owner	Well Depth (feet bgs)	Water Level (feet bgs)	Pump Rate (gpm)	Well Type
CB-3	3S/13E/19	645885	Aldridge, Jesse	–	–	–	Exempt

Source: ADWR (2012a) (exploration/geotechnical wells are not included).

Notes: bgs = below ground surface; gpm = gallons per minute; – = data not available.

Table 3.3-4. Wells Located in Casa Grande Parcels

Parcel	Township/ Range/Section	Registry No.	Owner	Well Depth (feet bgs)	Water Level (feet bgs)	Pump Rate (gpm)	Well Type
CG-3	6S/4E/24	609657	Legends Property, LLC	608	450	300	Non-exempt
CG-3	6S/4E/24	609658	Legends Property, LLC	1,000	500	1,000	Non-exempt

Source: ADWR (2012a) (exploration/geotechnical wells are not included).

Notes: bgs = below ground surface; gpm = gallons per minute.

Table 3.3-5. Wells with Exceedances in Aquifer Water Quality Standards, February 2009 to March 2011

Constituent	Measured Level (mg/L)	534853	543974	534858	534857
Beryllium	Low	ND	ND	ND	ND
	High	0.001	<0.002	0.018	0.005
Cadmium	Low	ND	ND	0.054	0.004
	High	0.006*	<0.002	0.095	0.01
Fluoride	Low	0.84	3.5	6.66	1.9
	High	1.68	5.88	11.1	3.88
Nickel	Low	ND	0.0064	0.535	0.097
	High	0.1	<0.001	1	0.255

Source: ASARCO Grupo Mexico (2011).

Notes: mg/L = milligram per liter; ND = non-detect.

* **Bolded** values indicate exceedances in aquifer water quality standards.

Table 3.3-6. Summary of Public Water Reserve No. 107 and Appropriative Water Rights

Parcel	Water Source	Quarter Section, Township/Range	Data Source	State Water Right Filings	Uses†	Quantity (acre-feet / year) State Water Right/Claim	Quantity (acre-feet / year) Measured Flow	Federal Reserved Water Right	Foreseeable Use Classification
CB-1	Rincon Reservoir	NW SW Sec. 26, T3S/R12E	ADWR	39-62839 - BLM	S, W	0.5	-	-	Buffer
				33-90240 - BLM	S, W	1.1			
	Velma Spring*	SW SE Sec. 25, T3S/R12E	ADWR	4A-4594.3, CWR 3913 - TJ Crowder & Sons	S	0.5	-	PWR 107	Buffer
	Wet Weather Spring^	SE SW Sec. 25, T3S/R12E	BLM	None	W	-	-	PWR 107	Buffer
CB-2	England Tanks (Dunn Stock Tank No. 2)	SW Sec. 17, T3S/R13E	ADWR	38-18061 – BLM	S, W	6.2	-	-	Buffer
CB-3	Earthen Reservoir (Dunn Stock Tank No. 1)	NW SW Sec. 19, T3S/R13E	ADWR, BLM	38-19167 – BLM	S, W	6.2	-	-	Buffer
RM-18	Upper Ash Spring	SW SE Sec. 33, T3S/R14E	ADWR, BLM	39-62809 – BLM	S, R, W	0.4	2.4	PWR 107	Buffer
	Upper Ash Spring Developed	SE SW Sec. 33, T3S/R14E	ADWR, BLM	33-90058 - BLM	S, W	0.4	3.2	PWR 107	Buffer
				39-62785 – BLM	S, W	0.4			
	Alice Spring #1 Adit	NE NW Sec. 33, T3S/R14E	ADWR, BLM	33-90066 - BLM	S, W	0.5	24.2	-	Buffer
				36-68736 - Carlos & Albert Amado	S	1.5			
				39-62792 - BLM	S, R, W	0.3			
	Alice Spring #2	SW NW Sec. 33, T3S/R14E	ADWR, BLM	36-20707 - BLM	S, R, W	-	4.8	PWR 107	Buffer
				36-68737 - Carlos & Albert Amado	S	0.8			
				39-62817 - BLM	S, R, W	0.3			
	Kane Spring Developed (Joe's Spring) - Adit	SE SW Sec. 34, T3S/R14E	ADWR, BLM	33-90245 - BLM	S, W	0.3	51.1	-	Buffer
				39-62799 - BLM	S, R, W	0.3			
	Kane Spring #4*	SE SW Sec. 34, T3S/R14E	ADWR, BLM	36-20714 - BLM	S, R, W	-	14.7	PWR 107	Buffer
				39-62808 - BLM	S, R, W	0.3			
	Anderson Spring^	NW NW Sec. 3, T4S/R14E	BLM	None	S, W	-	2.0	PWR 107	Buffer

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Parcel	Water Source	Quarter Section, Township/Range	Data Source	State Water Right Filings	Uses [†]	Quantity (acre-feet / year) State Water Right/Claim	Quantity (acre-feet / year) Measured Flow	Federal Reserved Water Right	Foreseeable Use Classification
RM-18 (Cont'd))	Anderson Spring Developed (Johnny Water)	NW NW Sec. 3, Lot 4 T4S/R14E	ADWR, BLM	36-20705 - BLM	S, R, W	0.4	1.6	PWR 107	Buffer
				36-21177 - Kemp & Judith Ann Morris	S	0.6			
				39-62807 - BLM	S, R, W	0.4			
	No Name Spring	SW NW Sec. 3, T4S/R14E	ADWR, BLM	33-90241 - BLM	S, W	0.4	2.0	PWR 107	Buffer
				39-62795 - BLM	S, R, W	0.4			
	Ash Spring #1 [^]	NE NW Sec 4, T4S/R14E	BLM	None	-	-	10.4	PWR 107	Buffer
	Ash Spring #2	NE NE Sec. 5, T4S/R14E	ADWR, BLM	36-20748 - BLM	S, R, W	-	72.6	PWR 107	Buffer
				39-62806 - BLM	S, R, W	0.4			
	Ash Spring #3	NE NE Sec. 5, T4S/R14E	BLM	None	S, W	-	4.0	PWR 107	Buffer
	Total					22.6	193.0	12	

Notes: Data assembled from BLM field surveys and ADWR imaged records. Measured flow is based on discharge measurements taken during field surveys conducted prior to FEIS. Categories of water rights found: Federal Reserved Water Right (Public Water Reserve No. 107 [PWR 107]); Adjudication claims not PWR 107; State law-based Stockpond; and State law-based Claims and Applications

[^] Wells that have changed status since the FEIS.

* Uncertainty if inside parcel RM-18.

[†] Uses: R =Recreation, S = Stock, W = Wildlife.

Table 3.4-1. National Ambient Air Quality Standards

Pollutant	Primary Standards		Secondary Standards	
	Averaging Time	Level	Averaging Time	Level
CO	1 hour ^a 8 hour ^a	35 ppm 9 ppm	– –	– –
Pb	3 months (rolling) ^b	0.15 µg/m ³	3 months (rolling) ^b	Same as Primary
NO ₂	1 hour ^c Annual ^d	100 ppb 53 ppb	Annual ^d	Same as Primary
O ₃	8 hour ^e	0.070 ppm	8 hour ^e	Same as Primary
PM ₁₀	24 hour ^f	150 µg/m ³	24 hour ^f	Same as Primary
PM _{2.5}	24 hour ^g Annual ^h	35 µg/m ³ 12 µg/m ³	24 hour ^g Annual ^h	Same as Primary 15 µg/m ³
SO ₂	1 hour ⁱ	0.075 ppb	3 hour ^j	0.5 ppm

Source: EPA (2014b).

Notes: CO = carbon monoxide; Pb = lead; NO₂ = nitrogen dioxide; O₃ = ozone; PM₁₀ = particulate matter 10 microns in diameter or smaller; PM_{2.5} = particulate matter 2.5 microns in diameter or smaller; SO₂ = sulfur dioxide; ppb = parts per billion; ppm = parts per million; µg/m³ = micrograms per cubic meter

^a Not to be exceeded more than once per year.

^b Not to be exceeded.

^c The 3-year average of the 98th percentile of the daily maximum 1-hour average must not exceed this standard.

^d Annual mean.

^e Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years.

^f Not to be exceeded more than once per year on average over 3 years.

^g The 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed this standard.

^h The 3-year average of the annual arithmetic mean PM_{2.5} concentrations from single or multiple community-oriented monitors must not exceed this standard.

ⁱ The 3-year average of the annual 99th percentile of the 1-hour daily maximum must not exceed this standard.

^j Not to be exceeded more than once per year.

Table 3.4-2. Ambient Concentrations of PM₁₀ and SO₂

Year	PM ₁₀ (µg/m ³)	SO ₂ (ppm)	PM ₁₀ (µg/m ³)	SO ₂ (ppm)
	Ray Mine Area		Casa Grande Parcel Area	
2012	137	353	106	No Data
2013	144	256	71	No Data
2014	119	236	71	No Data
Average	133.3	281.7	82.7	No Data

Source: EPA (2015).

Notes: PM₁₀ values are the 2nd maximum 24-hour concentration. SO₂ values are the 99th percentile of 1-hour maximum concentration.

PM₁₀ = particulate matter 10 microns in diameter or smaller; SO₂ = sulfur dioxide; ppm = parts per million; µg/m³ = micrograms per cubic meter

Table 3.4-3. Air Quality Permits Held by ASARCO for Facilities Adjacent to the Selected Land Parcels

Facility (associated Selected Land parcels)	Agency	Permit No.	Status
Ray Complex (Ray Mine)*	Pinal County Air Quality Control District	V20654.000	Class A, Title V permit issued June 5, 2013; revised June 2, 2010; expires June 8, 2018.
Hayden Copper Smelter (Chilito/Hayden)†	ADEQ	1000042	Class I, Title V permit issued October 9, 2001; expired October 9, 2006; significant revision application on June 13, 2005; renewal application submitted on April 7, 2006; a request for additional information with suspension on June 12, 2012. A replacement Title V permit renewal application was submitted on May 5, 2017, which will combine the Hayden Concentrator and Hayden Smelter permits as well as include the on-site Smithco crushing and screening operations (ADEQ Permit No: M070399P1-99).

* Pinal County Air Quality Control District (2012)

† Arizona Department of Environmental Quality (2012b)

Table 3.4-4. Existing Emissions Inventory for Facilities with Air Quality Permits, in Tons per Year

Facility (associated Selected Land parcels)	Year	CO	NO _x	SO ₂	PM ₁₀	PM _{2.5}	Pb	VOC	HAPs
Ray Complex (Ray Mine)*	2012	822.87	237.63	25.77	1,586.87	180.71	0.26	14.66	3.26
	2013	720.86	188.94	21.65	1,082.65	132.45	0.25	13.91	6.22
	2014	792.33	205.83	23.6	644.23	80.62	0.15	16.29	7.74
Hayden Copper Smelter (Hayden)†	2012	49.40	58.46	18,988.55	92.82	84.73	3.02	3.28	3.86 (11.4 SAM)
	2013	43.85	51.80	17,835.78	109.52	101.53	1.34	2.91	2.55 (76.93 SAM)
	2014	46.93	60.17	17,432.60	132.99	125.83	1.78	3.11	6.77 (130.05 SAM)

Notes: CO = carbon monoxide; NO_x = nitrogen oxides; SO₂ = sulfur dioxide; PM₁₀ = particulate matter 10 microns in diameter or smaller; PM_{2.5} = particulate matter 2.5 microns in diameter or smaller; Pb = lead; VOC = volatile organic compound; HAPs = hazardous air pollutants; SAM = sulfuric acid mist.

* Personal communication, Bob Farrell, Pinal County Air Quality Control District, to Dan Sloat, SWCA Environmental Consultants, August 26, 2015.

† Personal communication, Michael Burton, ADEQ, to Dan Sloat, SWCA Environmental Consultants, August 25, 2015.

Table 3.6-1. Rights-of-Way on Selected Lands

Parcel(s)	Type (ROW No.)	Holder	Width (feet)	Term
Chilito/Hayden				
CH-1; CH-2; CH-3	Communication Line (AZA 24678)	U.S. West Communications, Inc.	20	12/31/2039
CH-4	Tramroad (AZA 1000)	ASARCO, Inc.	100	Perpetual
Copper Butte/Buckeye				
CB-2	Highways (AZAR 04524, AZAR 04525)	Arizona Department of Transportation	132	Perpetual
CB-2	Natural Gas Pipeline (AZAR 02148)	Southwest Gas Corporation	20	Perpetual

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Parcel(s)	Type (ROW No.)	Holder	Width (feet)	Term
CB-2	Electric Line (AZA 8778)	Arizona Public Service	200	12/21/2025
CB-2	Communication Line (AZA 6541)	U.S. West Communications, Inc.	20	5/31/2023
CB-2; CB-3	County Road (AZA 21389)	Pinal County Board of Supervisors	100	Perpetual
CB-2	12-kilovolt Electric Line (AZAR 033336)	Arizona Public Service	40	10/20/2018, with extension
CB-2	Electric Line (AZPHX 086749)	Salt River Project Public Lands Division	130	Perpetual
Ray Complex				
RM-17	Electric Line (AZA 2146)	Salt River Project Public Lands Division	130	9/11/2018, with extension
RM-17	Highway (AZAR 024241)	Arizona Department of Transportation	400	Perpetual

Table 3.6-2. Status of Grazing for Selected Lands

Selected Lands (Parcels)	Selected Lands Acres (acres)	Total Acres (on file)	Selected Lands AUMs	Total AUMs (with Selected Lands, Current Conditions)	Total AUMs (without Selected Lands)	Grazing Lease Ownership	Current Grazing Lease Status	Range Improvements (Permit No.)
Sleeping Beauty Allotment (RM-1, RM-2, RM-4, RM-6, RM-12, RM-13)	709	893	120	120	N/A (allotment in non-use)	ASARCO Inc.	Non-use (renewed in 2016; expires in 2026)	None
Rafter Six (RM-10, RM-16, RM-17, RM-18)	3,740	15,855	392	1,662	1,207	Morris Family Trust	In use (renewed in 2010; expires in 2020)	Suzie Spring (030805)
Troy (RM-18)	405	4,370	79	883	804	BLJ Marin Investments, Ltd.	In use (renewed in 2017; expires in 2027)	None
LEN (CB-1)	640	25,553	76	2,956	2,880	Vince and Wyatt Ferreira	In use (renewed in 2012; expires in 2022)	Rincon Reservoir (035191)
Battle Axe (CB-1, CB-2, CB-3)	1,832	13,113	418	2,256	1,941	Lueck, Wade C.	In use (renewed in 2017; expires in 2027)	Earthen Stock Tank #1 (030854) Earthen Stock Tank #2 (030854) England Well (030884) Copper Butte Corral and Trough (034255)
Hidalgo (CH-1, CH-2, CH-3)	272	12,848	21	980	959 (allotment in non-use)	ASARCO Inc.	Non-use (renewed in 2010; expires in 2020)	None
Smith Wash (CH-5)	475	5,726	45	552	507	Phillips, Joe and Jolene	In use (renewed in 2010; expires in 2020)	Fence (030421)

Note: AUM = animal-unit month; N/A = data not available.

Table 3.6-3. Visual Resource Inventory Summary by Parcel

Parcel	Acres	Scenic Quality	Sensitivity Rating	Distance Zone*	VRI Class	VRM Class
Ray Mine						
RM-1	417	B	L	SS	IV	
RM-2	5	C	L	SS	IV	
RM-3	5	C	L	SS	IV	
RM-4	2	C	L	SS	IV	
RM-5	0.02	C	L	SS	IV	
RM-6	1	C	L	SS	IV	
RM-7	80	B	L	SS	IV	
RM-8	375	C	L	FG/MG	IV	
RM-9	30	C	L	SS	IV	
RM-10	853	B	L	FG/MG	IV	
RM-11	158	B	L	FG/MG	IV	
RM-12	159	B	L	FG/MG	IV	
RM-13	118	B	L	FG/MG	IV	
RM-14	344	B	L	FG/MG	IV	
RM-15	286	B	L	FG/MG	IV	
RM-16	40	B	L	SS	IV	
RM-17	1309	B	M	FG/MG	III	
RM-18	2001	B	M	FG/MG	III	
Copper Butte/Buckeye						
CB-1	1437	A	M	FG/MG	II	
CB-2	612	A	M	FG/MG	II	
CB-3	690	A	M	FG/MG	II	
CB-4	594	A	M	FG/MG	II	
CB-5	160	A	M	FG/MG	II	
Chilito/Hayden						
CH-1	263	B	L	FG/MG	IV	III
CH-2	8	B	L	FG/MG	IV	III
CH-3	2	B	L	FG/MG	IV	III
CH-4	80	C	L	FG/MG	IV	III
CH-5	475	C	L	FG/MG	IV	III

Note: VRI = Visual Resource Inventory; VRM = Visual Resource Management

* Distance zones: B = background; FG = foreground; MG = middle ground; SS = seldom seen.

Table 3.6-4. Current Rights-of-Way on the ASARCO Offered Lands

Parcel	Type	Description	Owner	Term/ Expiration Date
Gila River at Cochran	Cochran Road, Price Box Canyon Road, Diversion Dam Road, and Whitlow Ranch Road	Unimproved roads	Private	Perpetual
Gila River at Cochran	Gila River	River, subsidiaries, and any canals	U.S. Government	Perpetual
Gila River at Cochran	Railroad	Railroad segment	Southern Pacific Company, now called Union Pacific Railroad as of 1996	Perpetual
Sacramento Valley	Road	Unimproved road	Private	Perpetual
Sacramento Valley	Road	Unimproved road	Santa Fe Pacific Railroad Company	Perpetual
Knisely Ranch	Road	Unimproved road	Santa Fe Pacific Railroad Company	Perpetual
Tomlin	Road	Unimproved road	Santa Fe Pacific Railroad Company	Perpetual
McCracken Mountains	McCracken Mine Road	Unimproved road	Public	Perpetual
McCracken Mountains	El Paso Pipeline Bagdad Lateral	2-mile-wide utility corridor	El Paso Natural Gas	Perpetual

Table 3.6-5. Status of Grazing Allotments for Offered Lands (Adjacent Allotments)

Offered Lands Parcel	Adjacent Allotment Name	Total Allotment Acreage	Total AUMs	Total Offered Lands Acreage	Current Status (of Offered Lands parcel)	Existing Range Improvements on Offered Lands
McCracken Ranch	Chicken Springs	104,279	3,744	6,384	Use	None
Sacramento Valley	Black Mountain	57,958	1,297	120	Use	None
Tomlin	Groom Peak	5,476	265	320	Use	None
Knisely Ranch	Mt. Tipton	8,564	230	160	Use	None
Gila River at Cochran	LEN (north of Gila River)	25,553	2,964	320	Use	None
	Cochran (south of Gila River)	726	168	–	Use	None

Note: AUM = animal unit-month

Table 3.6-6. Visual Resource Inventory Summary by Parcel

Offered Land Parcel	Scenic Quality*	Sensitivity Rating†	Distance Zone‡	VRI Class	VRM Class
Gila River at Cochran	B	M	FG/MG	III	none
Sacramento Valley	C	M	FG/MG and B	IV	none
Tomlin	B	M, Big Sandy H	B	IV, Big Sandy III	none
McCracken Mountains	C	L, some M on west and south	Range of FG/MG, B, and SS	IV	none

Appendix G.
Ray Land Exchange/Plan Amendment Final SEIS – Final SEIS Tables

Offered Land Parcel	Scenic Quality*	Sensitivity Rating†	Distance Zone‡	VRI Class	VRM Class
Knisely Ranch	A	H	SS	II	none

Note: VRI = Visual Resource Inventory; VRM = Visual Resource Management

* Scenic Quality: A =high scenic quality, B= medium scenic quality, and C= low scenic quality as specified in BLM Manual H-8410-1

† Sensitivity Rating: L = low, M = medium, H = high

‡ Distance zones: B = background; FG = foreground; MG = middle ground; SS = seldom seen

Table 3.6-7. Detailed Parcel Information for the Selected Lands

Parcel	Name	Size (acres)	Estate Status	Land Status	Other Owner	County	Applicable RMP	Disposal	Acreage Same as FEIS?	Change from FEIS	Foreseeable Use	Parcel in Existing MPO?
RM-1	Ray Area 1	423.03	full	BLM Surface and Mineral	n/a	Pinal	Phoenix RMP	No	Yes	n/a	EXIST, POS, TRANS, BUFFER	No
RM-2	Red Bluff	5.23	full	BLM Surface and Mineral	n/a	Pinal	Phoenix RMP	No	Yes	n/a	EXIST, BUFFER	Yes
RM-3	Red Hills Fraction	5.15	full	BLM Surface and Mineral	n/a	Pinal	Phoenix RMP	No	Yes	n/a	EXIST	Yes
RM-4	Copper Zone 8/Combination	2.06	full	BLM Surface and Mineral	n/a	Pinal	Phoenix RMP	No	Yes	n/a	EXIST	Yes
RM-5	Section 10 Fragment	0.02	full	BLM Surface and Mineral	n/a	Pinal	Phoenix RMP	No	Yes	n/a	EXIST	Yes
RM-6.1 - 6.3	Copper Era 1 – Tracts A, B, C	0.96	full	BLM Surface and Mineral	n/a	Pinal	Phoenix RMP	No	No	0.98 acres	EXIST	Yes
RM-6.4	Wedge Lode	0.02	full	BLM Surface and Mineral	n/a	Pinal	Phoenix RMP	No	No	not parsed out in FEIS	EXIST	Yes
RM-7	Section 35 Fragment	80	split	BLM Mineral	Surface: ASARCO	Pinal	Phoenix RMP	No	Yes	ASARCO purchased surface from ASLD	BUFFER	No
RM-8	Section 9/10 Mineral	482.48	split	BLM Mineral	Surface: ASARCO	Pinal	Phoenix RMP	No	Yes	ASARCO purchased surface from ASLD	EXIST, POS, TRANS, BUFFER	Yes
RM-9	Section 11 Fragment	29.97	split	BLM Mineral	Surface: ASARCO	Pinal	Phoenix RMP	No	Yes	ASARCO purchased surface from ASLD	EXIST	Yes
RM-10	Limestone Quarry	860.81	full	BLM Surface and Mineral	n/a	Pinal	Phoenix RMP	No	No	Some additional disturbance has increased surface disturbance by ~40 acres.	EXIST, POS, TRANS, LRP	Yes
RM-11 southern portion	Rustlers Gulch; T3S, R14E, S6	88.14	split	BLM Mineral	Surface: ASARCO	Pinal	Phoenix RMP	No	Yes, but not parsed out in FEIS	ASARCO purchased surface from ASLD	POS, TRANS, BUFFER	No
RM-11 northern portion	Rustlers Gulch; T2S, R14E, S31	70.76	split	BLM Mineral	Surface: ASARCO	Pinal	Safford RMP		Yes, but not parsed out in FEIS	ASARCO purchased surface from ASLD	POS	No
RM-12	Rustlers Gulch	159.34	full	BLM Surface and Mineral	n/a	Pinal	Phoenix RMP	No	Yes	n/a	POS	No
RM-13	Rustlers Gulch	118.9	full	BLM Surface and Mineral	n/a	Pinal	Phoenix RMP	No	Yes	n/a	POS	No
RM-14	East Side	350.37	split	BLM Mineral	Surface: ASARCO	Pinal	Phoenix RMP	No	Yes	n/a	POS	Yes
RM-15	Limestone Quarry	286.08	split	BLM Mineral	Surface ASARCO	Pinal	Phoenix RMP	No	Yes	n/a	POS, TRANS, BUFFER	No
RM-16	Limestone Quarry	40	full	BLM Surface and Mineral	n/a	Pinal	Phoenix RMP	No	Yes	n/a	EXIST, LRP	No
RM-17	Tortilla Foothills	1,320	full	BLM Surface and Mineral	n/a	Pinal	Phoenix RMP	No	Yes	n/a	POS, TRANS, BUFFER	Yes
RM-18	Hackberry Gulch	2001.6	full	BLM Surface and Mineral	n/a	Pinal	Phoenix RMP	No	Yes	Foreseeable use changed, from tailings impoundment area to Buffer	BUFFER	No
CB-1	Copper Butte 1	1,120	full	BLM Surface and Mineral	n/a	Pinal	Phoenix RMP	No	Yes	n/a	BUFFER, LRP	No
CB-2	Copper Butte 2	615	full	BLM Surface and Mineral	n/a	Pinal	Phoenix RMP	No	Yes	n/a	TRANS, BUFFER	No
CB-3	Copper Butte 3	691.97	full	BLM Surface and Mineral	n/a	Pinal	Phoenix RMP	No	Yes	n/a	POS, TRANS, BUFFER	No
CB-4	Copper Butte 4	595.46	split	BLM Mineral	Surface: ASARCO Inc	Pinal	Phoenix RMP	No	Yes	n/a	POS, TRANS, BUFFER	No
CB-5	Copper Butte 5	160	split	BLM Mineral	Surface: State of AZ ASARCO	Pinal	Phoenix RMP	No	Yes	ASARCO purchased surface from ASLD	POS, TRANS, BUFFER	No

Parcel	Name	Size (acres)	Estate Status	Land Status	Other Owner	County	Applicable RMP	Disposal	Acreage Same as FEIS?	Change from FEIS	Foreseeable Use	Parcel in Existing MPO?
CH-1	Chilito 1	262.72	full	BLM Surface and Mineral	n/a	Gila	Safford RMP	No	Yes	n/a	LRP	No
CH-2	Chilito 2	7.55	full	BLM Surface and Mineral	n/a	Gila	Safford RMP	No	Yes	n/a	LRP	No
CH-3	Chilito 3	1.91	full	BLM Surface and Mineral	n/a	Gila	Safford RMP	No	Yes	n/a	LRP	No
CH-4	Administration	80	full	BLM Surface and Mineral	n/a	Gila	Safford RMP	No	Yes	n/a	LRP	No
CH-5	Hayden D	480	full	BLM Surface and Mineral	n/a	Pinal	Phoenix RMP	No	Yes	n/a	POS	No
CG-1	Casa Grande 1	156.87	split	BLM Mineral	Surface: Legends Property, LLC	Pinal	LowerRMP	No	Yes	Surface sold by ASARCO; if exchange goes through, ASARCO would transfer subsurface to owner.	LRP	No
CG-2	Casa Grande 2	160	split	BLM Mineral	Surface: Legends Property, LLC	Pinal	Lower Sonoran RMP	No	Yes	Surface sold by ASARCO; if exchange goes through, ASARCO would transfer subsurface to owner.	LRP	No
CG-3	Casa Grande 3	320	split	BLM Mineral	Surface: Legends Property, LLC	Pinal	Lower Sonoran RMP	No	Yes	Surface sold by ASARCO; if exchange goes through, ASARCO would transfer subsurface to owner.	LRP	No

Table 3.6-8. Detailed Parcel Information for the Offered Lands

Parcel Name	Size (acres)	Estate Status	Land Status	Other Owner	County	Applicable RMP	Disposal	Acreage Same as FEIS?	Change from FEIS	Foreseeable Use	Key Qualities
Gila River at Cochran -Northern half (Section 6)	160	split	Private Surface	ASARCO; Private entity (non-ASARCO); BLM – mineral estate (SE1/2N1/2)	Pinal	Phoenix RMP	n/a	Yes	No	n/a	includes 1.1-mile segment of Gila River; Gila River Riparian Management Area; Middle Gila Cultural Resource Management. Area; White Canyon Resource Conservation Area; critical habitat for Southwestern Willow Flycatcher (Endangered); habitat for cactus ferruginous pygmy owl (sensitive); The parcel is encumbered by the existing Copper Basin Railway ROW (PHX 08661; 100 feet), which covers approximately 24.5 acres of the parcel.
Gila River at Cochran - Southern half (Section 7)	160	full	Private Surface and Mineral	BLM – mineral estate (NE1/2S1/2)	Pinal	Phoenix RMP	n/a	Yes	No	n/a	Includes 1 miles segment of Gila River along Gila River riparian Management Area
Sacramento Valley	120	split	Private Surface	Santa Fe PRR Co.	Mohave	Kingman RMP	n/a	Yes	No	n/a	Adjacent to Warm Springs Wilderness; "important desert tortoise and bighorn sheep habitat"; Sacramento Valley parcel is an inholding within the Black Mountains Herd Management Area that has high-value Category I Desert Tortoise Habitat.
Tomlin Parcel Group - #3	153.8	split	Private Surface	Santa Fe PRR Co. – mineral estate	Mohave	Kingman RMP	n/a	Yes	No	n/a	Big Sandy Herd Management Area (burros). All parcels contain Category II Desert Tortoise Habitat, and two of the three parcels contain designated critical habitat for the southwestern willow flycatcher under the ESA.
Tomlin Parcel Group - #4	120	split	Private Surface	Santa Fe PRR Co. – mineral estate	Mohave	Kingman RMP	n/a	Yes	No	n/a	Big Sandy Herd Management Area (burros); includes Big Sandy River and riparian, segment determined eligible but non-suitable for W&SR
Tomlin Parcel Group - #5	40	split	Private Surface	Santa Fe PRR Co. – mineral estate	Mohave	Kingman RMP	n/a	Yes	No	n/a	Big Sandy Herd Management Area (burros)
McCracken Mountains Parcel Group - #19	632.4	full	Private Surface and Mineral	n/a	Mohave	Kingman RMP	n/a	Yes	No	n/a	Within McCracken Desert Tortoise Habitat ACEC
McCracken Mountains Parcel Group - #31	634	full	Private Surface and Mineral	n/a	Mohave	Kingman RMP	n/a	Yes	No	n/a	Within McCracken Desert Tortoise Habitat ACEC
McCracken Mountains Parcel Group - #3	637.72	full	Private Surface and Mineral	n/a	Mohave	Kingman RMP	n/a	Yes	No	n/a	Within McCracken Desert Tortoise Habitat ACEC
McCracken Mountains Parcel Group - #9	640	full	Private Surface and Mineral	n/a	Mohave	Kingman RMP	n/a	Yes	No	n/a	Within McCracken Desert Tortoise Habitat ACEC. McCracken Mountains Parcel Group consists of inholdings within the McCracken Desert Tortoise Habitat ACEC (Category I).
McCracken Mountains Parcel Group - #11	640	full	Private Surface and Mineral	n/a	Mohave	Kingman RMP	n/a	Yes	No	n/a	Within McCracken Desert Tortoise Habitat ACEC

Parcel Name	Size (acres)	Estate Status	Land Status	Other Owner	County	Applicable RMP	Disposal	Acreage Same as FEIS?	Change from FEIS	Foreseeable Use	Key Qualities
McCracken Mountains Parcel Group - #15	640	full	Private Surface and Mineral	n/a	Mohave	Kingman RMP	n/a	Yes	No	n/a	Within McCracken Desert Tortoise Habitat ACEC
McCracken Mountains Parcel Group - #23	640	full	Private Surface and Mineral	n/a	Mohave	Kingman RMP	n/a	Yes	No	n/a	Within McCracken Desert Tortoise Habitat ACEC
McCracken Mountains Parcel Group - #25	640	full	Private Surface and Mineral	n/a	Mohave	Kingman RMP	n/a	Yes	No	n/a	Within McCracken Desert Tortoise Habitat ACEC
McCracken Mountains Parcel Group - #27	640	full	Private Surface and Mineral	n/a	Mohave	Kingman RMP	n/a	Yes	No	n/a	Within McCracken Desert Tortoise Habitat ACEC
McCracken Mountains Parcel Group - #35	640	full	Private Surface and Mineral	n/a	Mohave	Kingman RMP	n/a	Yes	No	n/a	Within McCracken Desert Tortoise Habitat ACEC
Knisely Ranch Parcel Group - #1	40	full	Private Surface and Mineral	n/a	Mohave	Kingman RMP	n/a	Yes	No	n/a	Mt. Tipton Wilderness inholding
Knisely Ranch Parcel Group - #2	80	split	Private Surface	Private individual	Mohave	Kingman RMP	n/a	Yes	No	n/a	Mt. Tipton Wilderness inholding
Knisely Ranch Parcel Group - #3	40	full	Private Surface and Mineral	n/a	Mohave	Kingman RMP	n/a	Yes	No	n/a	Mt. Tipton Wilderness inholding

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Table 3.7-1. BLM Traffic Counter Sampling along Battle Axe Road

Traffic Counter Sampling Location	Traffic Sample Start	Traffic Sample End	Sample Days	Total Count*	Average Daily Traffic†
1. Battle Axe at State Route 177	12/12/08 3:30 p.m.	1/21/09 7:36 AM	39.67	1,003	25.3
	3/31/09 2:35 p.m.	4/28/09 10:14 AM	27.82	853	30.66
	5/7/11 6:00 p.m.	9/28/11 8:58 AM	143.62	1,003	6.99
Battle Axe at State Route 177 Totals	–	–	211.11	2,859	62.95
2. Battle Axe Corral	5/7/11 6:00 p.m.	9/28/11 12:45 p.m.	143.78	764	2.66
3. Battle Axe at Rincon Road	5/7/11 6:00 p.m.	5/29/11 1:23 p.m.	21.81	280	12.84
	6/30/11 6:00 p.m.	8/16/11 10:40 AM	46.7	252	5.50
	1/10/12 6:00 p.m.	2/8/12 2:25 PM	28.85	644	22.34
	2/8/12 6:00 p.m.	4/17/12 2:36 PM	68.86	838	12.18
Battle Axe at Rincon Road Totals	–	–	310	2,778	13

* Vehicles per sampling period data beyond 2012 are unavailable.

† Vehicles per day (Note: users from Battle Axe Road to Rincon Road do not have legal public access; use by the public constitutes a trespass since ASARCO owns the land).

Table 3.7-3. Mount Tipton Wilderness Visitation Data since 1997

Public Access Point	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
26 Wash Trail	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	13
Antelope Canyon	*	*	*	*	*	*	*	*	160	190	168	160	95	76	277	95
Lower Indian Spring	15	25	21	45	40	25	21	18	16	11	11	29	23	44	50	21

* Visitor registry kiosk not yet installed.

CHAPTER 4.

Table 4.2-1. Summary of Potential Impacts on Vegetation Communities on Selected Lands

Foreseeable Use Categories*	Proposed Action			Buckeye Alternative			Copper Butte Alternative		
	Sonoran Desertscrub (acres)	Semidesert Grassland (acres)	Interior Chaparral (acres)	Sonoran Desertscrub (acres)	Semidesert Grassland (acres)	Interior Chaparral (acres)	Sonoran Desertscrub (acres)	Semidesert Grassland (acres)	Interior Chaparral (acres)
BUFFER (5% surface disturbance)	4,422 (221)		73 (4)	3,985 (199)		73 (4)	3,080 (154)		73 (4)
POS (100% surface disturbance)	1,875 (1,875)			1,875 (1,875)			1,875 (1,875)		
TRANS (25% surface disturbance)	346 (87)			346 (87)			236 (59)		
LRP (25%–100% surface disturbance)	1,302 (326–1,302)	106 (27–106)		939 (235–939)	106 (27–106)		939 (235–939)	106 (27–106)	
Existing Disturbance	71			71			71		
Total (new disturbance range)	8,016 (2,509–3,485)	106 (27–106)	73 (4)	7,216 (2,396–3,100)	106 (27–106)	73 (4)	6,201 (2,323–2,027)	106 (27–106)	73 (4)

Notes: BUFFER = Buffer; LRP = Long-Range Prospect; POS = Production Operations and Support; TRANS = Transition

* The numbers within the parentheses show the minimum and maximum surface disturbance acreages that may occur within each vegetation community.

Table 4.2-2. Offered Lands within Boundaries of Existing Areas with Protective Designations

Alternative	Designation	Acres*
Proposed Action	McCracken Desert Tortoise Habitat Area of Critical Environmental Concern (ACEC)	6,384
	Gila River Riparian Management Area	320
	Middle Gila River Cultural Resource Management Area	320
	White Canyon Resource Conservation Area	320
	Big Sandy Herd Management Area	314
	Mount Tipton Wilderness Area	160
	Black Mountain Herd Management Area	120
Buckeye Alternative	McCracken Desert Tortoise Habitat ACEC	5,744
	<i>Remaining designations would be the same as described for the proposed action</i>	
Copper Butte Alternative	McCracken Desert Tortoise Habitat ACEC	4,686
	<i>Remaining designations would be the same as described for the proposed action</i>	

* Acres are not additive, as land may have more than one protective designation

Table 4.3-1. Wells Located within 6 Miles of Assumed Pumping Wells

Registry No.	Owner	Date Installed	Well Depth (feet bgs)	Water Level (feet bgs)
541572	ASARCO (Ray Complex)	November 8, 1994	100	35
504518	ASARCO Incorporated (ASARCO)	January 6, 1983	120	36
504519	ASARCO	December 28, 1982	160	30
504520	ASARCO	January 14, 1983	169	95
504521	ASARCO	January 2, 1983	111	35
506463	ASARCO	October 31, 1983	83	15
517918	ASARCO	June 29, 1987	90	14
525279	ASARCO	September 22, 1989	80	21
610302	ASARCO	March 20, 1967	93	2
610303	ASARCO	April 5, 1967	101	2
610304	ASARCO	December 1, 1970	110	20
610305	ASARCO	January 1, 1946	120	13
610306	ASARCO	January 1, 1946	120	20
610307	ASARCO	March 10, 1967	130	48
610308	ASARCO	May 3, 1974	112	12
610313	ASARCO	January 1, 1940	115	15
610316	ASARCO	July 25, 1957	121	25
610317	ASARCO		30	0
610321	ASARCO		35	10
610323	ASARCO		6	1
617354	ASARCO	September 23, 1918	96	26
617355	ASARCO	January 21, 1919	101	26
617356	ASARCO	December 23, 1918	100	26

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Registry No.	Owner	Date Installed	Well Depth (feet bgs)	Water Level (feet bgs)
617357	ASARCO	December 10, 1918	100	27
617358	ASARCO	November 23, 1918	1001	27
617359	ASARCO	October 31, 1918	100	38
617360	ASARCO	October 11, 1918	100	40
617361	ASARCO	February 15, 1919	105	39
617362	ASARCO	March 10, 1919	100	38
617363	ASARCO	March 27, 1919	100	38
617364	ASARCO	July 7, 1951	100	38
617365	ASARCO	June 23, 1951	100	39
617366	ASARCO	June 30, 1951	110	41
617367	ASARCO	February 11, 1957	100	29
617368	ASARCO	February 23, 1956	100	36
617369	ASARCO	January 21, 1957	100	36
617370	ASARCO	September 1, 1959	100	44
617372	ASARCO	August 13, 1959	96	37
617373	ASARCO	March 5, 1962	90	22
617374	ASARCO	April 25, 1962	80	21
617393	ASARCO	June 11, 1974	60	10
617394	ASARCO	June 11, 1974	60	31
617395	ASARCO	June 11, 1974	60	17
617396	ASARCO	June 11, 1974	60	21
617397	ASARCO	June 11, 1974	75	22
617398	ASARCO	June 11, 1974	57	11
617399	ASARCO	June 11, 1974	60	12
617400	ASARCO	June 11, 1974	80	8
617401	ASARCO	June 11, 1974	250	0
617402	ASARCO	October 27, 1980	500	320
617403	ASARCO	October 27, 1980	500	360
617404	ASARCO	October 27, 1980	200	180
204845	ASARCO Incorporated, Ray Complex		0	0
586161	ASARCO Incorporated, Ray Complex	March 30, 2001	60	30
222407	ASARCO LLC, Hayden Operations	July 18, 2013	115	34
222408	ASARCO LLC, Hayden Operations	July 9, 2013	105	35
541573	ASARCO Ray Complex	October 31, 1994	98	35
627466	Aden, V E	January 1, 1977	52	20
621547	Alfred & Roberta Barragan	January 1, 1962	0	0
647993	Allen, W J	February 1, 1979	188	151
649671	Alton, J	January 1, 1922	50	15
800231	Alvarez, K G	January 1, 1956	46	25
650103	Arbizo, A M	March 28, 1963	73	23

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Registry No.	Owner	Date Installed	Well Depth (feet bgs)	Water Level (feet bgs)
222335	Arizona State Land Department (ASLD)		0	0
223150	ASLD	August 28, 2014	240	0
221879	ASLD		500	128
616694	Arizona Water Company	January 1, 1951	412	22
646612	Arrieta, E Q	January 1, 1966	13	13
615438	ASLD	January 1, 1949	0	0
615439	ASLD	January 1, 1965	452	300
615443	ASLD	March 15, 1975	100	30
615343	ASLD		0	57
615344	ASLD		0	0
615382	ASLD	December 31, 1977	92	8
616618	AZ Water Company	January 1, 1978	120	23
616637	AZ Water Company	January 1, 1957	200	22
647996	Bailey, D A	April 29, 1974	120	58
637939	Barden, D C	January 1, 1969	40	12
641516	Bare, B E	January 1, 1976	450	80
482486	Barney R. & Donna J. Woods		28	0
650474	Bentley Jessica		40	0
085021	Berumen Jr, J F	January 1, 1980	65	26
603128	Berumen, J F	January 1, 1979	60	19
801526	BLM Phoenix District		0	0
636988	Bohrn, Robert	January 1, 1972	55	25
630186	Bostick, F D	December 1, 1970	70	25
646044	Brandon Garner & Rosemary Armenta		0	0
623910	Bravo, M L	May 1, 1950	80	35
623911	Bravo, M L	January 1, 1958	60	25
628651	Brian Dziadzio	January 1, 1947	120	18
628653	Brian Dziadzio		100	26
637832	Burns, Walter E.	January 1, 1966	45	28
602111	Bush, F	June 1, 1958	48	17
649743	Chacon, M G	April 12, 1976	50	50
649744	Chacon, M G	December 10, 1966	50	50
651114	Chavez, M	August 1, 1965	44	18
647994	Chiquete, E M	July 1, 1965	0	0
646412	Contreras, A		60	20
800427	Copper Basin Railway	April 1, 1949	290	70
639738	Cruz, R C	September 20, 1962	59	25
806680	Csak Holdings LLC	January 31, 1976	80	15
641220	Dale A. & Robin R. Mceuen	December 20, 1979	420	107
538339	Dave G. & Vanessa G. Pitner	March 16, 1993	83	20

Appendix G.
Ray Land Exchange/Plan Amendment Final SEIS – Final SEIS Tables

Registry No.	Owner	Date Installed	Well Depth (feet bgs)	Water Level (feet bgs)
650494	Davis, D L	January 1, 1968	48	18
621192	Deen, R		500	80
628656	Deen, S		200	105
603004	Deen, T	September 14, 1978	190	85
646188	Dehart, R W		0	0
639568	Desert Estates Coop	July 15, 1976	485	150
650017	Dingman, J E	November 20, 1968	42	20
650719	Eisele, B	September 1, 1974	90	35
646921	End Of The Trail Inc	June 1, 1956	62	35
646949	End Of The Trail Inc	January 1, 1978	215	54
646810	End Of The Trail Inc	June 1, 1967	48	22
646811	End Of The Trail Inc	January 1, 1962	36	22
085746	Eric & Jean Schwennesen	October 31, 1980	93	41
621146	Eric & Jean Schwennesen	January 1, 1946	100	22
621147	Eric & Jean Schwennesen	January 1, 1981	84	38
602843	Estes, N	January 1, 1978	65	28
650178	Falquez, Refugio & F	December 31, 1922	27	14
801979	Farrier, N J	June 1, 1981	73	10
801277	Felis, L		80	34
627194	Flores, R L		60	2303
627195	Flores, R L		74	3500
214362	G. Flora, Charles & Patricia Worthen	March 15, 2007	75	36
647075	Garcia, R	January 1, 1972	65	0
502627	Gardner, P	April 24, 1982	180	50
621160	Gegax, E H	January 1, 1964	0	35
621161	Gegax, E H		0	0
621162	Gegax, E H		0	0
637399	Giorsetti, Michael T	January 1, 1963	68	25
649384	Glenn A Wilt, Jr		55	28
649385	Glenn A Wilt, Jr		53	28
628148	Goad, P T	June 2, 1970	70	22
644307	Guzman, A F	January 1, 1967	100	0
648282	Harmon, C T	January 1, 1965	48	25
541192	Haught, Fred W	November 18, 1993	90	19
630990	Haverfield, Vern		69	25
630991	Haverfield, Vern		550	200
630998	Haverfield, Vern		43	4
643264	Hernandez Jr, M S	November 1, 1971	65	30
806362	Hernandez, Cruz C	December 31, 1945	80	40
620571	Hetrick, Lawrence P	September 15, 1956	90	35

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Registry No.	Owner	Date Installed	Well Depth (feet bgs)	Water Level (feet bgs)
631668	Hillman, T L	January 1, 1965	90	42
650382	Holland, C F	April 1, 1960	100	15
628058	Huerta Sr., F	June 25, 1977	73	18
585979	Humberto Islava	March 20, 2001	70	35
643638	Ichoa R M	January 1, 1964	80	20
808283	J W Copeman		0	0
636987	James D. & Geraldine M. Coates	January 1, 1969	48	25
650472	James Valdez	January 1, 1967	200	40
217978	Jerald & Margaret Reid		0	0
594726	Jerry & Joanne Michaelsen	January 2, 2003	80	30
087317	Joe & Jolene Phillips	January 1, 1981	145	11
630992	Joe & Jolene Phillips		60	10
641221	John H Dalton Sr	May 10, 1969	206	95
650379	Johnathan R. Crux	July 1, 1967	48	20
632289	Johnie & Doris White	December 1, 1970	66	45
644160	Johnson, H T	January 1, 1975	220	100
594040	Joseph J Kerlock	June 10, 2003	130	37
650701	Kease, K	January 1, 1965	65	15
642420	Kelley, D A	September 30, 1970	65	30
508339	Kennecott Minerals	July 2, 1984	100	11
800859	Klockenga, Daniel R		106	60
629708	Lerma, A M	July 1, 1972	60	30
630841	Leslie & Sharrylee Grable	April 1, 1978	220	105
561782	Lopez, Alfonso	June 23, 1997	130	29
800237	Lopez, A Q	January 1, 1966	150	45
628933	Lopez, G R	May 5, 1959	55	30
800275	Lopez, J E	January 1, 1957	40	15
800276	Lopez, J E	January 1, 1963	30	15
629045	Lopez, P		60	40
648394	Lorona, S	January 1, 1965	60	30
602121	Lusk, C	July 22, 1977	21	14
644159	Lyle & Cynthia Wall	January 1, 1978	340	150
637418	Macclennen, George F	March 10, 1977	64	20
606588	Madero, R	January 1, 1978	82	18
628899	Madero, R	January 1, 1978	82	18
502074	Manuel M. Chavez	February 26, 1982	100	24
650793	Mares, A	August 1, 1968	50	18
621754	Marino, Frank	March 1, 1965	62	20
588864	Mario Hong	February 17, 2002	100	47
808231	Mario Hong	May 9, 1950	50	0

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Registry No.	Owner	Date Installed	Well Depth (feet bgs)	Water Level (feet bgs)
640534	Martina J. Burnam		200	0
801959	Martinez & Ramirez	March 10, 1960	60	25
646411	Martinez, Raymond	January 1, 1958	50	15
649808	Martinez, D	January 1, 1963	70	14
504927	Martinez, E O	March 11, 1983	65	23
650068	Martinez, F O	July 1, 1972	60	30
801785	Martinez, M A		0	0
645659	Mascareno, J C	January 1, 1962	30	17
500278	Mceuen, L D	January 1, 1982	160	60
644459	Mckusick, R T		100	60
611240	Mendoza, L C	January 1, 1960	100	30
611241	Mendoza, L C	January 1, 1960	168	60
637282	Mendoza, R C	January 1, 1958	80	35
637283	Mendoza, R C	January 1, 1965	150	50
638455	Miller, H A	November 1, 1970	60	27
603338	Monterde, A R	January 1, 1978	62	20
641560	Moon, S		0	80
644670	Morris, J F	January 1, 1952	35	17
622625	Morrison, O A		75	28
648667	Naranjo, R	December 24, 1974	55	12
648489	Neal, F R	July 25, 1969	87	87
642571	Neal, H E		55	40
806344	Nelson, Carl B	July 30, 1967	35	10
648153	Nowlin, R P		32	20
609550	Odom, Charles W	September 14, 1960	55	12
648395	Parish, F	January 1, 1966	45	20
647021	Parks, E	January 1, 1973	90	17
599565	Paul Shaub	April 7, 2004	100	43
523769	Paulette Ann Lacy	June 10, 1989	175	95
644915	Peed, L	January 1, 1942	35	17
630143	Penman, G R	September 7, 1970	65	25
644291	Peoble, L S	May 1, 1944	18	18
647779	Perdue, Zelba I	October 22, 1969	45	25
905509	Peter & Kathy Situ		0	0
644118	Pitner, B L	March 1, 1968	150	30
641813	Placentia, S L	January 1, 1950	70	18
535727	Prescott, Thomas Md, M	October 22, 1992	178	0
644468	Prescott, Thomas, M	July 27, 1971	177	170
631462	Prescott, T M		0	0
631463	Prescott, T M		0	0

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Registry No.	Owner	Date Installed	Well Depth (feet bgs)	Water Level (feet bgs)
640539	Prince, T D	January 1, 1960	60	24
649689	Pruett, C V	July 14, 1966	60	15
637697	Quarelli, C R	January 1, 1949	60	35
628654	R L D Trust	January 1, 1972	325	80
628655	R L D Trust	January 1, 1972	220	120
534764	Ralph Lucas	March 19, 1992	89	28
617032	Rauch, Karl G	December 31, 1965	15	5
644667	Reece, D	April 1, 1950	35	17
649931	Reece, W C	January 1, 1925	30	18
800349	Reyno, Dewey	June 1, 1965	100	0
599253	Ricardo L Escalante	June 9, 2004	240	100
809498	Richard & Loy Phelps		150	0
647379	Robert Berg		140	30
637719	Roberts, T H		0	0
649178	Robinson, R A		65	50
805292	Romero, Walter & T	December 31, 1966	45	15
645255	Romero, M A	January 1, 1950	60	20
805291	Romero, Walter & T	October 15, 1964	36	13
650923	Rothlisberger, A G	January 1, 1952	50	25
528815	Ruiz, John E	August 25, 1990	100	60
801641	Ruiz, J E	December 31, 1970	49	35
645344	Ruiz, L D	August 8, 1962	50	18
612033	Sale, B	January 1, 1949	60	12
808866	Sally Munoz Cordova	January 1, 1964	62	20
515185	Salt River Project Ag Imp & Power Dist.	August 28, 1986	67	10
517549	Salt River Project Ag Imp & Power Dist.	May 15, 1987	80	10
612034	Salt River Project Ag Imp & Power Dist.	January 1, 1977	92	12
612035	Salt River Project Ag Imp & Power Dist.	January 1, 1971	100	14
612036	Salt River Project Ag Imp & Power Dist.	January 1, 1949	120	18
612037	Salt River Project Ag Imp & Power Dist.	January 1, 1966	90	12
612038	Salt River Project Ag Imp & Power Dist.	January 1, 1977	90	16
612039	Salt River Project Ag Imp & Power Dist.	January 1, 1968	90	16
612040	Salt River Project Ag Imp & Power Dist.	January 1, 1970	90	15
603623	Sanders, C L	October 1, 1970	63	30
633312	Sedona, N G	December 1, 1968	60	15
643595	Shroyer, D R	April 1, 1963	55	31
643596	Shroyer, D R	July 1, 1964	90	31
604007	Smith, S M	July 1, 1969	60	35
620572	Stacey, I L	June 1, 1958	100	34
648043	Steven Wilson	January 1, 1979	80	40

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Registry No.	Owner	Date Installed	Well Depth (feet bgs)	Water Level (feet bgs)
601353	Thomas & Rosemarie Slotter	August 14, 1964	110	55
601354	Thomas & Rosemarie Slotter	October 1, 1956	76	55
540199	Thomas M Cabrera		0	0
628652	Three-D Trust		700	400
649757	Tomerlin, L		65	20
644316	Van Gorden, D I	January 1, 1964	0	0
214292	Vern Haverfield	April 12, 2007	400	65
647995	Vinsant, P R	January 1, 1967	60	28
518322	Walter L Swingle		181	0
642065	Ward Hewitt		60	30
910205	Waste Management of Arizona	December 23, 2008	131	57
643637	White III, C B		55	47
633119	White, Johnie	September 20, 1965	50	14
542796	White, Johnie E	May 10, 1994	400	160
624560	Willard, E J	May 10, 1963	56	21
630785	Willard, O	July 1, 1965	70	40
506187	Winkelman Assembly	October 17, 1983	240	80
630021	Woods, D F		35	10
603276	Young, A Z	January 1, 1954	60	30
649926	Young, S T		40	20
801868	Z W Herrington	June 29, 1964	67	55

Source: ADWR (2012a, 2018).

Note: bgs = below ground surface

Table 4.3-2. Springs Located within 6 Miles of Assumed Pumping Wells

Spring Name	Cadastral Location	Uplands	Location in ASARCO's Foreseeable Uses
Unnamed spring	T6S, R16E, Section 17	No – located along San Pedro River	Outside
Piper Spring	T5S, R16E, Section 20	Yes	Parcel CH-4, Long-Range Prospect
Apache Spring	T5S, R16E, Section 6	Yes	Parcel CH-4, Long-Range Prospect
Unnamed spring	T5S, R16E, Section 10	Yes	Parcel CH-4, Long-Range Prospect
Unnamed spring	T4S, R15E, Section 29	Yes	Parcel CH-3, Long-Range Prospect
The Fountain of Youth	T3S, R14E, Section 18	Yes	Parcel RM-10, Long-Range Prospect

Sources: USGS 7.5-minute quadrangles: Kearny (1979), Hayden (1979), Winkelman (1973), and Dudleyville (1973).

Table 4.6-1. Loss of Public Lands (acres) and AUMs by Allotment

Allotment/Selected Lands (parcels)	Total Allotment Acres (on file)	Potential Loss of Public Lands (acres)	Loss of AUMs (from exchange)
Sleeping Beauty Allotment (RM-1, RM-2, RM-4, RM-6, RM-12, RM-13)	893	742	120 (allotment in non-use, resulting in potential closure of grazing on these lands due to lack of available allotments on public land)

Allotment/Selected Lands (parcels)	Total Allotment Acres (on file)	Potential Loss of Public Lands (acres)	Loss of AUMs (from exchange)
Rafter Six (RM-10, RM-16, RM-17, RM-18)	15,855	3,902	354
Troy (RM-18)	4,370	400	79
LEN (CB-1)	25,553	640	76
Battle Axe (CB-1, CB-2, CB-3)	13,113	2,427	420
Hidalgo (CH-1, CH-2, CH-3)	12,848	352	32 (allotment in non-use; however, BLM reserves the right to refuse authorization of non-use at any time and require the allotment to be stocked with livestock)
Smith Wash (CH-5)	5,726	480	45

Note: AUMs = animal unit-months

Table 4.6-2. Measures under an MPO for Visual Resources

Measures under a Mine Plan of Operations	Voluntary/Unrequired Measures
To the extent possible, co-locate facilities to use existing rights-of-way, existing and shared access and maintenance roads, and other infrastructure to reduce visibility and avoid additional surface disturbance.	New ASARCO aboveground facilities and stationary equipment would be painted a non-contrasting color that is harmonious with the surrounding landscape (that is, unless otherwise specified by BLM on a case-by-case basis), except for structures that require safety coloration, in accordance with Occupational Safety and Health Administration requirements. Existing facilities would be painted that color at the earliest opportunity and no later than when facilities are due for routine repainting.
To the greatest extent practical, ASARCO will avoid placing facilities on ridgelines, summits, or other locations such that they avoid being silhouetted against the sky from off-site viewing locations for conformance with the VRM classification in the land use plan.	ASARCO would use existing topography and vegetation to screen roads, pipelines, and other facilities and equipment from off-site view, where practical.
Use existing roads and disturbed areas to the maximum extent feasible to avoid additional surface disturbance. Locate access roads to follow natural topography and avoid or minimize side hill cuts wherever possible.	To mitigate straight-line visual effects of cut slopes or cleared vegetation, BLM staff may require adaptive management techniques to create an irregular shape or mosaic pattern.
Use non-reflective or low-reflective materials, coatings, or paints whenever possible for conformance with the VRM classification in the land use plan.	Install efficient lighting so that the minimum amount of lighting required for safety and security is provided and so that upward light scattering is minimized. Where security lights are necessary, the lights should be off except when activated by motion detectors.
Construct low-profile structures whenever possible to reduce visibility for conformance with the VRM classification in the land use plan.	Site linear features to follow the edges of clearings (where they will be less conspicuous) rather than passing through the center of clearings.
Select and design materials and surface treatments to repeat or blend in with landscape elements for conformance with the VRM classification in the land use plan.	Prohibit commercial messages, advertisements, and graffiti on mine-related structures.
Bury utility cables in or adjacent to the road where feasible to reduce cable visibility and enhance safety.	ASARCO would use geomorphic reclamation techniques to form tailings and waste rock piles to emulate natural conditions. Landforming would be used in tandem with revegetation and soil and rock varnish to minimize the visual intrusion of tailings and waste rock in the aesthetic environment.
Revegetate with native vegetation and establish a composition consistent with the form, line, color, and texture of the surrounding undisturbed landscape to enhance visibility and prevent erosion.	

Measures under a Mine Plan of Operations	Voluntary/Unrequired Measures
Design mining operations to avoid earthwork/excavation activities, vegetation clearing, and placement of structures on land that is highly visible from the viewing areas analyzed, particularly on slopes facing the viewer locations. Maximize use of seldom-seen land, screened by local topography or operations that require modification of the natural landforms, clearing of vegetation, and placement of structures.	

Table 4.11-1. Annual Income and Tax Impacts Common to All Alternatives (1996 and 2018 dollars)

	1996 \$	2018 \$
Parcels	Salaries/Wages	Salaries/Wages
Ray Complex–Copper Butte	\$1,882,000	\$3,021,280 [†]
Casa Grande	–	–
Chilito/Hayden	–	–
	1996 \$	2018 \$
Parcels	Business Income	Business Income
Ray Complex–Copper Butte	\$5,300,000	\$8,508,388
Casa Grande	\$11,638,000	\$18,683,136
Chilito/Hayden	–	–
	1996 \$	2018 \$
Parcels	Taxes*	Taxes*
Ray Complex–Copper Butte	\$1,080,600	\$1,734,748
	1996 \$	2018 \$
Parcels	Taxes*	Taxes*
Casa Grande	–	–
Chilito/Hayden	–	–

* This includes taxes being paid on current operations.

[†] From existing operations at the Ray Mine, current wage, income, and fringe benefits are estimated at \$140.8 million annually; total material and other local spending is estimated at \$347.5 million (ASARCO 2013). An additional \$16.5 million/year in average wages, salaries, and fringe benefits are estimated for the 200 new hires associated with the Copper Butte parcels (ASARCO 2018).

Table 4.11-2. Annual Income and Tax Impacts from the Proposed Action (2018 dollars)

Parcels	Tax Payments (US Dollars)
Ray Complex–Copper Butte (Selected Lands)	\$1,734,748
Casa Grande (Selected Lands)	–
Chilito/Hayden (Selected Lands)	\$16,856
All Offered Lands	–\$25,204
	2018 \$
Parcels	Payments in Lieu of Taxes (PILT)
All Selected Lands	–\$17,701
All Offered Lands	\$1,591

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Appendix H

PROCESS INFORMATION NON-ESSENTIAL TO THE DECISION BEING MADE

To comply with the requirements of SO 3355 and related BLM guidance, repetitive and explanatory information in the Draft SEIS has been deleted, and information deemed non-essential to the decision has been moved to this appendix. Some text may have been revised to respond to comments on the Draft SEIS.

CHAPTER 1.

1.1. Project History and Background

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 solvent 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 100 years, the last 32 of which have been under ASARCO ownership. The mine and associated SX/EW plant produce approximately 46 million pounds of copper cathode and 314 million pounds of copper anode each year (ASARCO 2018).

The Ray Land Exchange was first proposed in 1994, and later expanded to the current proposal. For additional history and information about how the proposal was modified to become the current proposed land exchange, please refer to Section 1.2 of the FEIS (pg. 1-2).

1.2.1 Protests and Appeals of the FEIS

After the BLM issued the ROD in April 2000, three environmental advocacy groups—the Center for Biological Diversity, the Western Lands Project, and the Sierra Club (collectively called CBD)—filed a formal protest objecting to the decision. On May 18, 2001, the BLM Arizona State Director denied the protest. CBD then appealed to the Interior Board of Land Appeals (IBLA) and sought a stay of the exchange, which the IBLA granted. On August 16, 2004, the IBLA issued a decision denying the appeal.

CBD then filed suit in the federal District Court, claiming that the BLM violated NEPA and the Federal Land Policy and Management Act (FLPMA) by failing to consider a reasonable range of alternatives to the exchange (including a “no mining” alternative) and to properly evaluate the effects of the exchange on the environment. The District Court affirmed the IBLA's decision, holding that the BLM's conclusion that mining was likely to occur on the Selected Lands regardless of the exchange was not arbitrary or capricious, and that the BLM was not required to determine the validity of ASARCO's mining claims in order to proceed with the exchange. A final judgment was entered on June 6, 2007.

CBD appealed to the Ninth Circuit Court of Appeals, and a majority of the Ninth Circuit panel concluded that the BLM violated NEPA and FLPMA “in assuming without explanation that ASARCO would perform mining operations on the selected lands in the same manner regardless of the land exchange” (Center for Biological Diversity v. U.S. Dep't of Interior, 623 F. 3d 633 [9th Cir. 2010]). The court recognized that ASARCO has the right to conduct mining and related activities under the General Mining Law, based on ASARCO's mining and mill site claims on the Selected Lands. But the court believed that the manner and extent of mining were likely to differ, depending on whether the Selected Lands are owned by the United States as public lands subject to the BLM's surface use regulations at Title 43 CFR subpart 3809 or by ASARCO as private lands in fee simple, in which case the BLM's surface use regulations would not apply.

The Ninth Circuit Court stated that ASARCO is not required to prepare and submit a mine plan of operations (MPO) for future activities on the Selected Lands in order to complete the exchange. However,

“the BLM must make a meaningful comparison of the environmental consequences of ASARCO’s likely mining operations with and without the requirement that MPOs be prepared by ASARCO and approved by the BLM—that is, with and without the proposed exchange.” Because the BLM did not perform this comparison, the court held that the BLM did not adequately consider the environmental impacts of the land exchange. For the same reason, the court also held that the BLM did not properly analyze whether the public interest would be served by making the exchange, as required under FLPMA subsection 206(a). The Ninth Circuit Court then remanded the case to the District Court for further consideration.

After additional filings by the parties, the federal District Court issued an order directing that judgment be entered in favor of CBD and remanding analysis to the Department of the Interior. A judgment in favor of CBD was entered on November 19, 2010, which terminated the lawsuit (Judgment in CV-01-1758-PHX-ROS).

1.7 Applicable Laws and Regulations

1.7.3.1 Non-BLM Regulatory Requirements Comparable to 43 CFR Subpart 3809

REGULATORY REQUIREMENTS AND STANDARDS

Mine operators’ present and future operations are governed by several federal, state, and local laws and regulatory frameworks (see Table 1.8-1, *Principal Laws Relating to the Ray Land Exchange/Plan Amendment* and Appendix A, Related Laws, Rules, Regulations and Executive Orders). Each of the regulatory frameworks is founded in statute and implemented through regulations and policies of the jurisdictional agency. Agency regulations or rules provide guidance to the agency so it can implement the laws and provide guidance to mine operators so they can follow the laws. Mining operations are based largely on sound engineering and economic principles; however, operations are modified to be consistent with and in compliance with the regulatory framework.

The regulatory frameworks vary in one key respect, depending on whether a federal nexus triggers additional review under federal law. If the lands are under BLM jurisdiction, the regulatory framework in total applies and includes the regulations at 43 CFR subpart 3809. If the lands are in private ownership, the regulatory framework in total applies except for the 43 CFR subpart 3809 regulations. Thus, on private lands, in lieu of the 43 CFR subpart 3809 regulations, all other federal permitting requirements would continue to apply as well as all pertinent state regulations, including the Arizona reclamation statutes for mined lands at ARS 27-901 *et seq.*, and rules at R11-2-201 *et seq.* Each agency requires certain types of information (filing requirements) before it can process and issue permits under its regulations. Each agency identifies its own set of filing requirements, based on statute, to affect a particular action. For example, BLM filing requirements are listed at 43 CFR subpart 3809.401. Many of the filing requirements for permits from the various agencies are duplicative, even though each agency has its own regulatory authority and responsibilities. For example, the description of operations needed for a BLM plan of operations under 43 CFR subpart 3809 are nearly the same as the description needed for a water quality certification permit from ADEQ for Section 401 of the CWA. The *Arizona Mining Permitting Guide*, compiled and edited by the Arizona Department of Mines and Mineral Resources (ADMMR 2011) and published by the BLM, provides a compendium of the permits and requirements of various agencies.

Additionally, agencies require performance standards to ensure that mine operators are following a reasonable and customary mining and reclamation sequence. Performance standards specify the norm governing how operations will occur and describe the level of compliance expected by the agency.

For example, the goal of the 43 CFR subpart 3809 regulations is to ensure that no unnecessary or undue degradation of the public lands will occur. Performance standards at 43 CFR subpart 3809.420 are meant to effect this ultimate goal. These include, for example, that the operator shall take such action as is necessary to prevent adverse impacts to threatened and endangered species and their habitat, and the operator shall not knowingly disturb, alter, injure, or destroy any scientifically important paleontological remains or any historical or archaeological site, structure, building, or object on federal lands.

State agencies have similar performance standards. For example, the goal of the Arizona State Aquifer Protection Program is to ensure no degradation of the state's groundwater. ADEQ ensures this goal by implementing the performance standards outlined by the Best Available Demonstrated Control Technology (BADCT) (ADEQ 2005). Also, the goal of the state mined land reclamation rules is to ensure safe and environmentally sound reclamation of mined lands. The Office of the Arizona State Mine Inspector (ASMI) ensures this goal by requiring operators to meet operational and post-mine performance standards specified in the regulations at R11-2-601 *et seq.* If the post-mine intended use is wildlife habitat, the mine reclamation plan must specify the steps that will be taken during reclamation to retain or develop that wildlife habitat.

Each federal, state, and local agency imposes its own set of performance standards for mining and reclamation operations based on its own internal expertise and its own mission needs. However, to ensure consistency, federal, state, and local agencies in Arizona typically require that operators follow all other federal, state, and local permit requirements and standards. For example, BLM regulations at 43 CFR subpart 3809.420(a)(6) require that all operations be in compliance with state and local laws and regulations. Also, some agencies informally use documents and standards from another agency to help implement their own regulations and rules. The BLM informally uses the ADEQ BADCT standards for water and solution ponds. The ASMI uses its own expertise to affect the state mined land reclamation rules but adopts standards from both ADEQ and BLM. Consequently, federal, state, and local performance standards in Arizona are comparable and complementary.

Regulatory requirements and standards are components of the permits and approvals shown in Table 1.8-3. Many permits and approvals, and, thus, the requirements and standards, apply regardless of the ownership of the lands. For example, a permit from the USACE is required for jurisdictional waters under CWA Section 404, regardless of the land ownership. Additionally, if operations potentially will affect groundwater, an Aquifer Protection Permit (APP) from ADEQ is required, regardless of land ownership (ADMMR 2011).

CHAPTER 3

3.1.1 General Setting

The Selected Lands total approximately 10,976 acres (8,196 acres of surface estate and 2,780 acres of mineral estate) consisting 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, the Dripping Spring Mountains to the east, and the Gila River to the south. These 28 parcels are clustered in three areas (the Ray Complex, Copper Butte/Buckeye, and Chilito/Hayden) near the Ray Mine and the communities of Kearny, Hayden, and Winkelman, Arizona. The remaining three parcels, which are mineral estate only, are located about 50 miles west of the Ray Complex, near the community of Casa Grande in Pinal County ("Casa Grande parcels") (see Figure 1.6-1 *Ray Land Exchange/Plan Amendment SEIS project location map* in Appendix F).

The Offered Lands include the Gila River Parcel at Cochran, Knisely Ranch Parcel Group, McCracken Mountains Parcel Group, Tomlin Parcel Group, and Sacramento Valley Parcel. The Offered Lands total approximately 7,304 acres and consist of 18 parcels owned by ASARCO located in Pinal and Mohave Counties, Arizona (see Figure 1.6-1 *Ray Land Exchange/Plan Amendment SEIS project location map* in Appendix F). 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, Black Mountains, and Cerbat Mountains.

3.1.2 Resources Values and Uses Brought Forward for Analysis

The affected environment resource sections in Chapter 3 provide an updated analysis that includes discussions of new resource information and regulatory requirements that were not available or not applicable to the analysis conducted in the FEIS. The following resources are presented in this chapter:

- Access and Recreation
- Air Quality, Greenhouse Gas Emissions
- Biological Resources (includes vegetation and wildlife)
- Cultural and Heritage Resources
- Land Use (includes visual resources)
- Mineral Resources
- Socioeconomic Conditions (includes environmental justice)
- Water Resources
- Wilderness Characteristics
- Wilderness Resources/Special Management Areas

3.2 Biological Resources

3.2.1.1 *Changes in Applicable Regulations or BLM Policies from the FEIS to Present*

EXECUTIVE ORDER 13112, INVASIVE SPECIES, FEBRUARY 3, 1999

This EO seeks to improve coordination between federal agencies in efforts to combat invasive plant and animal species. EO 13112 established the National Invasive Species Council as a high-level, interdepartmental federal advisory panel to provide leadership and planning in the prevention and control of invasive species nationwide. The EO also directed federal agencies to prevent introduction of invasive species, control populations, monitor populations, and provide for restoration of native species, among other requirements. This EO was not cited in the FEIS, and no baseline data on invasive species were identified or analyzed within either the affected environment or environmental consequences biological resources sections of the FEIS.

Invasive plants are those species that have been introduced into an environment where they did not evolve. As a result, they usually have no natural enemies to limit their reproduction and spread.

Noxious weeds are legally designated by a federal, state, or county government as a plant that is injurious to public health, agriculture, recreation, wildlife, or property. Invasive species can degrade food and habitat resources for native wildlife and can alter the wildland fire regime, which can lead to more frequent and intense fires that can destroy the non-fire adapted native plants and permanently alter the vegetation community and wildlife habitats in an area that burns. For this project, noxious weeds are those invasive plant species that are defined by law by the State of Arizona and federal government. Noxious weeds are managed according to BLM policy and in support of EO 13112. The State of Arizona maintains a list of prohibited, regulated, and restricted noxious weeds (Arizona Department of Agriculture 2014). Under State law, noxious weeds include plants, plant parts, or seeds of non-native and invasive species that are grouped into three classes. Prohibited noxious weeds include species that are prohibited from entry into the state. Regulated noxious weeds include species that if found within the state may be controlled or quarantined to prevent further infestation or contamination. Restricted noxious weeds include species that if found within the state shall be quarantined to prevent further infestation or contamination.

3.6 Land Use

3.6.2.5 Visual Quality

CHANGES IN APPLICABLE REGULATIONS OR BLM POLICIES FROM THE FEIS TO PRESENT

BLM's policy provides for establishing Interim Visual Management Objectives where a project is proposed and there are no RMP approved VRM objectives. The establishment of interim VRM objectives does not require a plan amendment unless the project itself requires one. Below is a more explanation of the BLM VRM system and its applicability to this analysis, beyond what was included in the FEIS.

The VRM System is composed of three parts: 1) the Visual Resource Inventory (VRI), 2) assignment of VRM classes (through the RMP process), and 3) project analysis using the Visual Resource Contrast Rating System. The VRM system components are described below.

1. The VRI process involves rating the visual appeal of a tract of land (scenic quality), measuring public concern for scenic quality (sensitivity level), and determining whether the tract of land is visible from travel routes of observation points (distance zones).-These factors are weighed together to assign a VRI class to the landscape that represents the existing visual value at the time of the inventory and include:
 - **VRI Class I** – Assigned to all special areas where the current management situation requires maintaining a natural environment essentially unaltered by man, such as Wilderness Areas or Wilderness Study Areas.
 - **VRI Class II** – Highest visual value assigned through the inventory process and based on the combination of Scenic Quality, Visual Sensitivity Levels, and Distance Zones.
 - **VRI Class III** – Moderate visual value based on the combination of Scenic Quality, Visual Sensitivity Levels, and Distance Zones.
 - **VRI Class IV** – Low visual value based on the combination of Scenic Quality, Visual Sensitivity Levels, and Distance Zones.
2. The results of the VRI are used to inform the BLM RMP planning process to consider visual resource values in relation to other resource values and landscape uses. BLM establishes VRM

classes through the resource management planning process to set forth objectives for the management of landscape preservation and change. The classes identify the degree of acceptable landscape change or alteration, giving consideration to the scenic value of the landscape and other resource values and uses of the land. The RMP assigns one of the following VRM classes to all BLM-administered lands to establish the area's visual management objectives:

- **VRM Class I Objective** (Preservation) provides for natural, ecological changes only. This class includes wilderness areas, some natural areas, some wild and scenic rivers and other similar sites where landscaped modification should be restricted.
 - **VRM Class II Objective** (Retention of landscape character) includes areas where changes in any of the basic elements (form, line, color or texture), caused by management activities, should not be evident in the characteristic landscape.
 - **VRM Class III Objective** (Partial retention of the landscape character) includes areas where changes in the basic elements caused by management activities may be evident in the characteristic landscape. The changes, however, should remain subordinate to the existing landscape character.
 - **VRM Class IV Objective** (Modification of the landscape character) includes areas where changes may subordinate the original composition and character. They should, however, reflect what could be a natural occurrence in the characteristic landscape.
3. The Visual Resource Contrast Rating System is a project-level planning and analysis tool used for assessing project visual impacts. The tool compares proposed project features with the major features in the existing landscape to determine whether the project will meet the VRM Class Objectives.

3.8 Wilderness Resources/Special Management Areas

The Arizona Trail was designated by Congress as a National Scenic Trail under an amendment to the National Trails System Act on March 30, 2009 (as discussed in Section 3.7). The Arizona Trail extends approximately 807 miles across the state of Arizona from the U.S.-Mexico international border to the Arizona-Utah border. The nature and purpose of the trail is designed as a primitive trail for hiking, equestrians, mountain biking, and Nordic skiing (Arizona Trail Association 2012).

Passage #16 of the Arizona Trail, known as Gila River Canyons, is located approximately 1.5 mile south and approximately 2 miles west of the Copper Butte/Buckeye parcels. The Arizona Trail does not intersect with the Selected Lands (see Figure 3.7-1 in Appendix F, Final SEIS Figures). The primary use and uses of Passage #16 is hiking, backpacking, bikepacking, and scenic viewing. The resources and qualities, values and associated setting of Passage #16 are generally outstanding opportunities for solitude, high scenic quality, and views dominated by natural landscape settings (that is, naturalness).

Passage #16 of the Arizona Trail begins at the Kelvin Bridge, which spans the Gila River, and ends at the Tonto National Forest boundary. The Arizona Trail follows the Gila River for approximately 15 miles, making a sharp turn north, where it leaves the Gila River and traverses ridgelines north along the numerous canyons and drainages located west of the White Canyon Wilderness area. Users of the Arizona Trail may choose to access the middle sections of Passage #16 by traveling west on Rincon Road via Battle Axe Road from SR 177. Users who travel this route would travel through the Copper Butte/Buckeye parcels before reaching the Arizona Trail. The status of public access to the Arizona Trail

is discussed in Section 3.7.2. An environmental assessment for the Arizona Trail was completed by the BLM in 2006 (EA AZ-420-2006-020, Decision Record July 20, 2006 [BLM 2006]).

No portion of the Arizona Trail Passage #16 corridor or designated trailhead is located within the Copper Butte parcels. No other new wilderness, Wilderness Study Areas, or SMAs have been established in the vicinity of the Selected Lands since 1999. BLM policies for the management for National Trails have changed since the FEIS; management of the Arizona Trail is conducted in accordance with BLM Manuals Section MS-6250, -6280, and -8353, all of which were published in 2012.

3.9 Wilderness Characteristics

The inventory process for wilderness characteristics is guided by BLM Manual 6310 (BLM 2012h). An inventory of wilderness characteristics is the process of determining the presence or absence of wilderness characteristics. These “characteristics” are derived from Section 2(c) of the Wilderness Act of 1964:

1. **Size:** the area must be at least 5,000 acres of contiguous, roadless BLM land. If less than 5,000 acres, the area must be adjacent to an area known to possess wilderness characteristics, or is demonstrated that the area is of sufficient size as to make practicable its preservation and use in an unimpaired condition.
2. **Naturalness:** the area must appear to be in natural ecological conditions, where human developments within the area are unnoticeable enough that it appears the area was affected primarily by the forces of nature.
3. **Outstanding opportunities for solitude or primitive, unconfined recreation:** the area must provide outstanding opportunities for solitude or primitive, unconfined recreation opportunities.
4. **Other supplemental values:** the area may contain ecological, geological, or other features of scientific, education, scenic, or historic value. Supplemental values are not required to be present in order for an area to be identified as lands with wilderness characteristics.

Size – The size of an area with wilderness characteristics is determined by roads, ROWs, or land ownership, but can also be determined by areas of unnaturalness. Impacts to the size requirement would be any types of development or construction that directly affect the roadless or naturalness characteristics of the area. For this project, the types of development or construction that affect naturalness include transmission line construction, construction or improvement of access roads, construction of substations, placement of structures on the landscape, or any other ground disturbance (for example, clearing of vegetation, digging, or grading of soil) from project actions. If actions from the proposed project reduce a land unit identified as having wilderness characteristics to less than 5,000 acres, the project would affect the size characteristics, and the entire unit would not have wilderness characteristics. However, if project actions bisect a unit but the remaining portions of the unit are greater than 5,000 acres in size, the remaining portions may still have wilderness characteristics.

Naturalness – Lands with wilderness characteristics must primarily be influenced by the forces of nature, with evidence of humankind substantially unnoticeable. Evidence of humankind on the landscape affects the natural character of the area by introducing unnatural actions or objects. This can cause direct impacts to vegetation, wildlife, soils, landforms, water, and riparian areas. The types of unnatural objects and actions that affect naturalness include transmission lines and access roads, substations, ancillary facilities, or any other ground disturbance (for example, clearing of vegetation, digging, or grading of soil).

Outstanding Opportunities for Solitude or Primitive and Unconfined Type of Recreation – Outstanding opportunities for solitude and/or a primitive and unconfined type of recreation can be affected by project actions if a visitor can hear or see the project action. With respect to the effects on

outstanding opportunities for solitude or primitive recreation, this analysis references the recreation analysis presented in Section 3.7.

Other Supplemental Values – Special features (or supplemental values) are those features identified as unique to the specific land area. Most special features identified for areas with wilderness characteristics are items such as unique plants, wildlife, or geological features, which are often analyzed in other sections of a NEPA document specific to those resources. The analysis in this section identifies any special features for areas with wilderness characteristics affected by project actions.

If characteristics 1–3 from the list above are present, then the area is identified as possessing wilderness characteristics. Finding the presence or absence of wilderness characteristics is not a decision-level finding and thus is not subject to appeal. Acreages herein have been derived from the best available GIS data unless otherwise stated. As a result, there may be some variation from acreages in previous documents. A screening of size; an assessment of naturalness; an assessment of outstanding opportunities for solitude or primitive, unconfined recreation; and an assessment for other supplemental values were completed for the SEIS.

3.10 Cultural and Heritage Resources

National Historic Preservation Act 2000 and 2004 Updates

The National Historic Preservation Act requires the Secretary of the Interior to maintain the National Register of Historic Places (NRHP). The NHPA creates a process under which federal agencies must consider the effect of a proposed project on any property listed or eligible for listing in the NRHP before they authorize or fund any undertaking. Under the NHPA federal agencies must take into account the effects of their actions on historic properties. The intent is to identify such properties, assess effects, and seek ways to avoid, minimize, or mitigate any adverse effects. The NHPA stresses the importance of active consultations with the public, Indian tribes, SHPOs, and other parties and provides the ACHP with the opportunity to comment on a project's potential to affect historic resources. In December 2014, Congress recodified the NHPA into Title 54 of the United States Code, without substantive changes to federal agencies' responsibilities.

Title 36 CFR § 800, Protection of Historic Properties, is the regulation from the ACHP that guides federal agencies under the NHPA. The regulations were initially issued in 1979 and have undergone several revisions. Two revisions to the regulations, one in 2000 and one in 2004, have occurred since the FEIS.

The 2000 revisions were intended to “remove operational impediments in the process” and to clarify terms and provisions from the previous version (36 CFR § 800). The revisions consisted of 1) the acknowledgement of the statutory responsibilities of SHPOs to cooperate with agencies, organizations, and individuals to ensure that historic properties were considered in planning; 2) better distinction between Indian tribes that have assumed SHPO responsibilities from those that have not and the requirement that Indian tribes and Native Hawaiian organizations be consulted on the significance of historic properties even if not on tribal lands; 3) allowing an agency to authorize a group of applicants to initiate the NHPA; 4) clarification of what constitutes an undertaking; 5) reinforcement of the federal agency's responsibilities in identifying historic properties; 6) clarifying how a federal agency can invite other parties to be signatories to MOAs and their roles as signatories; 7) clarifying the relationship between the NEPA process and NHPA; 8) requiring the ACHP to participate in NHPA reviews when they have determined that NHPA responsibilities are not being carried out by an agency or SHPO/Tribal Historic Preservation Office (THPO); 9) stating that an agency's responsibility in providing documentation was governed by funding and legal authority; 10) requiring an agency to provide an NRHP eligibility recommendation for properties discovered after approval of an undertaking;

11) increasing the flexibility for producing Programmatic Agreements; 12) adding the consideration of the views of SHPOs/THPOs and other consulted parties by the ACHP when approving exemptions; and 13) reinforcing an agency's responsibility to consult with Indian tribes and Native Hawaiian organizations when developing nationwide program alternatives, but allowing agencies to determine how to meet that responsibility.

The 2004 revisions were intended to clarify the role of the ACHP (ACHP 2004). The 2004 revisions consisted of 1) clarifying the process for the SHPO/THPO and the ACHP to object to findings of "No historic properties affected" and acknowledging that the ACHP can provide an opinion about the findings, but cannot overrule the decision; 2) clarifying the procedures for agreeing, not objecting to, and disagreeing with findings by the consulting parties; 3) clarifying the procedures for resolving objections when coordinating with the NEPA process; and 4) allowing the ACHP to propose a program or category of undertaking for exemption of review.

CHAPTER 4

4.1.1.3 Impacts of Resource Management Plan Amendment

The BLM reviewed the following plans to ensure consistency with the proposed plan amendment in accordance with 43 CFR §1610.3-2(a):

Federal Plans

Lower Sonoran RMP (BLM 2012a), including the following plan amendments:

- 2012 Solar Energy Development in Six Southwestern States Programmatic Environmental Impact Statement, and
- 2013 Renewable Arizona Restoration Design Energy Project.

Kingman RMP (BLM 1995), including the following amendments:

- 1997 Statewide Plan Amendment of Land Use Plans in Arizona for Implementation of Arizona Standards for Rangeland Health and Guidelines for Grazing Administration;
- 2004 Arizona Statewide Land Use Plan Amendment for Fire, Fuels, and Air Quality Management;
- 2009 Westwide Energy Corridor Programmatic Environmental Impact Statement;
- 2012 Solar Energy Development in Six Southwestern States Programmatic Environmental Impact Statement;
- 2013 Renewable Arizona Restoration Design Energy Project; and
- Four amendments related to land tenure disposal decisions have also occurred during the life of the plan, these included the Hualapai Mountain Land Exchange, Cane Springs Land Exchange, Disposal of the Tri-State Shooting Range, and the Disposal of the Pinion Pines Fire Department.

Safford District RMP (BLM 1992 and 1994), including the following plan amendments:

- 1994 Land Tenure Amendment to the Safford District RMP Decision Record;

- 1997 Statewide Plan Amendment of Land Use Plans in Arizona for Implementation of Arizona Standards for Rangeland Health and Guidelines for Grazing Administration Environmental Assessment Decision Record;
- 2004 Arizona Statewide Land Use Plan Amendment for Fire, Fuels, and Air Quality Management and Record of Decision;
- 2008 Geothermal Programmatic Environmental Impact Statement and Record of Decision;
- 2009 Section 368 Westwide Energy Corridor Programmatic Environmental Impact Statement Record of Decision;
- 2012 Solar Programmatic Environmental Impact Statement Record of Decision; and
- 2013 Restoration Design Energy Project Environmental Impact Statement Record of Decision and Resource Management Plan Amendments.

Phoenix RMP (BLM 1989)

- Kingman Field Office Travel Management Plan (BLM 2018b)
- Middle Gila Canyons Area Travel and Travel Management Plan (BLM 2010b)

State Plans

Arizona Department of Transportation Long-Range Transportation Plan (2018)

Arizona State Parks and Trails Statewide Comprehensive Outdoor Recreation Plan (2018–2022)

Arizona State Parks and Trails 5 Year Strategic Plan (2018–2022)

Arizona Game and Fish Department State Wildlife Action Plan (2012–2022)

Arizona Department of Economic Security Arizona State Workforce Development Plan (2016)

County and Regional Plans

Central Arizona Governments Regional Transportation Plan (2015)

Maricopa Association of Governments 2040 Regional Transportation Plan (2017)

Pinal Regional Transportation Authority Regional Transportation Plan (2016)

Pinal County Strategic Plan (2017–2020)

Pinal County State Implementation Plan (2018)

Pinal County Community Wildfire Protection Plan (2018)

Pinal County Comprehensive Plan 2009 (updated 2015)

Pinal County Open Space and Trails Master Plan (2007)

Gila County Comprehensive Plan (2003)

Gila County Emergency Operation Plan (2016)

Southern Gila County Community Wildfire Protection Plan (2016)

Mohave County Comprehensive Plan

Municipal and Local Plans

Town of Kearny General Plan (2017)

The BLM did not identify any conflicts or inconsistencies of the proposed plan amendments with any of these plans.

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Appendix I

CONSULTATION AND COORDINATION

This appendix provides a summary of the public involvement, consultation, and coordination activities conducted for the Ray Land Exchange/Plan Amendment SEIS.

The SEIS has been prepared with input from and coordination with interested tribal governments, agencies, organizations, and individuals. Public involvement is a vital component of NEPA for vesting the public in the decision-making process and allowing for full environmental disclosure.

PUBLIC INVOLVEMENT

Because the Proposed Action and alternatives for the Ray Land Exchange/Plan Amendment did not change from the proposal evaluated in the FEIS, additional scoping for the SEIS was not necessary.¹ Nevertheless, the BLM conducted public involvement and outreach activities through multiple contacts and mailings with interested parties and key stakeholders and through press releases to media outlets. All public comments and information received by the BLM through the public outreach, draft SEIS review, and consultation processes were considered in formulation of the final SEIS. The public involvement and outreach activities conducted in preparation of the SEIS are detailed in this appendix.

Mailing List

A mailing list identifying individuals and points of contact from the general public, organizations, government agencies, and interest groups was developed to provide information to the public about the SEIS process. For continuity with the public involvement from the EIS process, the 1995 Ray Land Exchange scoping mailing list, and a public involvement contact list included as Appendix C in the FEIS, were used as the basis for the preliminary mailing list for the SEIS. This preliminary list was updated by mailing the contacts a postcard requesting that the BLM be notified of the party's continued interest in the Ray Land Exchange project. The list was revised based on this continued interest and research identifying current agency and interest group addresses and contacts, adjacent property owners, and BLM permittees. The project mailing list has been updated throughout development of the SEIS.

Website and Project Email Address

A website for the project was located on the BLM Arizona webpage, to provide the public with access to current SEIS information materials and historic EIS documentation. The BLM moved to a new web platform in early 2017. The project website located at <https://eplanning.blm.gov/epl-front-office/epl...> was created in 2017 and provides current project information, including BLM contacts, background information, SEIS project description, land exchange maps, newsletters, mailings, and a Frequently Asked Questions (FAQ) section. Documents posted to the website include the FEIS, the 2010 Ninth Circuit Court of Appeals decision, the draft SEIS, public involvement materials, and more.

The email address blm_az_raylandexchange@blm.gov was made available to the public in April 2012 to receive public comment regarding the SEIS. To date, BLM has received 21 requests by individuals or organizations to be added to the mailing list, requests to receive a copy of the Draft SEIS, and questions about the project schedule. The mailbox is monitored weekly by the BLM project manager.

¹ Title 40 CFR 1502.9

Stakeholder Interviews

To understand current issues and concerns regarding the Ray Land Exchange, the BLM reached out to key stakeholders for information sharing. Key stakeholders included interested individuals from the general public; adjacent property owners; non-governmental organizations; industry and business groups; tribal representatives; and local, state, and federal government representatives. Twenty-three stakeholders were mailed an extensive background packet that describes the SEIS history, Proposed Action, and process, along with a request to participate in a stakeholder interview process. Ultimately, 13 stakeholders who received the information packet either declined to participate in the interview process or were unavailable during the dates and times requested. The following organizations were interviewed by telephone between June 18 and 29, 2012:

- Arizona Mining Association
- Gila County Cattle Growers Association
- Mohave County Development Services
- Tohono O’odham Nation
- Sierra Club
- USFWS
- Arizona Rock Products Association
- AMIGOS
- AGFD
- ASLD

These interviews provided the BLM with individual and organizational issues, concerns, and questions about the Ray Land Exchange and the SEIS process. The BLM addressed concerns through follow-up with individuals and organizations and through analysis and development of the SEIS; these interviews are in the project record.

Mailings, Newsletters, and Press Releases

Public outreach materials used to inform interested parties about the SEIS process included mailings, newsletters, and press releases. Initial mailings were sent out to update the project mailing list and to inform recipients about SEIS initiation, project history, and the general NEPA process. A brief, one-page introduction to the SEIS with a continuing interest postcard attached was sent to approximately 477 recipients in April 2012. Recipients were asked to return the postcard if they were interested in receiving additional information about the SEIS. The mailing list was updated using the continued interest responses. A newsletter, press release, and postcard announced the anticipated release date of the draft SEIS; locations, dates, and times of associated public meetings; methods for submitting public comments; and other pertinent information. The BLM mailed a postcard to 533 persons on the updated mailing list. Table I-1 *Public Outreach Material Summary* identifies the public outreach documents and corresponding date of distribution.

Table I-1. Public Outreach Material Summary

Date	Mailing / Press Release
April 6, 2012	Information letter, attached continued interest return postcard
July 26, 2012	Press release #1 – SEIS initiation announcement
August 1, 2012	Newsletter #1 – SEIS introduction and description
November 17, 2017	Newsletter #2 – Draft SEIS availability for comment and public meeting announcement
November 17, 2017	Press release #2 – Draft SEIS availability for comment and public meeting announcement

Draft SEIS Public Meetings

The BLM hosted four public meetings during the draft SEIS public comment period. Meetings were held in the communities of Kearny (January 16, 2018), Gilbert (January 17, 2018), Tucson (January 18, 2018), and Kingman (January 23, 2018), Arizona. The format of the public meetings included a formal project presentation by the BLM, a brief presentation by ASARCO, followed by a public open house. During the public open houses, resource specialists with the BLM and SWCA were available to answer questions and provide additional project information. Public comments were accepted at the public meetings via a court report and handwritten comment forms. The public was asked to submit comments regarding how the parcels could be adjusted to accommodate the change in appraised values. Comments were received on a paper map at the meetings, and by comments collected during and after the meetings.

Comments on the Draft SEIS

Approximately 495 substantive comments were received on the Draft SEIS from approximately 195 entities/individuals. Table I-2 below shows how the comments were received. The comments were reviewed by the BLM and all substantive comments were used in preparation of the Final SEIS. The comments and responses are provided in Appendix J.

Table I-2. Public Comments Received

Comment Type	Number
Individual Letter/Email	167
Comment Forms at Public Meeting	18

CONSULTATION WITH TRIBAL GOVERNMENTS

The United States has unique legal and political relationships with tribal governments as provided in the Constitution of the United States, treaties, and federal statutes. These relationships extend to the federal government's historic preservation activities, mandating that federal consultation with tribal governments be meaningful, in good faith, and initiated on a government-to-government basis. Tribal consultation on BLM undertakings is required under the implementing regulations of the NHPA, 36 CFR 800.2(a)(4) and 800.2(c)(2)(ii), and is generally required under the public scoping requirements associated with NEPA. Projects may proceed without tribal input provided a good-faith effort has been made to elicit comment through consultation. Tribes may provide comment from the perspective of the NHPA regarding the effects to historic properties any time a project is active, including after a decision has been made. The consultation under the NHPA is solely to determine effects to historic properties.

Correspondence

Official letters were sent on June 15, 2011, to 17 tribes (Ak-Chin Indian Community, Chemehuevi Tribe, Colorado River Indian Tribes, Fort McDowell Yavapai Nation, Fort Mojave Indian Tribe, Gila River Indian Community, Havasupai Tribe, Hopi Tribe, Hualapai Tribe, Pueblo of Zuni, Salt River Pima-Maricopa Indian Community, San Carlos Apache Tribe, Tohono O'odham Nation, Tonto Apache Tribe, White Mountain Apache Tribe, Yavapai-Apache Nation, Yavapai-Prescott Indian Tribe) to reinstate and continue consultation on the Ray Land Exchange while an SEIS is being prepared.

Official letters were sent on March 19, 2012, to 15 tribes (Ak-Chin Indian Community, Colorado River Indian Tribes, Fort McDowell Yavapai Nation, Fort Mojave Indian Tribe, Gila River Indian Community, Hopi Tribe, Hualapai Tribe, Pueblo of Zuni, Salt River Pima-Maricopa Indian Community, San Carlos Apache Tribe, Tohono O’odham Nation, Tonto Apache Tribe, White Mountain Apache Tribe, Yavapai-Apache Nation, Yavapai-Prescott Indian Tribe) to reinitiate and continue consultation on the Ray Land Exchange while an SEIS is being prepared. Comments were received by the Gila River Indian Community (April 5, 2012, and May 17, 2012), Hopi Tribe (May 7, 2012), Tohono O’odham Nation (April 4, 2012), and Salt River Pima-Maricopa Indian Community (June 26, 2012).

Official letters were sent on July 3, 2012, to the SHPO and eight tribes (Gila River Indian Community, Hopi Tribe, Hualapai Tribe, Salt River Pima-Maricopa Indian Community, Tohono O’odham Nation, Tonto Apache Tribe, White Mountain Apache Tribe, Yavapai-Prescott Indian Tribe) to request continuing consultation with the draft *Archaeological Work Plan for the Sample Resurvey and Eligible Site Condition Evaluations for the Ray Land Exchange, Gila and Pinal Counties, Arizona* (Bartholomew and Tremblay 2012) for review and comment by the Gila River Indian Community (August 14, 2012), White Mountain Apache Tribe (August 2, 2012), and SHPO (August 9, 2012).

Official letters were sent on July 22, 2013, to the SHPO and 15 tribes (Ak-Chin Indian Community, Colorado River Indian Tribes, Fort McDowell Yavapai Nation, Fort Mojave Indian Tribe, Gila River Indian Community, Hopi Tribe, Hualapai Tribe, Pueblo of Zuni, Salt River Pima-Maricopa Indian Community, San Carlos Apache Tribe, Tohono O’odham Nation, Tonto Apache Tribe, White Mountain Apache Tribe, Yavapai-Apache Nation, Yavapai-Prescott Indian Tribe) continuing consultation and providing the *Archaeological Sample Survey and Site Evaluations for the Ray Land Exchange, Pinal County, Arizona* (Bartholomew and Tremblay 2013a); the *Addendum: Archaeological Resurvey of Approximately 2,464 Acres for the Ray Land Exchange, Pinal County, Arizona* (Bartholomew and Tremblay 2013b); and the updated ethnographic report titled *An Overview of Native American Use of Selected Lands for the Proposed BLM-ASARCO Ray Land Exchange, Gila and Pinal Counties, Arizona* (Tremblay 2013) for review and comment from the Gila River Indian Community (August 26, 2013), Hopi Tribe (August 16, 2013), San Carlos Apache Tribe (August 12, 2013), and SHPO (August 26, 2013).

Meetings

The BLM project management team has attended meetings with cultural resource staff from the Ak-Chin Indian Community, Gila River Indian Community, Hopi Tribe, Salt River Pima-Maricopa Indian Community, Tohono O’odham Nation, and White Mountain Apache Tribe (Table I-3 *Informal Tribal Meeting Summary*). The meetings shown in Table I-3 represent informal project coordination.

Table I-3. Informal Tribal Meeting Summary

Date	Attendees
September 18, 2012	Hopi Tribe cultural resources staff
September 20, 2012	Four Southern Tribes Cultural Resources Workshop – Ak-Chin Indian Community, Gila River Indian Community, Salt River Pima-Maricopa Indian Community, and Tohono O’odham Nation
February 14, 2013	White Mountain Apache Tribe cultural resources staff
March 15, 2013	Four Southern Tribes Cultural Resources Workshop – Ak-Chin Indian Community, Gila River Indian Community, Salt River Pima-Maricopa Indian Community, and Tohono O’odham Nation
August 13, 2013	Four Southern Tribes Cultural Resources Workshop – Ak-Chin Indian Community, Gila River Indian Community, Salt River Pima-Maricopa Indian Community, and Tohono O’odham Nation

Date	Attendees
November 15, 2013	Four Southern Tribes Cultural Resources Workshop – Ak-Chin Indian Community, Gila River Indian Community, Salt River Pima-Maricopa Indian Community, and Tohono O'odham Nation
June 2018	Four Southern Tribes Cultural Resources Workshop – Ak-Chin Indian Community, Gila River Indian Community, Salt River Pima-Maricopa Indian Community, and Tohono O'odham Nation

Note: These meetings do not represent official government-to-government consultation.

Official government-to-government consultation meetings between BLM management staff and tribal governments have taken place as follows: April 3, 2014, with the Four Southern Tribes in Sacaton, Arizona and April 29, 2014, with the Hopi Tribe in Kearny, Arizona. More meetings like this are anticipated as the project continues. Participants and dates for future meetings are yet to be determined. In addition, the BLM and tribal government representatives have taken field trips to areas that are included in the land exchange as part of ongoing Section 106 consultation.

Programmatic Agreement

The BLM is the lead federal agency for compliance with Section 106 of the NHPA. Section 106 of the NHPA requires the federal agency to take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for the NRHP. In addition, the federal agency shall afford the ACHP a reasonable opportunity to comment with regard to such undertaking. The Arizona SHPO assists the federal agency in meeting its Section 106 requirements by consulting with the agency on federal undertakings that may affect historic properties and the content and sufficiency of any plans developed to protect, manage, or to reduce or mitigate harm to such properties.

On August 28, 2014, the Arizona SHPO concurred with the BLM finding that the Ray Land Exchange would have an adverse effect to the historic properties located within the project area of potential effect. On October 16, 2014, the BLM notified the ACHP of the adverse effect finding and invited them to participate in the resolution of the adverse effects. On November 3, 2014, the ACHP notified the BLM that the ACHP has decided to participate in consultation on this undertaking.

Pursuant to 36 CFR 800.14, the BLM, ACHP, and the Arizona SHPO executed a PA to consider alternatives to this undertaking that could avoid, minimize, or mitigate potential adverse effects on historic properties. The draft and final PA are included in the project record.

LIST OF PREPARERS

The SEIS was prepared and reviewed by a team from the BLM. A team associated with SWCA assisted the BLM in conducting research, gathering data, and preparing the SEIS and supporting documents. Table I-4 *List of Preparers* identifies team members and their roles.

Table I-4. List of Preparers

Organization	Name	Qualifications	Project Role
BLM – Gila District Office (GDO)	Scott Feldhausen	–	Gila District Manager, Decision Maker for Land Exchange
BLM – Arizona State Office (ASO)	Mike Werner	B.S., Natural Resources	Project Manager
BLM – ASO	Tamra Emmett	B.S., Psychology	Assistant Project Manager (former)

Appendix I.
Ray Land Exchange/Plan Amendment Final SEIS – Consultation and Coordination

Organization	Name	Qualifications	Project Role
BLM – ASO	Lucas Lucero	–	State Office Branch Chief (former)
BLM – ASO (retired)	Becky Heick	–	State Office Branch Chief
BLM – ASO	Nancy Favour	M.S., Planning B.A., Economics and Geography	NEPA Specialist, Lead
BLM – ASO (retired)	Jeff Garrett	B.S., Geology	Minerals Specialist
BLM – ASO (retired)	Susanne Rowe	M.A., Anthropology B.A., Geography	Deputy Preservation Officer
BLM – ASO	Matt Basham	M.A., Anthropology B.A., Anthropology	Deputy Preservation Officer
BLM – ASO	Mark D'Aversa	–	Water Rights Specialist
BLM – ASO	Peter Godfrey	–	Economic Geologist
BLM – ASO	Michael Johnson	–	Socioeconomics
BLM – Tucson Field Office (TFO)	Jayne Lopez	–	Tucson Field Manager
BLM – TFO (retired)	Ben Lomeli	B.S., Watershed Hydrology	Hydrologist
BLM – TFO	Darrell Tersey	B.S., Wildlife Ecology	Biologist
BLM – TFO	Francisco Mendoza	B.S., Landscape Architecture	Outdoor Recreation Planner
BLM – TFO	David Murray	–	Hydrologist/Water Resources
BLM – TFO	Maggie Hartney	–	Realty Specialist
BLM – TFO	Daniel Moore	M.S., Hydrogeology B.S., Geology and Geophysics	Geologist/Air Quality Specialist
BLM – TFO	June Lowery	–	Public Affairs Specialist
BLM – TFO	Amy McGowan	–	NEPA Coordinator
BLM – TFO	Kristin Duarte	–	Natural Resource Specialist
BLM – TFO (former)	Adam Milnor	B.S., Recreation Management	Public Affairs Specialist
BLM – TFO	Chris Schrager	B.S., Anthropology	Cultural Resources Specialist
BLM – Safford Field Office (SFO)	Derek Eysenbach	B.S., Geography M.S., Geography	NEPA Coordinator
BLM – National Operations Center	Joshua Sidon	Ph.D., Economics	Socioeconomics Specialist
SWCA	Ken Houser	M.A., Geology	Principal
SWCA	Charles Coyle	M.A., English	Project Manager (former)
SWCA	Jill Grams	M.L.A., Landscape Architecture	Assistant Project Manager (former)
SWCA	Alexandra Shin	M.A.S., Environmental Policy and Management	Socioeconomics Specialist, Assistant Project Manager
SWCA	Colin Agner	B.S. Environmental Science	Range, Recreation, Cumulative
SWCA	Donna Morey	B.S., Urban Planning	Project Administrator
SWCA	Cara Bellavia	M.U.E.P., Master of Urban and Environmental Planning	Socioeconomics Specialist
SWCA	DeAnne Rietz	M.S., Watershed Management	Hydrologist
SWCA	Jeffery Johnson	M.S., Plant Biology	Biologist

Appendix I.
Ray Land Exchange/Plan Amendment Final SEIS – Consultation and Coordination

Organization	Name	Qualifications	Project Role
SWCA	Meggan Dugan	M.A.S., Geographic Systems	Biologist
SWCA	Adrienne Tremblay	Ph.D., Anthropology	Archaeologist
SWCA	Ryan Rausch	M.E.L.P., Environmental Law	Project Manager, Recreation Specialist
SWCA	Bradley Sohm, P.E.	B.S., Chemical Engineering	Air Quality Specialist
SWCA	Michael Standart	B.A., Geography	GIS Specialist
SWCA	Chris Query	M.A.S., Geographic Information Systems	GIS Coordinator
SWCA	Heidi Orcutt-Gachiri	Ph.D., Linguistics and Anthropology	Managing Editor
SWCA	Kelley Cox	B.S., Business Administration	Publication Specialist
Burch Consulting, LLC	Al Burch	M.S., Geology	Mining and Minerals Specialist
Rozelle Group	Marty Rozelle	Ph.D., Community Education	Public Involvement

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Appendix J

DRAFT SEIS PUBLIC COMMENTS AND RESPONSES

Public comments were sought on the Draft SEIS. A 90-day comment period commenced with the publication of the Notice of Availability in the *Federal Register* on November 17, 2017, and ended on February 17, 2018.

The BLM hosted four public open-house meetings in January 2018 to allow the public an opportunity to ask questions and provide comments on the Draft SEIS. Meetings were held in the following locations:

- January 16, 2018, from 5:00–7:30 p.m. at Ray School Auditorium in Kearny, Arizona;
- January 17, 2018, from 5:00–7:30 p.m. at Southeast Regional Library in Gilbert, Arizona;
- January 18, 2018, from 5:00–7:30 p.m. at Pima Community College in Tucson, Arizona; and
- January 23, 2018, from 5:00–7:30 p.m. at Mohave Community College in Kingman, Arizona.

Each meeting included a brief project presentation by the BLM and ASARCO, as well as an open-house format to encourage two-way dialogue and discussions of the issues addressed in Draft SEIS. Several informational posters were on display that described project alternatives and resource issues. Written comments and oral comments (via court reporter) were accepted at the public meetings.

The meetings were advertised in the *Federal Register*, and the project website. Postcards announcing the meetings and locations were mailed to the same mailing list used during scoping and additional public outreach. Tribal consultation with 17 tribes was re-initiated on March 19, 2012; 4 tribes responded. The Draft SEIS and PA were discussed at meeting between BLM and 4 tribes in June 2018.

CDs of the Draft SEIS were distributed to interested parties. Printed copies of the Draft SEIS were made available for review at the Kearny Public Library the BLM's Arizona State Office, Tucson, and Kingman Field Offices. The Draft SEIS was also made available on the BLM project website. A total of 185 comment letters (excluding duplicate letters) were received from individuals or businesses, agencies, organizations, and tribes. All comments on the Draft SEIS were received and given careful consideration, with necessary changes incorporated into this Final SEIS.

RESPONSE TO COMMENTS

BLM read each comment letter submitted on the Draft SEIS, and identified and separated potentially substantive comments from the letters. These comments were then reviewed individually for their substance, and categorized into subject matter (example: access and recreation; equalization; or, editorial matters). Substantive comments were incorporated into revisions to the Draft SEIS and provided a response. Non-substantive comments were dismissed, as explained by rationale below. All comment letters were retained in the administrative record. Selected comment letters have been provided online.

Non-substantive Comments

Non-substantive comments are those that merely express an opinion; raise issues that are beyond the scope of, or are irrelevant to, the current project; or take the form of vague, open-ended questions. BLM noted and recorded non-substantive comments but did not develop a response, nor include those comments in the summary tables. Non-substantive comments on the Draft SEIS included:

- Legal Rationale. The BLM received comments containing extensive legal argument or legal citations that are not germane to the accuracy of the analysis or cause changes in the alternatives presented in the Draft SEIS. The BLM has provided responses to substantive portions of such comments, but has not responded to, or included in the response tables, portions of comments that consist solely of: case names and holdings; restatements of legal authorities or principles; or legal

argument that does not identify an issue specific to the text or analysis in this SEIS. Example from Comment Letter 117 (available for review at <https://go.usa.gov/xmkTs>):

It appears that, as with the agency that proposed the land exchange at issue in National Audubon Society v. Hodel, BLM is preparing a public interest determination based on the accrual of purported resource protections from the trade that are in fact grossly overstated.

- Editorial Suggestions. The BLM received numerous comments pointing out typographical errors, inconsistencies within the narrative, misstatements, confusing narrative, and suggested revisions and reorganization. The Final SEIS has been edited for conciseness, clarity and accuracy in accordance with Secretary's Order 3355, and this is reflected in narrative organization that has been retained in the Final SEIS. Additionally, the Final SEIS was proofread to capture typographical errors and narrative inconsistencies. The BLM carefully considered all editorial suggestions as the Final SEIS was prepared, but did not inventory and directly respond to these suggestions in the summary tables unless the comments were deemed substantive to the analysis. Example from Comment Letter 119 (available for review at <https://go.usa.gov/xmkTs>):

[Pg 160, § 4.4.1.2, Table 4.4-1] ASARCO suggests deleting Table 4.4-1. The information provided is confusing and seems irrelevant. The land exchange would result in no measurable effect to air quality. The CAA will continue to apply to Asarco's operations, regardless of whether the land exchange takes place. Moreover, air quality permitting is not within the purview of BLM.

- Structure and Organization. The BLM received comments suggesting that the Draft SEIS be reorganized and structured in a manner that, in the commenters' opinion, would better address the deficiencies identified in the litigation on the Final EIS. Example from Comment Letter 119 (available for review at <https://go.usa.gov/xmkTs>):

[Pg 51, § 3.2.2.2, ¶ 3] The discussion of these species does not support any of the effects analyses provided in the Draft SEIS. In addition, the statement is made that general wildlife and migratory bird habitat has not changed within the Selected and Offered Lands since the FEIS, therefore this information does not support any discussion of significant changed circumstances or the "with and without analysis" required by the Ninth Circuit Court of Appeals. NEPA requires only that significant impacts of a proposed action be discussed, not all possible impacts, as the CEQ has explained: "Most important, NEPA documents must concentrate on the issues that are truly significant to the action in question, rather than amassing needless detail." 40 C.F.R. § 1500.1(b)

The BLM has considered these comments to be non-substantive, as they suggest editorial revisions (narrative organization). As clarified in Section 1.1 of the Final SEIS, the court remanded the Final EIS back to the BLM to conduct analysis on the differences between environmental impacts from the foreseeable mining operations due to the proposed exchanged lands being developed under the laws applicable to mining on federal lands, including BLM regulations, if the land exchange does not occur, and impacts from the foreseeable mining operations resulting from the proposed exchanged lands being developed under the laws applicable to mining on private lands, if the land exchange does occur. The analysis in the Final SEIS incorporates the best available information regarding foreseeable mining uses (Appendix C) on the Selected Lands into an analysis that compares how, if at all, the differences in mining regulations under the four alternatives impact the affected environment.

- Equalization. The BLM received comments concerning the value equalization of the lands proposed for exchange. Example from Comment Letter 117 (available for review at <https://go.usa.gov/xmkTs>):

The DSEIS notes that new appraisals have been done for the Selected Lands, but none of that information is contained in the DSEIS. Under NEPA, the public has the right to comment upon

such significant information. At a minimum, this information is critical to determining the full scope of alternatives as well as whether the exchange meets the equal-value and public-interest requirements under FLPMA. As noted above, the Center has requested all appraisal information pursuant to FOIA and reserves the right to supplement these comments upon receipt of all of the requested information. However, the public should not have to submit FOIA requests for such critical information, and the DSEIS should be reissued for public review after this information is included in the revised Draft.

Comments on equalization are beyond the scope of this analysis because the value equalization of the lands is not a required element of the NEPA process. The land exchange must occur under an equal value basis. When the land exchange was proposed in 1996, the values of the Selected and Offered Lands were nearly equal. However, since then, the land values have changed.

The Department of the Interior Appraisal and Valuation Services Office completed a new appraisal in 2018. The Federal lands were appraised at \$4.07 million, and the proponent-owned lands were appraised at \$2.71 million. Although the valuations of the Selected and Offered Lands have changed since the land exchange was first proposed, the Selected and Offered Lands identified in the range of alternatives analyzed in this Final SEIS have remained the same as those analyzed in the Final EIS. The final land exchange and equalization requirements will be presented in the Record of Decision.

- **Public Interest.** The BLM received 105 comments concerning public interest in the proposed land exchange. Of these, 76 generally supported the Proposed Action as beneficial to the public interest, while 26 expressed that the Proposed Action would be detrimental. These general statements offered rationale including community economic concerns, matters of conservation, impacts to recreation and access, and concerns about land use management. Three of the comments were general statements about BLM's mandate to consider public interest in approving land exchanges. Sample public interest comments include:

Letter 128: There is a huge negative impact for me, so I hope that my concerns are addressed. They are small in the scope of the exchange, but really impact my livelihood...Many individuals and groups have provided input about the exchange, but I would argue that my interests and livelihood are most harmed by the land exchange. The land exchange diminishes the value of my ranch, reduces the grazing capacity and quality of my ranch and increases the difficulty by which I operate my ranch.

Letter 201: It is critical to balance the conservation of our cultural and natural resources while maintaining an economically vigorous and fiscally responsible community. The Ray Land Exchange strikes the right balance between conservation through the "Offered Lands" and economic well-being through the "Selected Lands." Additionally, the natural resource value of the Offered Lands is significantly higher than the Selected Lands. Even though the acreage of Selected Lands is higher, those parcels are located in and around large industrial mining operations. On the other hand, the Offered Lands are located in and around designated Wilderness areas, areas of critical environmental concern, riparian areas and habitat for endangered species.

Letter 117: Adding to the fact that acquisition of the offered lands will provide marginal public interest benefits, this land exchange will facilitate an open-pit copper mine which will have disastrous impacts for large segments of both people and wildlife, many of which are addressed in the land exchange regulations at 43 C.F.R. § 2200.6(b): Fulfillment of public needs: Copper prices vary widely. Thus, opening yet more open pit copper mines is not fulfilling any public needs, is creating an even more volatile and unstable industry, and is actually hurting the mining industry by unnecessarily driving copper prices even lower.

Public interest comments are beyond the scope of this analysis because the public interest determination is not a required element of the NEPA process, and the BLM has not yet made such a determination in conjunction with this supplemental analysis. The BLM may complete a land exchange only after a determination is made that the public interest will be well served (FLPMA Chapter 206). The public interest determination is documented in the Project Decision File in accordance with 43 CFR 2200.0-6(b), and will be available upon request. While these comments are non-substantive, the BLM does understand that land management decisions are profoundly important to the communities and personal livelihoods and values of its multiple use stakeholders. In addition to the analysis contained in the Final EIS and Final SEIS, the Record of Decision (ROD) will also consider these comments.

- Purpose and Need. BLM received comments that offered suggestions beyond the purpose and need for this environmental analysis. The Ray Land Exchange Final EIS and Final SEIS examine a range of alternatives in response to the proposed land exchange. Comments that urged the BLM to undertake actions outside the scope of their authority, examine unreasonable alternatives unrelated to the land exchange, and explore issues that would not inform the decision to be made are considered non-substantive. Examples (available for review at <https://go.usa.gov/xmkTs>):

Letter 124: Early, fully informed planning and adequate financial assurance to cover the true and full life-cycle costs of mine management are critical to effectively protect environmental resources from significant and long-term degradation. It is important to secure highly reliable closure and post-closure financial mechanisms at the inception of a mine project so that its availability is not dependent upon the solvency of the operator. Such assurances can make the difference between the project being sufficiently managed over the long-term by the site operator, versus an unfunded or under-funded contaminated site that becomes a liability for taxpayers, e.g., under the Comprehensive Environmental Response, Compensation, and Liability Act. Recommendations: For any alternative that may be selected, we urge BLM to work closely with the State of Arizona and ASARCO to develop provisions to ensure that mining permits include up-front plans and adequate financial assurances to cover the true and full life-cycle costs of mine management.

Letter 117: Real Estate Appraisal, Table of Parcel Descriptions and "Anticipated Use," at 14. According to the BLM's Appraisal for the Exchange: "Most of the [selected] land is considered "mine support," that is, non-mineralized property best suited for uses ancillary to the mine, such as overburden piles or buffer between actual mine use and surrounding lands. Most of the mineral estate land contains no viable economic minerals, and is determined to have value only for reunification with the surface. Some of the lands, parcel numbers RM-6.4, a portion of RM-10, and portions of CB-1, 3, and 4, are mineralized. ... Where the discounted cash flow analysis indicates a value exceeding the mine support conclusion -- \$150/acre -- the mining scenario is the highest and best use. ... [W]here the mining analysis indicates less than \$150/acre, mine support is the maximally productive use." Real Estate Appraisal, Selected Federal Land and Minerals In Pinal and Gila County, Arizona, ASARCO Ray Land Exchange, June 1998, at 2 (emphasis added). Thus, according to the BLM, only these few latter parcels (or portions thereof) are sufficiently mineralized to warrant a further review of the mining economics. In the additional analysis, parcels that did not evidence sufficient mineralization to support actual mine extraction were labeled "mine support" and were given a value of \$150/acre. Based on this BLM analysis, out of the entire selected lands, only parcels RM-6.4 (0.02 acres), RM-10 (portions totaling 68.00 acres), CB-1 (portions totaling 77.50 acres), CB-3 (portions totaling 7.00 acres), and CB-4 (portions totaling 25.00 acres), have arguably any potential value for economic mineralization. Real Estate Appraisal at 39-46. Thus, only roughly 178 out of 10,975 total selected lands acres can even conceivably support actual mining. It should be noted, however, that most of even these lands have been determined to be lacking economic mineralization upon

further review. For example, the appraiser for the selected lands noted ASARCO's position that the RM-10 portions would not sustain an economic mine. The CB-1 parcel similarly failed: "Project feasibility then fails by a wide margin at any reasonable copper price forecast; a price well in excess of \$2.00 per pound in current dollars would be required to yield a 15% internal rate of return." June 16, 1998, Letter from Gerald P. Halmbacher, Certified Appraiser, to Shawn Redfield, BLM Chief Appraiser, Arizona State Office, at 1. Overall, the grand total appraised value for the selected lands, both mineral and surface estates, is only \$1,292,000 – hardly evidence of valuable mineral deposits and a "right" to develop all the parcels.

Substantive Comments

Substantive public comments formed the basis for much of the revision that occurred between publication of the Draft SEIS and the Final SEIS.

In general, substantive comments do one or more of the following:

- Question, with a reasoned basis related to the analysis, the accuracy of information in the Draft SEIS.
- Question, with a reasoned basis related to the analysis, the adequacy of, methodology for, or assumptions used for the analysis.
- Present new information relevant to the analysis.
- Present reasonable alternatives other than those analyzed in the Draft SEIS.
- Present issues for analysis other than those analyzed in the Draft SEIS.
- Cause changes or revisions in one or more of the alternatives.

As substantive comments were identified, they were organized into groups that were more useful to the editing and revision process. These groups are:

- Individual Substantive Comments. Many comments offered new action alternatives, new issues to be analyzed, and reasoned critique of the impact analyses of the Draft SEIS. These general substantive comments are presented in Table J-1, and include responses regarding how the comment is, or is not, incorporated into the Final SEIS.
- Foreseeable Mining Operations and Extent of Analysis. A recurring comment on the Draft SEIS was a general concern that the extent of analysis was insufficient for the decision to be made. More specifically, many of the comments expressed concern about technical aspects and impacts of mining that could foreseeably occur on the Selected Lands. Some comments suggested that a new alternative, consisting of a Mine Plan of Operations (MPO), be added to the SEIS. To simplify the response to these comments, the following response has been referenced in Table J-1 as "GR 1":

General Response 1 (GR 1): Foreseeable Mining Operations and Extent of Analysis

The BLM received comments addressing the technical aspects and impacts of mining, such as a suggestion that one alternative include a mine plan of operations, or that specific details of the proposed mining be analyzed. Most of these comments are beyond the scope of this analysis. The purpose and need for this project is to consider a proposal to exchange certain lands through the disposal of the Selected Lands and the acquisition of the Offered Lands. The analysis compares the impacts if the lands were under the management authority of the BLM and therefore subject to 43 CFR subpart 3809 regulations and other federal laws

and requirements if BLM were the permitting agency, to the impacts if the lands were private and therefore no longer subject to 43 CFR subpart 3809 and only subject to other federal or state laws that apply to private lands. The analysis of any specific mining operations is beyond the scope of this environmental analysis and would be highly speculative since the BLM has not received a proposal from any applicant to mine these lands. However, because mining is reasonably foreseeable on the Selected Lands whether they are exchanged or not, ASARCO has provided a general description of how it may use the Selected Lands in the future (see Appendix C). While this description (Appendix C) is neither binding, nor a detailed operations plan, it is the best estimate on how ASARCO intends to use the Selected Lands. BLM has described the anticipated impacts of these foreseeable uses by alternative in Chapter 4, and presented in comparative form in Table 2.6-1, *Comparative Summary of Anticipated Environmental Consequences of the Ray Land Exchange*.

Comments related to the type and amount of financial assurances (bonding) for a mine plan of operations are outside the scope of this analysis. Bonding of foreseeable mining is an enforcement issue, and not a part of a NEPA analysis for a land exchange.

- Scope of BLM authority under 43 CFR subpart 3809. A recurring comment on the Draft SEIS was a concern that the description of BLM’s authority under 43 CFR subpart 3809 (often abbreviated as “3809”) was inaccurate, confusing, or misleading. To simplify response to these comments, the following response has been referenced in Table J-1 as “GR 2”:

General Response 2 (GR 2): Scope of 43 CFR subpart 3809

The BLM has clarified its authorities under 43 CFR subpart 3809 throughout the Final SEIS. Tables B-1 and B-2 (Appendix B) present detailed comparison of BLM’s regulations as they apply to public lands, and corresponding applicable regulations that apply to private lands in Arizona. BLM’s authority under subpart 3809 to prevent unnecessary or undue degradation has been included in revised discussion of resource impacts in Chapter 4 of the Final SEIS. These discussions clarify applicable performance standards within subpart 3809, and the circumstances under which BLM could impose mitigation measures or conditions of approval on a mine plan of operations.

- Public Access Clarification. The BLM received comments on the Draft SEIS on details regarding public access to the Selected Lands, the White Canyon Wilderness and other routes/areas in the vicinity of the Selected Lands. The following response to these comments has been referenced in Table J-1 as “GR 3”:

General Response 3 (GR 3): Public Access Clarification

Additional narrative has been provided in the Final SEIS to clarify where legal public access does and does not exist (Section 2.3.4) and the impacts to legal public access from the various alternatives (Section 4.7.1). There is a misperception among some members of the public that legal public access exists for a number of routes that are actually on private lands owned by ASARCO. There is no current legal public access on Battle Axe Road to White Canyon Wilderness across lands owned by ASARCO, and common physical access routes in the Chilito area are actually on private land (Figure 4.7-1 *Public access routes impacts overview* (see Appendix F)). The status of *legal* access to the White Canyon Wilderness and Tam O’Shanter Peak area would not change under any of the alternatives, and this has been clarified throughout the Final SEIS. Specific details on route and road closure impacts under all alternatives have been updated throughout Section 4.7 of the Final SEIS.

- Accuracy of Information. Many comments noted misstatements and inaccuracies that, if left unresolved, would lead to inaccurate conclusions, confusing narrative, and/or incomplete or erroneous analysis. BLM inventoried these comments and considered these assertions and corrections in its extensive editing for accuracy and clarity. In many cases, the passage discussed in the comment no longer exists, or has been revised for accuracy and clarity. While BLM has chosen not respond to these comments individually, they have been consolidated, acknowledged, and presented in Table J-2.
- New information. Many comments offered new or updated information and data to those used in the Draft SEIS. These comments are presented with responses in Table J-3.

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Table J-1. General Substantive Comments

Commenter Name	Agency / Organization	Letter ID #	Comment ID #	Comment	Response to Comment
Steward B. Koyiyumptewa	Hopi Tribe	87	9	...we expressed a concern that rock cairns, which may be shrines, offering places, or trail or field markers that are significant to the Hopi Tribe may be considered ineligible isolated occurrences in the archaeological surveys. We also expressed concerns for springs in the project area, the significance of the recorded petroglyphs and pictographs, and reclamation plans. [NOTE: See comment letter for specific comments on archaeological surveys and treatment plan items.]	The BLM understands your concerns. In compliance with Section 106 of the NHPA and NEPA, visits by the Hopi Tribe tribal elders to examine the cairns and rock art were conducted in April 2014 which resulted in one cairn being reclassified as a Hopi shrine and a place of traditional cultural significance under NEPA. Two sites were also identified as places of traditional cultural significance for the Hopi at this time. All three were considered during analysis in the Draft SEIS.
Matthew Ellsworth	American Exploration and Mining Association	93	98	<p>In our review of the Draft Supplemental Environmental Impact Statement (Draft SEIS) for the exchange, we were troubled by some of the BLM's statements concerning BLM's authority under its Surface Management Regulations, codified at 43 C.F.R. subpart 3809. These regulations fulfill the Federal Land Policy and Management Act (FLPMA) requirements that "[i]n managing the public lands the Secretary shall, by regulation or otherwise, take any action necessary to prevent unnecessary or undue degradation of the lands." 43 U.S.C. § 1732(b) (emphasis added).</p> <p>In the Draft SEIS, the BLM indicates that under its Surface Management Regulations, it would have the authority to dictate the contents of applications made by ASARCO and other mining companies for permits from other federal and state agencies. As an example, in discussing water quality, the BLM states that in approving a plan of operations under the Surface Management Regulations, it "would have the opportunity to review the application and possibly place additional requirements on the project design or request site specific changes that Arizona Department of Environmental Quality (ADEQ) may not otherwise require" in issuing an Aquifer Protection Permit.1. Further, the BLM states that the agency has the authority to "oversee" the mine operator's submittal of an application for an Aquifer Protection Permit from ADEQ and could "place additional requirements on the permit issuance or site-specific changes that ADEQ may not normally require."2 Similarly, the BLM indicates that it can regulate groundwater withdrawals under its Surface Management Regulations3. In Arizona, the right to use water is a matter of state law. Comparable statements regarding the BLM's authority to control and dictate the contents of permits issued by other state and federal agencies appear in other portions of the Draft SEIS.</p> <p>We do not believe that the BLM possesses such far reaching authority under either FLPMA or its Surface Management Regulations. In fact, the opposite is true. The BLM relies on the environmental protection standards and requirements of other state and federal agencies in determining whether a mining operation meets the unnecessary or undue degradation (UUD) standard. Thus, if the operator complies with those standards and requirements, the UUD standard is satisfied. We urge the BLM to correct this error in the final Supplemental EIS and approve the Ray Land Exchange</p>	<p>(GR 2)</p> <p>Additional discussion of BLM's role under 43 CFR subpart 3809, with respect to water resources, has been included in Sections 3.3 and 4.3</p>
Matthew Ellsworth	American Exploration and Mining Association	93	98	<p>In our review of the Draft Supplemental Environmental Impact Statement (Draft SEIS) for the exchange, we were troubled by some of the BLM's statements concerning BLM's authority under its Surface Management Regulations, codified at 43 C.F.R. subpart 3809. These regulations fulfill the Federal Land Policy and Management Act (FLPMA) requirements that "[i]n managing the public lands the Secretary shall, by regulation or otherwise, take any action necessary to prevent unnecessary or undue degradation of the lands." 43 U.S.C. § 1732(b) (emphasis added).</p> <p>In the Draft SEIS, the BLM indicates that under its Surface Management Regulations, it would have the authority to dictate the contents of applications made by ASARCO and other mining companies for permits from other federal and state agencies. As an example, in discussing water quality, the BLM states that in approving a plan of operations under the Surface Management Regulations, it "would have the opportunity to review the application and possibly place additional requirements on the project design or request sitespecific changes that Arizona Department of Environmental Quality (ADEQ) may not otherwise require" in issuing an Aquifer Protection Permit.1. Further, the BLM states that the agency has the authority to "oversee" the mine operator's submittal of an application for an Aquifer Protection Permit from ADEQ and could "place additional requirements on the permit issuance or site-specific changes that ADEQ may not normally require."2 Similarly, the BLM indicates that it can regulate groundwater withdrawals under its Surface Management Regulations3. In Arizona, the right to use water is a matter of state law. Comparable statements regarding the BLM's authority to control and dictate the contents of permits issued by other state and federal agencies appear in other portions of the Draft SEIS.</p> <p>We do not believe that the BLM possesses such far reaching authority under either FLPMA or its Surface Management Regulations. In fact, the opposite is true. The BLM relies on the environmental protection standards and requirements of other state and federal agencies in determining whether a mining operation meets the unnecessary or undue degradation (UUD) standard. Thus, if the operator complies with those standards and requirements, the UUD standard is satisfied. We urge the BLM to correct this error in the final Supplemental EIS and approve the Ray Land Exchange.</p>	<p>(GR 2)</p>

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Steve Trussell, Bill Assenmacher, Sydney Hay, Rick Grinnell	American Rock Products Association/Arizona Mining Association, Southern Arizona Business Coalition, AMIGOS, Southern Arizona Business Association	95	12	<p>we are concerned by some of the BLM's statements in the Draft SEIS about the BLM's authority under its Surface Management Regulations, codified at 43 C.F.R. subpart 3809. These regulations implement the requirement in the Federal Land Policy and Management Act (FLPMA) that "[i]n managing the public lands the Secretary shall, by regulation or otherwise, take any action necessary to prevent unnecessary or undue degradation of the lands." 43 U.S.C. § 1732(b) (emphasis added).</p> <p>In the Draft SEIS, the BLM indicates that under its Surface Management Regulations, it would have the authority to dictate the contents of applications made by ASARCO and other mining operators for permits from other federal agencies as well as state agencies. For example, in discussing impacts of the land exchange on surface water quality, the BLM states that in approving a plan of operations under the regulations, the BLM could "include such things as restrictive conditions, further monitoring, or mitigation measures related to [waters of the U.S.], in addition to those required under the Clean Water Act." Draft SEIS at 151. In discussing groundwater quality, the BLM states that the agency has the authority to "oversee" the mine operator's submittal of an application for an Aquifer Protection Permit from the Arizona Department of Environmental Quality and could place additional requirements on the permit issuance or site-specific changes that ADEQ may not normally require." Id. at 152. Likewise, the BLM appears to believe that it can regulate groundwater withdrawals under its Surface Management Regulations, even though the right to use water is traditionally a matter of state law. Id. at 153-54. Similar statements regarding the BLM's authority to control and dictate the contents of permits and authorizations from other agencies appear elsewhere in the Draft SEIS.</p> <p>We do not believe that the BLM possesses such sweeping authority. As stated above, FLPMA directs the Secretary of the Interior (i.e., the BLM) to take action necessary to prevent unnecessary or undue degradation of the public lands, which is often called the UUD standard. The purpose of the Surface Management Regulations is to implement that standard. See 43 C.F.R. § 3809.1. But neither FLPMA nor the BLM's Surface Management Regulations allows the BLM to dictate the contents of permit applications to other agencies or allow the BLM to impose additional conditions and requirements. In fact, as a general rule, the opposite is true. The BLM relies on the environmental protection standards and requirements of other state and federal agencies in determining whether a mining operation meets the UUD standard. Thus, if the operator complies with those standards and requirements (e.g., the terms of a Clean Water Act permit), then the UUD standard is satisfied.</p>	(GR 2)
Steve Trussell, Bill Assenmacher, Sydney Hay, Rick Grinnell	American Rock Products Association/Arizona Mining Association, Southern Arizona Business Coalition, AMIGOS, Southern Arizona Business Association	95	14	<p>we are very concerned about the BLM's apparent assertion of authority to override other regulatory agencies and impose new and unnecessary standards in the Draft SEIS. FLPMA does not delegate such authority to the BLM, nor do BLM's Surface Management Regulations include such authority.</p>	(GR 2)
Chris Pfahl	Silver Valley Engineering	115	105	<p>The unnecessary delay in preparing this Supplemental EIS has caused the real estate values to become unbalanced adding another complication to the process. As you are aware, ASARCO purchased a section of state land that includes the access to the White Canyon Wilderness. ASARCO committed to donate a portion of that section with the access road to BLM if the full land exchange was approved. Since it is unlikely that the full land exchange can be approved due to the appraisal imbalance, ASARCO will likely not donate the parcel and they will continue to control the access to the wilderness which they could block at any time. A solution to this would be to give the donation parcel a per acre appraised value similar to the per acre appraised value of the adjacent selected lands and use that value to help offset the current appraisal imbalance.</p>	<p>This comment reflects a concern on equalization of the Selected and Offered Lands. As noted, ASARCO has no longer committed to offering the donation parcel as a part of the land exchange. Therefore, inclusion of this parcel into any analysis or new alternative would be inappropriate</p>
Roger Flynn Allison N Melton Roger Featherstone Christopher Krupp Sandra Barr	Western Mining Action Project Center for Biological Diversity Arizona Mining Reform Coalition WildEarth Guardians Sierra Club Grand Canyon Chapter	117	52	<p>The original Final EIS and ROD were issued in 1999 and 2000. The environmental conditions of the selected and offered lands, the potential alternatives, the cumulative impacts of nearby activities, and other relevant environmental considerations have significantly changed during these years. Despite this, the DSEIS limits its analysis to only issues it believes the Ninth Circuit ordered to be reviewed in its 2010 decision. "Because this document is intended to provide only the supplemental analysis that the court requested, no new alternatives were considered, and thus no new lands may be added to the exchange." DSEIS "Dear Reader" Introduction at 2. NEPA and FLPMA, however, contain no such self-imposed restriction on the analysis of alternatives, impacts, and other required reviews. Thus, BLM must undertake a full revision of the DSEIS, subject to full public comment under NEPA, without this restriction.</p>	<p>The Final SEIS has been updated to account for changes in policies and the affected human-environment resources. Changes to the affected environment and applicable policies, are discussed, by resource in Chapter 3. Updated impact analysis or each resource is presented in Chapter 4.</p>
Roger Flynn Allison N Melton Roger Featherstone Christopher Krupp Sandra Barr	Western Mining Action Project Center for Biological Diversity Arizona Mining Reform Coalition WildEarth Guardians Sierra Club Grand Canyon Chapter	117	55	<p>The administrative record clearly demonstrates that the vast majority of these unpatented lode mining claims on the Selected Lands do not contain sufficient mineralization to constitute a discovery, and are therefore not valid. According to the 1999 FEIS, the "foreseeable uses" of the lode claims on the selected lands are primarily for waste rock/overburden disposal, solution extraction facilities, haul roads, and other ancillary facilities. FEIS at 2-14, -15, and referenced Tables and Figures; see also DSEIS at 35-38. Although it is somewhat difficult to ascertain from Figure 2-7, it appears that only a small fraction of these lode claims will be actually utilized for mining (i.e., extraction).</p>	(GR 1)

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Roger Flynn, Allison N. Melton, Roger Featherstone, Christopher Krupp, Sandra Bahr	Western Mining Action Project, Center for Biological Diversity, Arizona Mining Reform Coalition, WildEarth Guardians, Sierra Club Grand Canyon Chapter	117	58	<p>As stated in the 1999 FEIS and in the DSEIS, “12 springs (Alice Spring Nos. 1 and 2; Upper Ash Spring; Kane Spring No. 4; Anderson Spring; Unnamed Spring; Ash Spring Nos. 1, 2, and 3; Upper Ash Spring Development; Kane Spring Development; and Anderson Spring Development) are located on the parcels (see Figure 3.3-1) (showing Selected Land parcels). The number and locations of these have not changed since the 1999 FEIS (ADWR 2009a).” DSEIS at 60. The 1999 FEIS stated that:</p> <p>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. 1999 FEIS at 2-28 (Table 2-7). Most of these springs are on Selected Parcel RM-18, which is proposed as a “Buffer” parcel (DSEIS Figure 2.2-1). One spring (“Velma Spring”) is on Selected Parcel CB-1. 1999 FEIS at 3-23 (Table 3-9). Thus, BLM’s proposed alternative, transferring these Selected Lands to ASARCO, would necessarily eliminate BLM’s water rights on these lands.</p> <p>BLM, however, cannot eliminate these water rights, especially the waters and surrounding lands withdrawn under Public Water Reserve #107. Springs and waterholes on public land in the West are reserved for public use by PWR 107, which was created by a 1926 President Calvin Coolidge Executive Order. [NOTE: See comment letter Section IV for further legal description.]</p>	Clarification on BLM's water rights proceedings was added to the Final SEIS at Section 4.3.
Roger Flynn Allison N Melton Roger Featherstone Christopher Krupp Sandra Barr	Western Mining Action Project Center for Biological Diversity Arizona Mining Reform Coalition WildEarth Guardians Sierra Club Grand Canyon Chapter	117	83	Regarding ASARCO’s Offered Lands, the DSEIS states that: “No impacts to mineral resources on the Offered Lands are anticipated under the Proposed Action or any alternatives.” DSEIS at ES-5. Yet BLM does not propose to segregate and then withdraw all these lands from mineral entry under the Mining Law. Under BLM regulations, these lands will be open for mineral entry shortly after the lands are exchanged and become public. Even if these future “open” lands do not have high mineral value (something the record does not affirmatively show with detailed mineral examinations) it does not mean that mining claimants may not seriously degrade these lands in the future.	Impacts with regard to Mineral Resources on the Offered Lands has been updated in Section 4.5 of the Final SEIS.
Roger Flynn, Allison N. Melton, Roger Featherstone, Christopher Krupp, Sandra Bahr	Western Mining Action Project, Center for Biological Diversity, Arizona Mining Reform Coalition, WildEarth Guardians, Sierra Club Grand Canyon Chapter	117	84	<p>The DSEIS fails to provide any meaningful analysis of the cumulative impacts of all past, present, and reasonably foreseeable future activities/actions. [NOTE: See comment letter Section VII for further legal rationale description.]</p> <p>...</p> <p>the adverse impacts from the Exchange and related mining when added to other past, present, or reasonably foreseeable future actions is clearly essential to BLM’s determination (and duty to ensure) that the projects comply with all legal requirements and minimizes all adverse environmental impacts. BLM’s discussion of the cumulative impacts is contained in DSEIS Appendix D, entitled “Cumulative Projects for Ray Area.” In discussing the “Reasonably Foreseeable Future Projects and Resource Conditions in the General Vicinity of the Ray Mine,” in Appendix D, BLM merely provides a short description of other mining projects, local population impacts, and other activities that will have cumulative impacts. No detailed analysis of cumulative impacts is provided. Thus, under the Ninth Circuit precedent noted above, BLM failed to fully consider the cumulative impacts from all past, present, and reasonably foreseeable future projects in the area on water and air quality including ground and surface water quantity and quality, recreation, cultural/religious, wildlife, transportation/traffic, scenic and visual resources, etc. At a minimum, this requires the agency to fully analyze the cumulative impacts from the projects listed in Appendix D, as well as other mining, grazing, recreation, energy development, construction, population/development, roads, etc., in the area.3 (Footnote: As just one example, the DSEIS acknowledges that the Army Corps of Engineers is currently reviewing the proposed Ripsey Wash Tailings Impoundment, with an “Expected Implementation” of “Spring 2018,” but no details or analysis of impacts are provided. DSEIS Appendix D at 3.)</p>	The cumulative effects analysis was revised for the Final SEIS, and presented in Section 4.12. The cumulative analysis was updated to account for reasonably foreseeable future actions about which little to no information was available at the time the Draft SEIS was developed.
Roger Flynn, Allison N. Melton, Roger Featherstone, Christopher Krupp, Sandra Bahr	Western Mining Action Project, Center for Biological Diversity, Arizona Mining Reform Coalition, WildEarth Guardians, Sierra Club Grand Canyon Chapter	117	86	Regarding the impacts from the foreseeable uses of the Selected Lands, the DSEIS mistakenly fails to provide any detailed analysis of the mining and related operations that are likely on these lands. Instead, Appendix C, entitled “Asarco Foreseeable Uses of Ray Selected Lands Report,” merely lists which parcels are projected for mining uses, with a short discussion of the likely operations. No detailed analysis of the environmental impacts from these activities is provided, in violation of NEPA’s mandate that BLM take the required “hard look” at these impacts.	(GR 1)

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Roger Flynn Allison N Melton Roger Featherstone Christopher Krupp Sandra Barr	Western Mining Action Project Center for Biological Diversity Arizona Mining Reform Coalition WildEarth Guardians Sierra Club Grand Canyon Chapter	117	88	<p>NEPA requires agencies to “study, develop, and describe appropriate alternatives to recommend courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources.” 42 U.S.C. § 4332(2)(E). Below are additional reasonable alternatives that would better serve the public interest while still being consistent with the stated purpose and need.</p> <p>Reasonable Alternative: Equal Acreage and Interests Exchanged. There is no rational reason for why the public should suffer a net loss of land as a result of this exchange. A perfectly reasonable alternative is one where the public receives equal acreage and interests to that which ASARCO obtains. Should additional parcels be offered, they need to contain values that are being lost as a result of the exchange such as, but not limited to, inholdings in wilderness areas, wildlife habitat and corridors, water or archeological resources, as well as recreational and scenic values. Merely that ASARCO may not currently own such parcels and interests beyond what is currently offered is not a convincing rationale for dismissing this alternative. ASARCO has the means and ability to acquire such lands for it to obtain the public lands and interests it seeks. Moreover, as discussed below, there are easy ways to reduce the amount of acres and interests that ASARCO would acquire (such as excluding buffer parcels from the exchange) that would achieve a more equal exchange and better suit the public interest.</p>	<p>This comment reflects a concern on equalization of the Selected and Offered Lands. The range of alternatives analyzed by BLM in the Final SEIS covers the alternative proposed by the comment. Furthermore, a similar alternative was considered, but not studied in detail in the Final EIS. Section 2.3.6 of the Final EIS provides rationale as to why this alternative to exclude certain Selected Lands was not further analyzed.</p> <p>Please refer to BLM’s explanation on why comments regarding equalization are considered non-substantive (page J-4).</p>
Roger Flynn Allison N Melton Roger Featherstone Christopher Krupp Sandra Barr	Western Mining Action Project Center for Biological Diversity Arizona Mining Reform Coalition WildEarth Guardians Sierra Club Grand Canyon Chapter	117	89	<p>Reasonable Alternative: Reduce the Acreage and Interests ASARCO Receives and Not The Amount the Public Receives. Another reasonable alternative is the inverse of the action alternatives—an alternative where BLM obtains more acreage and interest than those that it exchanges to ASARCO. This alternative would even better meet the public interest by obtaining more lands and interests while still meeting the stated purpose and need. This alternative could reduce the amount of acres and interests ASARCO would obtain below the amount BLM would receive under the proposed alternative (7,304 acres), require ASARCO to offer up additional parcels, or be a combination of the two. Additional offered parcels need to contain values that are being lost as a result of the exchange such as, but not limited to, inholdings in wilderness areas, wildlife habitat and corridors, water or archeological resources, as well as recreational and scenic values.</p>	<p>This comment reflects a concern on equalization of the Selected and Offered Lands. The range of alternatives analyzed by BLM in the Final SEIS covers the alternative proposed by the comment.</p> <p>Please refer to BLM’s explanation on why comments regarding equalization are considered non-substantive (page J-4).</p>
Roger Flynn Allison N Melton Roger Featherstone Christopher Krupp Sandra Barr	Western Mining Action Project Center for Biological Diversity Arizona Mining Reform Coalition WildEarth Guardians Sierra Club Grand Canyon Chapter	117	90	<p>Reasonable Alternative: Mineral Withdrawal for All Parcels BLM Would Obtain from ASARCO to Protect Resource Values. BLM touts the values of the offered lands, such as being wilderness inholdings and providing important wildlife habitat, including critical habitat, for species like the southwestern willow flycatcher, Category I and II Desert Tortoise Habitat, and desert bighorn habitat. DSEIS at 30. Yet, only a few hundred acres are planned to be segregated and then permanently withdrawn. As a result, the very values of these offered lands would not be secure. The minimal offered acreage that would be segregated and then permanently withdrawn further exacerbates the disproportionality in the exchange (under any of the action alternatives), as ASARCO would further consolidate its ownership of surface and subsurface, while BLM would not.</p> <p>The proposed trade ignores agency direction regarding split estates. BLM’s Land Exchange Handbook discourages land exchange proposals that would create split estates noting that the “surface estate is subservient to the mineral estate, and unless the mineral rights attached to a property have been subordinated, mineral development will take precedence over surface uses and could cause significant conflicts.” H-2200-1 Land Exchange Handbook (Public) (2005), 1-11. Here, only 6,384 acres (McCracken Mountains parcels) of the offered lands are full estate. Nine-hundred and twenty acres are surface estate only, which includes the very parcels that provide what BLM considers some of the most important wildlife habitat. Compare DSEIS at 20 (listing surface only estates that would be acquired) with DSEIS 30 (values of the offered parcels). Having public ownership of only the surface estate for these 926 acres would leave important wildlife habitat subject to the whims of the owner(s) of the dominant mineral estate. The Handbook notes that when considering a trade proposal the agency “must carefully evaluate the need for the non-Federal land being considered for acquisition, uses contemplated and potential conflicts or risks when making a determination concerning the mineral estate. This evaluation is especially important in situations where the non-Federal lands are subject to a third-party mineral interest.” Id. (emphasis added). Further, because fee ownership is more desirable and valuable than split estate, the consolidation of ASARCO’s interests exacerbates the inequality in this exchange—whether it be the overall loss of public acres and interests or questions as to the parity in value between the selected and offered parcels. Excuses such as an expectation of low mineral potential or ACEC coverage do not dispense with the need to analyze this alternative (and indeed require it to protect the public interest under FLPMA). See FEIS at 7-33 (BLM’s response to comments). Technology and management decisions and directions can change, which means the very values for which these parcels would be obtained would be at risk. If the parcels BLM would obtain are indeed of such little mineral import, segregating and withdrawing them as part of the exchange would not be controversial. It would, however, significantly further the public interest by permanently protecting the values BLM claims these parcels provide. Further, if these lands are not segregated/withdrawn, they will be “free and open to exploration and purchase” under the Mining Law. 30 U.S.C. § 22.4 (NOTE Footnote) Under DOI/BLM’s interpretation of the Mining Law, this creates a right of access to any claims on these opened lands —thereby nullifying or adversely affecting the very resource values BLM asserts its ownership will protect.</p>	<p>This comment reflects a concern on equalization of the Selected and Offered Lands. Impacts with regard to Mineral Resources on the Offered Lands has been updated in Section 4.5 of the Final SEIS.</p>

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Roger Flynn Allison N Melton Roger Featherstone Christopher Krupp Sandra Barr	Western Mining Action Project Center for Biological Diversity Arizona Mining Reform Coalition WildEarth Guardians Sierra Club Grand Canyon Chapter	117	91	Reasonable Alternative: All of Parcel RM-18 Remaining in BLM Management. Another reasonable alternative that BLM must consider is retaining federal ownership of RM-18. The fact that much of RM-18 is withdrawn and protected by Presidential Order as detailed above further supports this alternative. This alternative reflects a significant change in ASARCO's plans as this parcel is now proposed use is as 100% buffer. BLM has acknowledged RM-18 has values of high public interest. Indeed, these values were the reason BLM previously considered the “Hackberry Alternative,” which would have kept 1,530 acres of this parcel in BLM management. FEIS at 218. “The purpose of this alternative was to retain in federal ownership a substantial number of archeological sites, several intermittent springs, and Category II desert tortoise habitat.” FEIS at 218. At the time, BLM dismissed this alternative because ASARCO would be using the parcel for a tailings impoundment and other mine related activities, so keeping it in federal management meant both ASARCO and BLM would have to comply with federal laws and regulations. FEIS at 218; DSEIS at 139, Appendix C at i. ASARCO's intentions for RM-18 have drastically changed. ASARCO now plans to use “a different site for a future tailings storage facility and therefore, foreseeable uses for Parcel RM-18 have been changed from a combination of ‘Production, Operation and Support’; ‘Transition’; and ‘Buffer’ to 100% ‘Buffer’”. DSEIS Appendix C at i, 13. Accordingly, BLM needs to consider a reasonable alternative that would keep the entirety of RM-18 in BLM management. This alternative would avoid BLM deciding to transfer rights that it may not dispense at will. At a minimum, this alternative would cover the 95% of the parcel that would be left undisturbed per it being categorized as 100% buffer.	This comment reflects a concern on equalization of the Selected and Offered Lands. The range of alternatives analyzed by BLM in the Final SEIS covers the alternative proposed by the comment. Furthermore, the specific alternative offered in this comment was considered, but not studied in detail in the Final EIS. Rationale as to why this is suggested is not a reasonable alternative is provided in Section 2.3.5 (“Hackberry Alternative”) of the Final EIS. Additionally, please refer to BLM's explanation on why comments regarding equalization are considered non-substantive (page J-4).
Roger Flynn Allison N Melton Roger Featherstone Christopher Krupp Sandra Barr	Western Mining Action Project Center for Biological Diversity Arizona Mining Reform Coalition WildEarth Guardians Sierra Club Grand Canyon Chapter	117	92	Reasonable Alternative: Exclusion of the CG Parcels As ASARCO No Longer Has A Foreseeable Use for Them. As discussed above in the public interest section, another change since 1999 is that ASARCO no longer owns the surface estate to the Casa Grande Parcels (CG-1, CG-2, and CG-3). ASARCO no longer has a “foreseeable use for those parcels” and consequently, there must at least be an alternative where they are excluded from analysis. DSEIS Appendix C at i. In light of ASARCO's lack of plans for these parcels, dispensing with these interests does not further BLM's stated purpose and need. Due to the disparity in acres and interests that would be exchanged between BLM and ASARCO, this alternative cannot be combined with a reduction of offered lands and parcels as seen under the Buckeye and Copper Butte alternatives. It is most appropriate for BLM to exclude these parcels from being exchanged under all action alternatives and any alternative it may select.	This comment reflects a concern on equalization of the Selected and Offered Lands. The range of alternatives analyzed by BLM in the Final SEIS covers the alternative proposed by the comment. Please refer to BLM's explanation on why comments regarding equalization are considered non-substantive (page J-4).
Roger Flynn, Allison N. Melton, Roger Featherstone, Christopher Krupp, Sandra Bahr	Western Mining Action Project, Center for Biological Diversity, Arizona Mining Reform Coalition, WildEarth Guardians, Sierra Club Grand Canyon Chapter	117	93	During the course of nearly 20 years a number of things have changed that call for a reanalysis of the wildlife analysis. Instead, BLM provides a conclusory sentence that “[g]eneral wildlife and migratory bird habitat on the Selected and Offered Lands has not changed since the 1999 FEIS and the previous impact assessments are considered appropriate.” DSEIS at ES-3. Yet, environmental conditions have changed, whether it is increased recreational use, extended droughts, continued information gathering (e.g. as directed in the BLM Desert Tortoise Rangelwide Management Plan requires, 1999 FEIS Appendix F), or other changes that are applicable to the wildlife impacts the proposed exchange would have. Accordingly, BLM must take the required “hard look” of all current conditions, impacts, and alternatives on wildlife and their habitat. BLM cannot rely on an unsupported statement that the wildlife impact assessment from two nearly decades ago remains accurate without providing evidentiary support and analysis to back that conclusion up. BLM and FWS must also address inadequacies with their ESA compliance and analysis for two species that have been listed and received designated critical habitat since 1999. [NOTE: See comment letter Section X for further legal rationale description.]	The affected environment of Biological Resources has been updated in Section 3.2 of the Final SEIS. The Biological Opinion (USFWS 2000) and analysis of listed, threatened, and endangered species still applies for the species covered. In 2013, the BLM submitted a document titled Re-initiation of Consultation of the Proposed Ray Land Exchange, Pinal and Gila Counties, Arizona to the USFWS (received by the USFWS on June 14, 2013) determining that the Proposed Action may affect, is not likely to adversely affect the acuña cactus and would have no effect on proposed critical habitat for the species; and the Proposed Action may affect, is not likely to adversely affect the Gila chub. The USFWS concurred with the above BLM effect determinations on August 7, 2013. In 2018, the BLM submitted another document, titled Updated Biological Assessment for the Re-initiation of Section 7 consultation for the Proposed Ray Land Exchange, Pinal and Gila Counties, Arizona to the USFWS (received by the USFWS on August 3, 2018) determining that the Proposed Action may affect, is not likely to adversely affect the yellow-billed cuckoo and proposed critical habitat for the species. In addition, BLM determined that the Proposed Action would have no effect on northern Mexican gartersnake or proposed critical habitat. The USFWS concurred with the above BLM effect determination on August 14, 2018.

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Roger Flynn, Allison N. Melton, Roger Featherstone, Christopher Krupp, Sandra Bahr	Western Mining Action Project, Center for Biological Diversity, Arizona Mining Reform Coalition, WildEarth Guardians, Sierra Club Grand Canyon Chapter	117	94	<p>BLM Fails to Comply with the ESA Concerning Acuña Cactus. The acuña cactus was listed as endangered in the fall of 2013. Fish & Wildlife Serv. Endangered and Threatened Wildlife and Plants; Endangered Species Status for Echinomastus erectocentrus var. acunensis (Acuña Cactus) and Pediocactus peeblesianus var. fickeiseniae Fickeisen Plains Cactus) Throughout Their Ranges, 78 Fed. Reg. 60608 (Oct. 1, 2013). The critical habitat designation was made in August 2016. Fish & Wildlife Serv. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Acuña Cactus and the Fickeisen Plains Cactus, 81 Fed. Reg. 55266 (Aug. 18, 2016). Acuña cactus was listed as endangered due to risks from habitat destruction resulting from development that fragments and isolates populations, past mining operations, illegal collection, and perhaps drought-induced mortality. Id.; BA at 22. In the BA for the proposed project, BLM concluded, and FWS concurred, that “[t]he proposed action may affect, but is not likely to adversely affect acuña cactus individuals with or without an MPO.” BA at 30.</p> <p>Although critical habitat for the acuña cactus is not designated within any of the parcels that are subject to this proposal, there are parcels with suitable acuña cactus habitat, meaning that the species could, in fact, be present within the proposed project area. BA at 23. The BA acknowledges that RM-18, CH-1, CH-5 and all five of the Copper Butte parcels contain the same soil as mapped for the now designated Mineral Mountain critical habitat unit. BA at 23. These parcels are also in the species’ elevation sweet spot: 1,198-3,773 feet. BA at 23. With the proper soil and elevation ranges being present on eight parcels that would be exchanged to ASARCO, it is improper for BLM to rely on the 1999 FEIS, in which only one of these parcels, CB-1, was surveyed for the cactus. BA at 23. If any of these eight parcels are home to acuña cactus, this is a critical fact that affects the value and public interest of the proposed exchange. Clearly if any of these selected parcels contain the acuña cactus, the species would benefit by BLM retaining management control as section 7 of the ESA would continue to apply and require agency actions that conserve the species. Even though GIS is a useful tool to help identify features and habitat, it is not an end-all-be-all. To fully ensure that the exchange would not jeopardize the species parcel specific surveys are necessary.</p> <p>In making the “may affect, but is not likely to adversely affect” determination, BLM also improperly placed significant emphasis on RM-18 being “identified for buffer use and very little, if any, foreseeable mining uses would occur.” BA at 30. This rationalization makes the identical mistake that BLM made in the 1999 FEIS, which is that it must analyze the difference between the no action and action alternatives because there are differences in what would happen under an MPO and what would happen where the lands are conveyed out of federal management. If RM-18 remained under federal management that could very likely change operations that may occur on this parcel. For example, BLM and FWS would still have to comply with the ESA (section 7) and would be able to impose mitigation, minimization, and avoidance as part of this process to protect acuña cactus. Consultation and such protections, however, would not occur should RM-18 be conveyed to ASARCO, particularly since no land protections or conservation easements are proposed on the lands that would be privatized.</p> <p>The shortfalls discussed above in this section must be cured in order for BLM and FWS to properly comply with section 7 of the ESA and, to properly support a conclusion of “may affect, but not likely to adversely affect.”</p>	<p>BLM consulted with the Fish and Wildlife Service, which determined that the Acuna cactus would not be affected by the land exchange in their concurrence letter. Quoting: "We also reviewed the latest information for potential habitat for the Acuna cactus (J. Crawford, e-mail, July 31, 2013). Based on that analysis of potential habitat, we do not expect that there is any habitat for the Acuna cactus in any of the selected lands. Therefore, we do not expect that any Acuna cactus occurs on selected lands included in the proposed action."</p> <p>There is not any new information on the species since the determination of critical habitat.</p>

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Roger Flynn, Allison N. Melton, Roger Featherstone, Christopher Krupp, Sandra Bahr	Western Mining Action Project, Center for Biological Diversity, Arizona Mining Reform Coalition, WildEarth Guardians, Sierra Club Grand Canyon Chapter	117	95	<p>The analysis for Gila chub is particularly troubling regarding indirect impacts and the heavy discounting of the importance of critical habitat for the species' recovery. BLM's indirect impacts analysis relies on its conclusion that there would not be direct impacts to RM-7, the parcel which contains critical habitat. The reliance on there not being direct impacts to conclude there will not be indirect impacts is not analysis of indirect impacts and improperly narrows the area of analysis to merely RM-7 parcel critical habitat instead of the entirety of the Gila chub critical habitat in Mineral Creek that stands to be affected. See BA at 30 ("Indirect impacts to Gila chub and its designated critical habitat from mining disturbances are not anticipated because there are no foreseeable mining uses identified for the RM-7 parcel.). As a result, BLM and FWS have not analyzed indirect impacts such as groundwater drawdown. The DSEIS admits groundwater drawdown impacts on surface water are foreseeable, yet, there is no analysis in the BA—or elsewhere—discussing the indirect effects water drawdown would have on the already unstable-threatened Gila chub critical habitat in RM-7 and the entire stretch of such habitat in Mineral Creek. DSEIS at 43 ("foreseeable open pits could cause a groundwater cone of depression Perennial surface waters (streams, springs, and wetlands) could be impacted (dewatered) because they depend on underlying shallow water table(s).").</p> <p>The failure to analyze the impacts from groundwater drawdown is also problematic for the cumulative impacts analysis. The DSEIS admits that "[c]umulative impacts to groundwater resources may occur if groundwater pumping for Resolution Copper were to occur in the Mammoth groundwater sub-basin." E.g. DSEIS at 43. Despite this concession, there is no analysis of what this means for Gila chub and their critical habitat. Consequently, both BLM's BA and FWS' concurrence are not ESA compliant.</p> <p>Compounding the deficient impacts analysis is the diminishment of Mineral Creek critical habitat's importance for the recovery of Gila chub. FWS classified Mineral Creek—as well as over half of the designated Gila chub critical habitat—as unstable-threatened. Such vulnerable habitat does not justify agency decisions that further write-off the habitat's importance for the species' recovery. Rather, it requires agencies to be even more protective to ensure further habitat lost is not incurred as such habitat, by definition, is "essential to the conservation of the species." 16 U.S.C. § 1532(5)(A)(i). Where, as here, over half of the designated critical habitat is gravely imperiled, classified as unstable-threatened, it is inconsistent with ESA's conservation mandate to minimize the importance of such habitat. See BA at 25-26 ("The impoundment, Mineral Creek, and Devil's Canyon contain populations of non-native fishes, including sunfish, that are predatory on Gila chub and which would make it unlikely that a population of Gila chub is currently present in Mineral Creek on parcel RM-7.").</p> <p>Furthermore, by writing off the critical habitat on RM-7, the BA and FWS' concurrence are inconsistent with the 2005 Final Rule that established the critical habitat. The de facto conclusion the agencies reach here is that this habitat is not essential to Gila chub conservation even though the reasons they point to are the very ones the 2005 Final Rule acknowledged are responsible for the unstable-threatened classification. This appears to be an end-run around the regulations, rules, and procedures that apply to revising a final rule for critical habitat. To reach this conclusion, FWS needs to fully comply with the rules and regulations of the ESA and the Administrative Procedure Act and not through a BA and concurrence letter.</p>	<p>No changes were made in the Final SEIS, as the USFWS have previously concurred with determinations of effect in their 2013 BA reinitiation concurrence letter for Gila chub.</p> <p>The Final SEIS has been revised and updated to provide more accuracy and clarity on cumulative impacts under all alternatives.</p>
Robin Barnes	ASARCO	119	253	<p>Asarco contends that it is most appropriate to address the effects of future mining activities on the Selected Lands as an indirect effect of the land exchange but with an important caveat: mining and other foreseeable uses of the Selected Lands are not caused by the exchange and thus are not indirect effects of the action. Instead, the indirect effects are based on future mining and other uses of the Selected Lands without the application of the 3809 Regulations, taking into account the other laws and regulations that will continue to apply. In other words, the indirect impact is the incremental effect on the human environment caused by mining if the 3809 Regulations no longer apply. In some cases, such as air quality, there will be Regulations do not. There is no regulatory "gap" created by the land exchange, and, therefore, there are no indirect effects to analyze.</p>	<p>The Final EIS and Final SEIS were prepared in accordance with 40 CFR 1508, consistent with terminology defined in 40 CFR 1508.8(B), with respect to direct and indirect effects. Additional guidance from <i>BLM National Environmental Policy Act Handbook H-1790-1</i>, internal memoranda, and all available guidance provided by the Council on Environmental Quality (CEQ).</p>
Robin Barnes	ASARCO	119	254	<p>In evaluating the incremental effects caused by the land exchange, consideration must be given to the foreseeable uses of the land that Asarco provided to the BLM at Appendix C of the DSEIS. This report provides the best information regarding anticipated future uses of the Selected Lands. As discussed above, approximately 50% of the Selected Lands are anticipated for use as buffer where no mining activity of any kind (either production, operation, or support)</p>	<p>BLM carefully considered the reasonably foreseeable mining uses provided by ASARCO, specifically as described in Appendix C. The Final SEIS has been updated to consistently apply these foreseeable uses in analyzing resource impacts on the Selected Lands.</p>
Robin Barnes	ASARCO	119	255	<p>Mining and the other foreseeable uses of the Selected Lands are not caused by the exchange and therefore are not cumulative impacts. Instead, the cumulative effects must be based on the direct and indirect effects of the land exchange. The latter effects, as explained above, are the incremental effect on the human environment caused by mining if the 3809 Regulations no longer apply. It would be improper to consider the effects of future mining in evaluating cumulative effects.</p> <p>...</p> <p>The direct effects of the exchange are simply a change in land ownership. The indirect effects, i.e., the effects of the exchange occurring later in time, are based on land tenure and other future uses of the Selected Lands without the 3809 Regulations, while taking into account the other laws and regulations that will continue to apply. In other words, the cumulative environmental impact is the incremental effect caused by mining if the 3809 Regulations no longer apply, added to the impact of other past, present, and reasonably foreseeable future actions. Where there are no significant direct and indirect effects, there is no cumulative impact.¹² [NOTE FOOTNOTE 12] For example, there are no cumulative effects to air quality because the CAA and other air quality standards will continue to apply to Asarco's land use activities after the exchange. As a result, the exchange will not impact air quality, and no cumulative effects will occur.</p>	<p>The Final SEIS, at Section 4.12, has been updated to explain and clarify cumulative impacts of the alternatives.</p>

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Robin Barnes	ASARCO	119	264	The discussion in the DSEIS regarding access to the White Canyon Wilderness (WCW) and Tam O'Shanter Peak is incorrect and misleading to the public because it fails to recognize the distinction between physical access and legal access. There is no current legal access to WCW or the Tam O'Shanter Peak climbing area across Asarco's private land. For recreational users to access either of these areas, they must trespass on Asarco's private lands. This circumstance will exist regardless of whether the exchange is completed. Accordingly, references to Asarco maintaining access to the WCW and Tam O'Shanter Peak following the exchange need to be revised in the final SEIS. Asarco does not authorize use of its private land now for public access to these recreational areas and does not intend to do so in the future, with the exception of re-routing Battle Axe Road. ²³ [NOTE FOOTNOTE 23]	(GR 3)
Robin Barnes	ASARCO	119	265	The characterization of existing and future access to the WCW via Battle Axe Road is similarly incorrect. The segment of Battle Axe Road from GR 177 to the boundary of Asarco's existing patented land within the CB-3 parcel is a public right of way (AZA 21389) issued to Pinal County by BLM. But once Battle Axe Road crosses into Asarco's existing patented land, the Pinal County right of way ceases to exist and unauthorized users of the road are trespassing on Asarco's private property. If the exchange is completed, Asarco will acquire the CB-2 and CB-3 parcels subject to the existing Pinal County right of way. In that case, Asarco has committed to working with BLM to re-route Battle Axe Road to facilitate access to the WCW using one of two potential alignments. Contrary to statements in the DSEIS, no alignment for the re-route has been selected at this time. ²⁴ [NOTE FOOTNOTE 24] The future alignment will depend on a variety of factors including: (i) coordination with Pinal County and BLM; (ii) the design of a future mining operations on the CB parcels; and (iii) safety considerations related to public use of the roadway. Accordingly, the characterization of existing and future access to the WCW should be clarified for the reviewing public and the effects of the exchange properly analyzed.	(GR 3)
Robin Barnes	ASARCO	119	266	The effects analysis for special status species fails to properly describe the incremental, nominal difference in regulatory protections of species afforded legal protection under the Endangered Species Act (ESA) in the "with and without analysis." For example, any potential future mining activities proposed by Asarco in the absence of BLM's regulatory oversight would likely require a Clean Water Act Section 404 permit given the nature of mining land uses, the regulatory definition of waters of the United States and the physical terrain of the relevant Selected Lands. Impacts to waters of the United States would then trigger NEPA and ESA compliance by the Army Corps of Engineers, including the requirement for consultation under section 7 of the ESA should it be determined that impacts may likely adversely affect listed species or their designated critical habitat. Attachment 5 contains a detailed discussion of considerations for such analysis. [NOTE: See submittal for attachment]	The Final SEIS has been updated with regards to Biological Resources. Please see Sections 3.2 and 4.2 of the Final SEIS.
Robin Barnes	ASARCO	119	267	Section 3.2.3 identifies special status species occurrence records within a 5-mile radius of the Selected Lands (Table 3.2-1) and the Offered Lands (Table 3.2-2). This screening analysis is overly broad and Asarco believes it would be more appropriate to identify the potential for special status species to occur based on the presence of suitable habitat for those species within the Selected and Offered Lands. In fact, Section 4.2.3.1 identifies the geographic extent of the special status species analysis area as the Selected and Offered Lands parcels. Keeping the two areas consistent and appropriately limited is also in keeping with applicable NEPA regulations require a succinct description of the environment of the area to be affected (40 C.F.R. § 1502.15).	As specific, consistent habitat information is not available for the majority of special status species and each parcel has not been specifically surveyed for the presence of each species, identification of availability of potentially suitable habitat and/or determination of the presence or absence of special status species by parcel is not feasible. AGFD maintains a database of species observations, the Heritage Database Management System that can be queried using the Environmental Review Tool; however, the minimum distance that can be queried is 5 miles from an identified area.
Robin Barnes	ASARCO	119	270	The Draft SEIS contains a discussion of the BLM's surface management regulations, codified at 43 C.F.R. subpart 3809 ("the 3809 regulations") at page 89. This discussion does not address changes in the definition of "unnecessary and undue degradation" ("UUD"), which is central to the "with and without" analysis of the effects of the land exchange required by the Ninth Circuit Court of Appeals. In addition, this discussion is found in the section of Chapter 3 called "Mineral Resources." This is somewhat misleading. The title of the 3809 regulations is "Surface Management." These regulations do not apply to the Selected Lands that have split estates, i.e., where the United States owns the mineral estate but not the surface estate. These Selected Lands contain 2,780 acres. The 3809 regulations apply to use of the surface for mining and related activities on the remaining 8,196 acres of the Selected Lands.	(GR 2)
Robin Barnes	ASARCO	119	272	Moreover, the Selected Lands contain no critical habitat for any listed species. The segment of Mineral Creek within Parcel RM-7 was previously designated as critical habitat for the Gila chub (<i>Gila intermedia</i>). However, the Gila chub is no longer recognized as a distinct taxonomic entity. Instead, the fish previously considered Gila chub are now considered roundtail chub (<i>Gila robusta</i>), a different species which is not listed and has no critical habitat. See 82 Fed. Reg. 16,981 (April 7, 2017). Consequently, the Gila chub species is no longer protected under the ESA. And, obviously, critical habitat cannot exist for a group of fish that is not recognized as a valid taxonomic species. That would violate the ESA. Furthermore, Asarco already owns the surface estate of Parcel RM-7 where the critical habitat for the former Gila chub species is located. If the land exchange is completed, Asarco would acquire only the parcel's mineral estate. Thus, surface land uses that may affect the critical habitat are not currently subject to regulation by BLM. In addition, Parcel RM-7 is not slated for mineral development in the future; its foreseeable use is as a buffer area, and will not change from its current use. For these reasons, therefore, the transfer of the Selected Lands to Asarco are unlikely to have a significant impact on any species or critical habitat that are protected under the ESA. Most critically, the prohibition against taking listed species would continue to exist. And, in addition, Section 7 consultation would continue to be triggered by other federal permits that will be needed for mining operations.	82 Fed. Reg. 16,981 (April 7, 2017) only withdrew the proposed listing of the headwater chub (<i>Gila nigra</i>) and the roundtail chub (<i>Gila robusta</i>). These fish are now recognized as a single taxonomic species—the roundtail chub (<i>Gila robusta</i>). This action did not de-list the Gila chub (<i>Gila intermedia</i>) as this comment states. The Gila Chub is still listed as endangered with critical habitat, which extends onto RM-7. The USFWS concurred with the above BLM effects determinations in a letter dated August 7, 2013. The FSEIS was revised to more clearly describe the potential for impacts to Special Status Species and how regulatory oversight of mining activities and potential environmental impacts to Special Status Species will be fundamentally the same whether under BLM administration or under equivalent state or federal law, and how and to what degree they may differ. The BLM agrees that a ESA Section 10(a) permit may trigger NEPA.
Robin Barnes	ASARCO	119	281	[Pg 8, § 1.7, Table 1.7-1] All secretarial orders (SOs) and executive orders (EOs) should be removed, as they are neither laws nor regulations (which the chart purports to include) and are by no means inclusive of all applicable SOs and EOs. A revised Table 1.7-1 has been provided with ASARCO's comments.	The wording for the title of Table 1.8-1 was revised. The Project Record contains relevant Orders, which the BLM customarily provides along with laws and regulations in draft EISs, as specified in the BLM's NEPA Handbook H-1790-1, Section 8.3.4.3.

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Robin Barnes	ASARCO	119	290	<p>[Pg 12, § 1.7.3.1, ¶ 2] The required incorporation of mitigation measures in mine design to lessen the impact of mining on natural and cultural resources is misstated. The same misstatement occurs on pg. 13 in paragraph 1. Operators voluntarily incorporate environmental protection measures in their designs and/or plans of operation. BLM can then impose mitigation measures on operators as a performance standard to prevent UUD from occurring on public lands. See 43 CFR 3809.5 (UUD definition). See definition below.</p> <p>Unnecessary or undue degradation means conditions, activities, or practices that: (1) Fail to comply with one or more of the following: the performance standards in § 3809.420, the terms and conditions of an approved plan of operations, operations described in a complete notice, and other Federal and state laws related to environmental protection and protection of cultural resources; (2) Are not “reasonably incident” to prospecting, mining, or processing operations as defined in § 3715.0-5 of this chapter; or (3) Fail to attain a stated level of protection or reclamation required by specific laws in areas such as the California Desert Conservation Area, Wild and Scenic Rivers, BLM-administered portions of the National Wilderness System, and BLM-administered National Monuments and National Conservation Areas. [65 FR 70112, Nov. 21, 2000, as amended at 66 FR 54860, Oct. 30, 2001]</p>	(GR 2)
Robin Barnes	ASARCO	119	298	<p>[Pg 19, § 2.1.1, ¶ 2] There is no current legal public access to the White Canyon Wilderness (WCW) Area from SR-177 and, therefore, access to the WCW cannot be “maintained.” Current physical access to WCW is via Battle Ax Road (a Pinal County right-of-way) and subsequent trespass over ASARCO’s private property. Mechanized vehicles cannot be used within the WCW Area and there is currently no designated access or parking area for recreational users of the WCW that does not result in trespass on ASARCO’s private property. References to Battle Ax Road and access throughout the Copper Butte parcels should be corrected (see also Sections 2.1.1, 2.1.1.1, 2.1.2.1, 2.1.3.1, 2.2.1, 3.10.4, 4.1, 4.7.2.2, 4.7.2.3, 4.7.2.4, 4.7.3.1, 4.8.3.3, 4.10, 4.10.2, 4.10.2.1, 4.10.3, 4.10.3.1, 4.10.4, 4.10.4.1, 4.10.5.1, as well as in the Executive Summary and in Table 2.3-1).</p>	(GR 3)
Robin Barnes	ASARCO	119	313	<p>[Pg 45, § 2.3, Table 2.3-1] The table entries under Access and Recreation – Impacts Common to All Action Alternatives are misstated as they relate to access. ASARCO’s use of Battle Ax Road for potential future mining operations has not been determined and ASARCO does not yet have enough information regarding its future mine plan/design to determine which alternative would be provided for access. There is no current legal access to the White Canyon Wilderness Area. Walnut Creek road only provides physical access from the southwestern portion of CB-1 (see 1999 FEIS page 3-45). Rincon Road provides physical access to the Wilderness Area from the south through an ACEC and the Wilderness Area. There is no legal access to connect Rincon Road to Battle Ax Road nor is there legal access to the AZNST across any of these roads.</p>	(GR 3)
Robin Barnes	ASARCO	119	327	<p>[Pg 51, § 3.2.2.1, ¶ 2] EO 13186 has no legal effect on ASARCO’s current or potential future mining activities or on the land exchange. As explained above, the Interior Solicitor recently issued an opinion concluding that the MBTA is limited to affirmative actions that have as their purpose the taking or killing of migratory birds, their eggs, or their nests. The Migratory Bird Treaty Act Does Not Prohibit Incidental Take, Opinion M-37050 (Dec. 22, 2017). The Opinion specifically addressed the scope of EO 13186. The Interior Solicitor explained that the executive order, on its face, “is limited to the management of the federal government” and was “intended only improve the internal management of the executive branch.” Opinion M-37050 at 32 n.172 (quoting EO 13186, 66 Fed. Reg. 3853, §§ 2, 5(b) (Jan. 17, 2001)). Thus, EO 13186 does not alter the scope of the MTBA and BGEPA, nor does the executive order allow the BLM to impose requirements on ASARCO under the MBTA and BGEPA. As a result, the transfer of the Selected Lands will have no effect on ASARCO’s legal duties under MBTA and BGEPA. The MBTA and BGEPA will apply to ASARCO’s current and potential future mining activities in the same manner regardless of whether the exchange takes place. Consequently, EO 13186 does not affect the “with and without analysis.”</p>	The Final SEIS has been revised to better clarify how the MBTA and BGEPA would apply under all alternatives. Sections 3.2 and 4.2 contain revised these explanations.
Robin Barnes	ASARCO	119	328	<p>[Pg 51, § 3.2.2.2, ¶ 3] Additional information is needed to understand the relevance of the game species listed in this section. The discussion of these species does not support any of the effects analyses provided in Section 4.2.2 of the Draft SEIS. In addition, Section 3.2.2 (page 50) provides the statement that general wildlife and migratory bird habitat has not has not changed within the Selected and Offered Lands since the 1999 FEIS. Therefore, this information does not support any discussion of significant changed circumstances or the “with and without analysis” required by the Ninth Circuit Court of Appeals.</p>	Revisions to the affected environment of wildlife have been made to Section 3.2 of the Final SEIS. Impacts to wildlife under each alternative have been revised and clarified in Section 4.2 of the Final SEIS.
Robin Barnes	ASARCO	119	336	<p>[Pg 53, § 3.2.3.2, ¶ 5] ASARCO suggests that analysis area be consistently used throughout the Draft SEIS (e.g. in Section 4.2.3). The Draft SEIS analysis area in the discussion of special status species within Chapter 3 of the Draft SEIS, Affected Environment and Environmental Consequences, identifies species with potential to occur within a 5-mile radius of the Ray Mine Selected Lands. Section 3.2.3.2 states that the special status species reviewed are those listed for Pinal, Gila, and Mohave Counties but Table 3.2-1 provides a list from the from the AGFD HDMS from within 5 miles of the Selected and Offered Lands.</p>	<p>The referenced passage has been revised in the Final SEIS to clarify that while species listed for Pinal, Gila, and Mohave counties were reviewed, only those with documented occurrences and/or critical habitat within 5 miles of the project area were included for analysis.</p> <p>As specific, consistent habitat information is not available for the majority of special status species and each parcel has not been specifically surveyed for the presence of each species, identification of availability of potentially suitable habitat and/or determination of the presence or absence of special status species by parcel is not feasible. AGFD maintains a database of species observations, the Heritage Database Management System that can be queried using the Environmental Review Tool; however, the minimum distance that can be queried is 5 miles from an identified area.</p>
Robin Barnes	ASARCO	119	386	<p>[Pg 108, § 3.7.2.1, ¶ 6] ASARCO’s privately owned land is not open for public uses. Any access by the public across its privately held lands in the Chilito area is via trespass. Any open or unlocked gates on this private property are due to vandalism. There is no current legal public access to the Tam O’Shanter Peak area.</p>	(GR 3)
Robin Barnes	ASARCO	119	387	<p>[Pg 109, § 3.7.2.1, Table 3.7-1] Any vehicle access from Battle Ax Road to Rincon Road is via trespass on private property.</p>	(GR 3)

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Robin Barnes	ASARCO	119	388	[Pg 110, § 3.7.2.1, ¶ 2] The second paragraph on page 110 alludes to a continuation of public access to White Canyon Wilderness Area. This is misleading. There is no current legal access to White Canyon Wilderness Area from SR-177. ASARCO will take title to the CB parcels subject to existing rights of way.	(GR 3)
Robin Barnes	ASARCO	119	389	[Pg 115, § 3.8.1, ¶ 1] The discussion of BLM policies for the management of National Trails is not relevant to the analysis of the land exchange. The AZ Trail does not occur within any portion of the Selected or Offered Lands. The regulatory authority BLM has under 43 CFR 3809 surface management regulations and BLM Manual 6280 would apply only in the context of the “with and without analysis” where potential future mining uses could impact the visual resources along the AZ Trail. This should be clearly articulated to support the requirements from the Ninth Circuit Court of Appeals.	Discussion and analysis of impacts to the Arizona Trail have been updated in Sections 3.8 and 4.8 of the Final SEIS.
Robin Barnes	ASARCO	119	390	[Pg 116, § 3.8.2] Any access to Passage #16 by traveling west on Rincon Road via Battle Ax Road from SR-177 is via trespass on private property. ASARCO suggests removal of the any statement that promotes trespass by the public over private property (e.g. the last two sentences of paragraph 3 under Special Management Areas on page 116).	(GR 3)
Robin Barnes	ASARCO	119	402	[Pg 135, § 4.1, ¶ 2] The Proposed Action description includes a potential rerouting of Battle Ax Road to reduce interaction between public uses and mining. A large portion of Battle Ax Road is a Pinal County right of way, and following completion of the land exchange ASARCO would take title to the Selected Lands subject to this existing right of way. Please also note that the land exchange would not cause mining activities to occur. Thus, the exchange would not require any measure to reduce interactions between the public and mining.	(GR 3)
Robin Barnes	ASARCO	119	403	[Pg 135, § 4.1, ¶ 3] The Buckeye Alternative description includes a potential rerouting of Battle Ax Road to reduce interaction between public uses and mining. A large portion of Battle Ax Road is a Pinal County right of way, and following completion of the land exchange ASARCO would take title to the Selected Lands subject to this existing right of way. Please also note that the land exchange would not cause mining activities to occur. Thus, the exchange would not require any measure to reduce interactions between the public and mining.	(GR 3)
Robin Barnes	ASARCO	119	404	[Pg 135, § 4.1, ¶ 4] The Copper Butte Alternative description includes a potential rerouting of Battle Ax Road to reduce interaction between public uses and mining. A large portion of Battle Ax Road is a Pinal County right of way, and following completion of the exchange, ASARCO would take title to the Selected Lands subject to this existing right of way. Please also note that the land exchange would not cause mining activities to occur. Thus, the exchange would not require any measure to reduce interactions between the public and mining.	(GR 3)
Robin Barnes	ASARCO	119	413	[Pg 145, § 4.2.3.1, ¶ 4] The discussion under No Action Alternative – Selected Lands should qualify the differences in BLM’s regulatory oversight under 43 CFR 3809 and other State and Federal environmental permitting requirements and reference Appendix B.	Section 4.2 and Appendix B of the Final SEIS has been revised for accuracy and clarity.
Robin Barnes	ASARCO	119	417	[Pg 148, § 4.2.4] The Cumulative Effects Analysis for Biological Resources is inadequate. The CIAA (a 50-mile radius around the Ray Mine) does not include the Offered Lands and the only RFFA discussed is the proposed Ripsey Wash Tailings Storage Facility. In addition, Appendix D (Cumulative Projects for Ray Area) should be updated.	Cumulative impacts have been updated in the Final SEIS. Refer to Section 4.12.
Robin Barnes	ASARCO	119	431	[Pg 152, § 4.3.2.3, ¶ 2] Under the discussion of the Aquifer Protection Permit, the text states that “BLM would oversee the APP submittal and would have the authority to prevent unnecessary or undue degradation.” This is erroneous. BLM can impose requirements on mining through the MPO, in accordance with BLM’s Part 3809 regulations, not by reviewing and authorizing the APP application. The 43 CFR 3809 regulations do not allow BLM to control the terms of permit applications filed with other agencies.	(GR 2)
Robin Barnes	ASARCO	119	434	[Pg 153, § 4.3.2.3, ¶ 2] There is no data to support or substantiate the statement that ASARCO would create a cone of depression by dewatering activities. In addition, ASARCO’s foreseeable mining uses described in Appendix C are conceptual and do not provide adequate detail to evaluate for potential impacts to water resources.	References to the cone of depression have been removed in the Final SEIS.
Robin Barnes	ASARCO	119	437	[Pg 153, § 4.3.2.3, ¶ 4] ASARCO questions the validity and relevance of the groundwater model. Under all action alternatives the land exchange is a change in land tenure, and does not cause mining to occur. Any analyses of groundwater withdrawals should occur in the context of the “with and without analysis” required by the Ninth Circuit Court of Appeals on the Selected Lands. Any direct and indirect effects of the Proposed Action or any other action alternative, based on the “with and without analysis”, would be nominal. Other issues with the groundwater model include: x The model erroneously assumes the water being pumped from Hayden Wellfield is groundwater, when in fact it is appropriable surface water. Asarco holds decreed rights to this surface water under Globe Equity Decree 59. x The model evaluated mining activities based on conceptual information that does not provide enough detail to evaluate effects on groundwater resources. x The model assumes an annual withdrawal of 500 AF per year for future mining activities without analyzing annual recharge from surface flows and percolating water. x The model does not provide an assessment of any alternative but the Proposed Action and does not comply with the “with and without analysis” required by the Ninth Circuit.	(GR 1) Additionally, BLM believes use of the model is not intended to fully predict actual water levels based on all sources and stresses in the aquifer; rather, it is a used as an order of magnitude estimate of drawdowns and potential impacts to water resources, including habitat. A summary of the THWELLS modeling inputs and model outputs is provided in Appendix E.

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Robin Barnes	ASARCO	119	445	[Pg 159, § 4.3.4, ¶ 2] The statement that "The projected decline in regional population growth and plans for improvements to grazing management practices on BLM lands would have a minor beneficial impact on both surface and groundwater resources. However, this beneficial impact could easily be negated by the effects that climate change and future droughts would have on water resources" is unsubstantiated. It is also unclear whether these circumstances are relevant to the "with and without analysis", e.g., will mining without the BLM 3809 regulations applying cause more water to be used? If so, the basis for such effect should be explained.	Cumulative Impacts of the Proposed Action have been revised and reorganized in Section 4.12 of the Final SEIS. The passage is this comment is no longer included in the Final SEIS.
Robin Barnes	ASARCO	119	447	[Pg 160, § 4.4.1.1, ¶ 2] ASARCO suggests removing Section 4.4.1.1 as it does not contribute to the analysis of the land exchange (a change in land tenure). The reason there is incomplete and unavailable information is due to the fact that ASARCO's foreseeable uses (potential future mining uses) are general concepts at this point in time and cannot be evaluated on the same level that BLM would evaluate a MPO. Under all action alternatives the land exchange is a change in land tenure. Any analyses of air quality should only be contemplated in the context of the "with and without analysis" required by the Ninth Circuit Court of Appeals. The CAA will continue to apply to Asarco's operations, regardless of whether the land exchange takes place. ASARCO recommends removing reference to the "number of mine shafts" as ASARCO does not and will not operate an underground mine on the Selected Lands.	Impacts to Air Quality under all alternatives have been clarified and edited in Section 4.4 of the Final SEIS.
Robin Barnes	ASARCO	119	452	[Pg 162, § 4.4.2.4, ¶ 2] The Land Exchange would not directly result in impacts to air quality. Future mining uses may impact air quality; indirect impacts to air quality associated with the Land Exchange would be those incremental impacts to air quality that would be different under the "with and without analysis". Clean Air Act regulations would apply with or without the BLM 3809 regulations. Therefore, there would be no measurable indirect effects to air quality from the land exchange. For clarification, the only potential air quality impacts from potential future mining uses would be to PM, PM ₁₀ and PM _{2.5} from potential future mining operations. There will be an insignificant amount of SO2 from mobile sources and no impact to the non-attainment designations for SO2 and Pb.	Section 4.4 of the Final SEIS has been updated to clarify air quality impacts resulting from the Proposed Action. The applicability of air quality regulations (detailed in Section 3.4) has been revised in Section 4.4.
Robin Barnes	ASARCO	119	470	[Pg 184, § 4.7.2, ¶ 2] There is no current legal public access to the White Canyon Wilderness (WCW) Area from SR-177, therefore, access to the WCW cannot be "maintained." Current physical access to WCW is via Battle Ax Road (a Pinal County right-of-way) and subsequent trespass over ASARCO's private property. Mechanized vehicles cannot be used within the WCW Area, and there is currently no designated access or parking area for recreational users of the WCW that does not result in trespass on ASARCO's private property. ASARCO currently has the right to close all access to Section 24 to safeguard its private property. Under any of the alternatives there is no legal access from SR-177 via Battle Ax Road to the WCW, the White Canyon ACEC, or Rincon Road.	(GR 3)
Robin Barnes	ASARCO	119	472	[Pg 184, § 4.7.2, ¶ 5] ASARCO believes the characterization of recreational access to the Offered Lands is incorrect and implies ASARCO condones trespass on its private lands.	(GR 3)
Robin Barnes	ASARCO	119	473	[Pg 185, § 4.7.2.2, ¶ 1] It is incorrect to assume Asarco would allow public access under any action alternative. ASARCO suggests adding the text "under BLM ownership "at the end of sentence 3 to indicate that access to Kane Springs Canyon would remain available only under BLM ownership.	(GR 3)
Robin Barnes	ASARCO	119	474	[Pg 185, § 4.7.2.2, ¶ 4] There is no current legal public access to the White Canyon Wilderness (WCW) Area from SR-177, therefore, access to the WCW cannot be "maintained." Current physical access to WCW is via Battle Ax Road (a Pinal County right-of-way) and subsequent trespass over ASARCO's private property. Mechanized vehicles cannot be used within the WCW Area, and there is currently no designated access or parking area for recreational users of the WCW that does not result in trespass on ASARCO's private property.	(GR 3)
Robin Barnes	ASARCO	119	478	[Pg 186, § 4.7.2.3, ¶ 2] There is no current legal public access to the White Canyon Wilderness (WCW) Area from SR-177, therefore, access to the WCW cannot be "maintained." Current physical access to WCW is via Battle Ax Road (a Pinal County right-of-way) and subsequent trespass over ASARCO's private property. Mechanized vehicles cannot be used within the WCW Area, and there is currently no designated access or parking area for recreational users of the WCW that does not result in trespass on ASARCO's private property. The legal nature of Battle Ax Road would not change under the Proposed Action. ASARCO will take title to the Selected Lands subject to the current rights-of-way of record. The land exchange will not affect Battle Ax Road. ASARCO suggests that the remainder of the paragraph should be deleted as the relocation of Battle Ax Road is not a part of the Selected Lands package and no changes have been made from the 1999 FEIS.	(GR 3)
Robin Barnes	ASARCO	119	479	[Pg 186, § 4.7.2.3, ¶ 3] ASARCO's privately owned land is not open for public purposes. Any access by the public across its privately held lands in the Chilito area is via trespass. Any open or unlocked gates on this private property are due to vandalism. There is no current legal public access to the Tam O'Shanter Peak area.	(GR 3)

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Robin Barnes	ASARCO	119	480	[Pg 186, § 4.7.2.3, ¶ 5] There are numerous inaccuracies in this paragraph as follows: • ASARCO’s privately owned land is not open for public purposes. Any access by the public across its privately held lands in the Chilito area is via trespass. Any open or unlocked gates on this private property are due to vandalism. There is no current legal public access to the Tam O’Shanter Peak area. Asarco is unaware of any mitigation required on access around Tam O’Shanter peak. The land exchange will not impact legal access to this site. • There is no current legal public access to the White Canyon Wilderness (WCW) Area from SR-177, therefore, access to the WCW cannot be “maintained.” Current physical access to WCW is via Battle Ax Road (a Pinal County right-of-way) and subsequent trespass over ASARCO’s private property. • ASARCO suggests that the remainder of the paragraph should be deleted as the relocation of Battle Ax Road is not a part of the Selected Lands package and no changes have been made from the 1999 FEIS. The land exchange will not impact the nature of Battle Ax Road. It is a Pinal County Road and ASARCO will take title subject to the county road. ASARCO does not plan on rerouting Battle Ax Road at the time of the exchange. Any reroute will be negotiated with Pinal County.	(GR 3)
Robin Barnes	ASARCO	119	482	[Pg 187, § 4.7.2.4, ¶ 7] There are numerous inaccuracies in this paragraph as follows: • There is no current legal public access to the White Canyon Wilderness (WCW) Area from SR-177, therefore, access to the WCW cannot be “maintained.” Current physical access to WCW is via Battle Ax Road (a Pinal County right-of-way) and subsequent trespass over ASARCO’s private property. • The relocation of Battle Ax Road is not a part of the Selected Lands package and no changes have been made from the 1999 FEIS. The land exchange will not impact the nature of Battle Ax Road. It is a Pinal County Road and ASARCO will take title subject to the county road. ASARCO does not plan on rerouting Battle Ax Road at the time of the exchange. Any reroute will be negotiated with Pinal County.	(GR 3)
Robin Barnes	ASARCO	119	483	[Pg 188, § 4.7.2.5, ¶ 4] There are numerous inaccuracies in this paragraph as follows: • There is no current legal public access to the White Canyon Wilderness (WCW) Area from SR-177, therefore, access to the WCW cannot be “maintained.” Current physical access to WCW is via Battle Ax Road (a Pinal County right-of-way) and subsequent trespass over ASARCO’s private property. • The relocation of Battle Ax Road is not a part of the Selected Lands package and no changes have been made from the 1999 FEIS. The land exchange will not impact the nature of Battle Ax Road. It is a Pinal County Road and ASARCO will take title subject to the county road. ASARCO does not plan on rerouting Battle Ax Road at the time of the exchange. Any reroute will be negotiated with Pinal County.	(GR 3)
Robin Barnes	ASARCO	119	485	[Pg 189, § 4.7.3.1, ¶ 3] ASARCO’s privately owned land is not open for public purposes. Any access by the public across its privately held lands in the Chilito area is via trespass. Any open or unlocked gates on this private property are due to vandalism. There is no current legal public access to the Tam O’Shanter Peak area. The land exchange will not impact legal access to this site, therefore there is no effect on access. No information has been provided to validate the statement that recreational pursuits have increased on the CH parcels.	(GR 3)
Robin Barnes	ASARCO	119	519	[Pg E-5, § Exec, ¶ 5] ASARCO suggests the description of access to the White Canyon Wilderness in the Executive Summary should clarify the following: • There is no current legal public access to the White Canyon Wilderness (WCW) Area from SR-177, therefore, access to the WCW cannot be “maintained.” Current physical access to WCW is via Battle Ax Road (a Pinal County right-of-way) and subsequent trespass over ASARCO’s private property. • The relocation of Battle Ax Road is not a part of the Selected Lands package and no changes have been made from the 1999 FEIS. The land exchange will not impact the nature of Battle Ax Road. It is a Pinal County road and ASARCO will take title subject to the county road. ASARCO does not plan on rerouting Battle Ax Road at the time of the exchange. Any reroute will be negotiated with Pinal County.	(GR 3)
Robin Barnes	ASARCO	119	520	[Pg ES-5, § Exec, ¶ 4] There are numerous inaccuracies in the Section describing Access and Recreation as follows: • There is no current legal public access to the White Canyon Wilderness (WCW) Area from SR-177, therefore, access to the WCW cannot be “maintained.” Current physical access to WCW is via Battle Ax Road (a Pinal County right-of-way) and subsequent trespass over ASARCO’s private property. • ASARCO suggests that the remainder of the paragraph should be deleted as the relocation of Battle Ax Road is not a part of the Selected Lands package and no changes have been made from the 1999 FEIS. • The land exchange will not impact the nature of Battle Ax Road. It is a Pinal County Road and ASARCO will take title subject to the county road. ASARCO does not plan on rerouting Battle Ax Road at the time of the exchange. Any reroute will be negotiated with Pinal County. • ASARCO has not seen any data that suggests “recreation uses in the Copper Butte area have changed since the 1999 FEIS, primarily as a result of designation by Congress for the Arizona National Scenic Trail (Arizona Trail) on March 30, 2009.”	(GR 3)
Robin Barnes	ASARCO	119	349	[Pg 58, § 3.3.1.1, ¶ 1] The first paragraph states:“While permit submittals to the permitting authority would be reviewed first by the BLM if the land were to remain public . . . differences in the internal review process could likely lead to differences in the permit application submittal package since BLM would have the opportunity to review the submittal and could place additional requirements on the project design that could differ from the USACE’s, EPA’s, or ADEQ’s.” This needs to be clarified. The BLM doesn’t have authority to review and approve permit applications made to other agencies. Instead, the BLM can impose reasonable requirements on mining through the MPO, when necessary to prevent UUD, in accordance with BLM’s Part 3809 rules.	(GR 2)

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Robin Barnes	ASARCO	119	355	[Pg 59, § 3.3.1.1, ¶ 2] Under the discussion of the Aquifer Protection Permit, the text states that “BLM would have the opportunity to review the application and possibly place additional requirements on the project design or request site-specific changes that ADEQ may not otherwise require.” This is misleading. BLM can impose reasonable requirements on mining through the MPO, when necessary to prevent UUD, in accordance with BLM's Part 3809 rules, not by reviewing and authorizing the APP application.	(GR 2)
Robin Barnes	ASARCO	119	429	[Pg 151, § 4.3.1, ¶ 3] The first sentence is not accurate. Characterization of BLM pre-submittal review process is incorrect. The BLM doesn't have authority to review and approve CWA permit applications made to State and Federal agencies. If the exchange does not occur, BLM would retain authority to require an MPO if an activity would result in a significant disturbance of surface water resources on the land subject to the MPO. But the 3809 regulations do not allow BLM to control the terms of permit applications filed with other agencies.	(GR 2)
Robin Barnes	ASARCO	119	491	[Pg 193, § 4.8.3.3, ¶ 2] The reference to potential "degradation" (43 CFR 3809) is a misstatement of the law. Please see the definition of Unnecessary and Undue Degradation at 43 CFR 3809.5.	(GR 2)
Robin Barnes	ASARCO	119	496	[Pg 195, § 4.9.1.1, ¶ 5] Under the No Action alternative, BLM's authority to "review and make necessary and appropriate changes through the NEPA process" is misstated. BLM has authority to require mitigation to prevent UUD only under its 43 CFR 3809 Surface Management Regulations.	(GR 2)
Robin Barnes	ASARCO	119	490	[Pg 192, § 4.8.3.2, ¶ 6] There is no current legal access to AZ Trail Passage #16 via Battle Ax Road. Please see other comments pertaining to access via Battle Ax Road.	(GR 3)
Robin Barnes	ASARCO	119	245	BLM should specifically address the changes that have occurred in BLM's 3809 Regulations since the FEIS was published in 1999 in Section 1.7 (possibly as a supplement to Section 1.7.3.1). The disclosure and analysis of the key components of those regulations are central to a sound “with and without” analysis. We are attaching a summary of the primary changes that resulted from BLM's 2001 adoption of the current 3809 Regulations as Attachment 3 for BLM's consideration. [NOTE: See submittal for attachment.]	(GR 2)
Kathleen Martin Goforth	U.S. EPA	124	27	The DSEIS (p. 152) states that, if the land exchange were to occur, BLM would have the opportunity to apply suggested mitigation and monitoring during the land exchange process; however, it does not identify any suggested mitigation or monitoring measures for the land exchange alternatives. Identification and discussion of mitigation measures are important in assessing the environmental impacts associated with each alternative.	The Final SEIS has been updated to clarify what mitigation measures, if any, could be applied to the action alternatives. For example, Section 4.10 discusses mitigation that could be applied to the effects on Cultural Resources. Additionally, the Record of Decision will discuss foreseeable impacts of the decision, and how those impacts will be minimized through the land equalization process.
Kathleen Martin Goforth	U.S. EPA	124	28	The original Draft Environmental Impact Statement (pp. 4-38, 39) indicated that ASARCO intends a specific production rate at Copper Butte over a nine-year period, although it remains unclear what that production rate would be. ASARCO's intentions for the Chilito and Buckeye deposits are even less defined. Information on foreseeable mine life and production rates for the Copper Butte, Chilito and Buckeye deposits is needed to evaluate potential impacts, including groundwater/surface water impacts from pit dewatering and pit lake development, air emissions, and degradation of habitat and biological resources. Recommendation: In the Final Supplemental Environmental Impact Statement (FSEIS), discuss the foreseeable mining activities at the future Copper Butte, Chilito and Buckeye mines,including anticipated duration, production rates, and potential pit depths; describe the geochemistry and hydrogeology of these areas; and apply this information in analyzing resource impacts among all the alternatives, including the No Action alternative.	(GR 1)
Kathleen Martin Goforth	U.S. EPA	124	29	The concept of and need for "buffer" areas, as described on page 36 of the Draft Supplemental Environmental Impact Statement (DSEIS), is not clear. For example, it is unclear what CB-2 and RM-18 would buffer, or why they would be included in a future mine plan of operations (MPO) if no mining activities would occur on these parcels.	“Buffer” is defined in Section 2.1.1.1. Appendix C provides ASARCO's best-estimate for future use of the Selected Lands. While these foreseeable uses are not binding, BLM has used them to estimate likely impacts from future mining common to all alternatives.
Kathleen Martin Goforth	U.S. EPA	124	31	In the FSEIS, clarify the need for, and proposed use of, buffer real estate and the Casa Grande mineral estate; distinguish how these lands would be managed under private ownership versus public ownership; and indicate whether they would remain included in this land exchange.	“Buffer” is defined in Section 2.1.1.1. Appendix C provides ASARCO's best-estimate for future use of the Selected Lands. While these foreseeable uses are not binding, BLM has used them to estimate likely impacts from future mining common to all alternatives. Additionally, clarity on the inclusion and foreseeable uses of the Casa Grande parcels has been added to the Final SEIS. A final determination on equalization will be provided in the Record of Decision.
Kathleen Martin Goforth	U.S. EPA	124	32	Based on conditions at the Ray Mine, it is highly likely that the post-mining Ray pit lake will be acidic and have high concentrations of several metals, radionuclides and other contaminants, and that birds and other wildlife will have access to it. Active post-closure water management and monitoring is likely to be needed at the Ray Mine for hundreds or thousands of years; however, we are unaware of any geochemical analysis to predict water quality or ecological risk posed by the future Ray pit lake, or any plan or long-term financial assurance established to ensure implementation of measures to prevent such risks into perpetuity. EPA has serious concerns that, if the Copper Butte, Chilito or Buckeye deposits are mined, their post-closure pit lakes would also be contaminated and pose long term risks to wildlife.	(GR 1)
Kathleen Martin Goforth	U.S. EPA	124	34	Discuss the potential geochemistry and ecological risks of the foreseeable future pit lakes under both the APP-only and the MPO/APP scenarios; identify mitigation measures that would avoid potential risks, and describe their anticipated effectiveness. Consider conferring with your BLM Nevada colleagues regarding helpful guidelines they use in geochemical, hydrogeologic and ecological risk characterization and prediction for pit lakes.	(GR 1) Policies regarding the management of groundwater quality have been updated in Section 3.3 of the Final SEIS. The updated impact analysis for water resources is presented in Section 4.3 of the Final SEIS.

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Kathleen Martin Goforth	U.S. EPA	124	35	Discuss the foreseeable pit lakes in the context of their geochemistry and hydrogeology associated with full passive containment or any groundwater flow through for the long-term post-closure period (at least hundreds of years), and identify mitigation that may be needed to avoid or control any impacts to groundwater or surface water quality or quantity in the vicinity.	(GR 1)
Kathleen Martin Goforth	U.S. EPA	124	36	Expand the discussion on page 89 and in Table B-2, p. 15 of 18 to explain the differences between the BLM and State of Arizona financial assurance regulations, including how they could affect the potential long-term impacts to, and management of, water and ecological resources at the Ray Mine and foreseeable future Copper Butte, Chilito and Buckeye mines.	(GR 2)
Kathleen Martin Goforth	U.S. EPA	124	37	According to the DSEIS (p. 153), the Chilito and Copper Butte deposits would need to be dewatered for foreseeable mining activities; however, the potential impacts that would result from dewatering these deposits are not discussed in Section 4.3. Fig. 4.3-1 only depicts drawdown in the alluvial aquifer affected by the Hayden wellfield, and does not describe this aquifer or its connection to other groundwater in the area. Recommendation: Provide further discussion, maps and cross-sections in the SFEIS to describe and depict the hydrogeology, dewatering and post-mining groundwater recovery at the existing mine and the future Copper Butte, Chilito and Buckeye mines. Include potential groundwater pumping rates; potential impacts to groundwater, surface water and habitat resources from groundwater drawdown; and post-mining recovery rates, groundwater flow patterns, and groundwater/surface water interactions. Describe how impacts would be managed and mitigated under each alternative.	(GR 1) Additionally, BLM believes use of the model is not intended to fully predict actual water levels based on all sources and stresses in the aquifer; rather, it is a used as an order of magnitude estimate of drawdowns and potential impacts to water resources, including habitat. A summary of the THWELLS modeling inputs and model outputs is provided in Appendix E.
Kathleen Martin Goforth	U.S. EPA	124	42	Table 3.4-2 in the DSEIS summarizes ambient concentrations of PM ₁₀ and SO ₂ from the ADEQ Hayden Old Jail monitor, which is approximately 16 miles from the Ray Mine and may not accurately represent ambient PM ₁₀ and SO ₂ concentrations at the Ray Mine. EPA is concerned that, if the Copper Butte, Chilito and Buckeye deposits are mined while the Ray Mine and Hayden facilities are still operating (i.e., the next 50 years or more), their emissions would be additive to the emissions from these ongoing operations. It is unclear in Section 3.4 of the DSEIS whether, under an MPO, BLM would need to conduct a general conformity determination and how such a determination could affect a decision whether to approve an MPO.	In terms of proximity, the Old Jail Monitor is the closest monitor to the Ray Mine. Proximity is a key parameter in determine whether a monitor is representative. In addition, without quantifying the emissions from future mining activities that may or may not occur, it is speculative to determine whether an exceedance of the PM ₁₀ or SO ₂ NAAQS would occur. Updates to BLM's responsibilities for air quality permitting are contained in Section 3.4 of the Final SEIS.
Kathleen Martin Goforth	U.S. EPA	124	43	Provide information regarding the general conformity requirements and how these could affect an MPO. The general conformity de minimis thresholds for PM ₁₀ , lead and SO ₂ are 100 tons/year, 100 tons/year and 25 tons/year, respectively.	Updates on clarity and accuracy of BLM's responsibilities for air quality permitting are contained in Section 3.4 of the Final SEIS.
Kathleen Martin Goforth	U.S. EPA	124	47	Under any of the alternatives, springs and riparian habitat could be affected by groundwater drawdown from mining activities. The DSEIS discloses that habitat for several BLM sensitive species could also be adversely affected by foreseeable mining uses and would not be protected if the land is transferred to ASARCO ownership (DSEIS, p. 146). In addition, bighorn sheep reintroduced into the Box Canyon area have moved into the Copper Butte/Buckeye area within the subject lands, and mining activities on the CB parcels would result in the loss of bighorn sheep habitat and habitat fragmentation (DSEIS, p. 143). The DSEIS does not identify mitigation measures that could be implemented to offset any of these impacts under any of the land exchange alternatives or an MPO.	(GR 1) The BLM is unable to speculate on specific impacts, like those offered in this comment, that may occur under foreseeable mining. Therefore, BLM is unable to speculate on what mitigation may or may not be required under foreseeable mining operations.
Individual	Battle Axe Ranch	128	111	This letter summarizes the mitigation demands for the Battle Axe Ranch due to the detrimental impacts of the Ray Land Exchange between the BLM and ASARCO...Here are the previously discussed, but not exhaustive list of terms generally agreed upon to this point [NOTE: See comment letter for full mitigation request]	BLM has updated how public rangeland could be managed under all alternatives in Sections 3.6 and 4.6 of the Final SEIS.
Terry Rambler	San Carlos Apache Tribe	173	15	The DEIS fails to fully and properly disclose, analyze, and propose remedies for highly significant and unmistakably adverse impacts to air, water, and cultural resources, as well as to sensitive, threatened, and endangered species of plants and animals. The Tribe is particularly concerned regarding DEIS inadequacies relating to the identification, assessment, and mitigation of indirect and cumulative effects that already threaten virtually every aspect of human and nonhuman life in the region surrounding ASARCO's Ray complex. ... BLM must provide a clear and complete analysis of all direct, indirect, and cumulative impacts to the environment, especially air quality and to water qualities and quantities. The failure of the DEIS to disclose and analyze all reasonably foreseeable effects on air and water from the all-but guaranteed increase in mining activity is a major shortcoming of the DEIS.	To the extent that foreseeable mining operations can be analyzed, impacts under all alternatives have been updated in Chapter 4 of the Final SEIS. The Final SEIS has been updated to further describe and analyze impacts from the land exchange to resources. The Cumulative Impact Analysis of the Proposed Action has been revised in the Final SEIS, and is located in Section 4.12.

Commenter Name	Agency / Organization	Letter ID #	Comment ID #	Comment	Response to Comment
Terry Rambler	San Carlos Apache Tribe	173	17	<p>Most San Carlos Apaches live downwind from the existing Ray Mine Complex, and many have suffered and are suffering ill effects from decreasing air quality. Regional problems with air and water are obviously attributable to industrial mining. The DEIS fails to address in any measure, as required by Executive Order 12898 pertaining to environmental justice, the disproportionate health and social impact upon the Tribe's members from the degradation of the air and water which will follow this land exchange.</p> <p>...</p> <p>BLM can and must do much more to identify and limit the significant environmental effects and the environmental injustice the proposed action will have on San Carlos Apaches and other people whose health and wellbeing will be diminished through additional mining activity.</p>	<p>Environmental justice considerations and impacts from the land exchange have been updated in Sections 3.11 and 4.11 in the Final SEIS. BLM has adhered to Council on Environmental Quality (CEQ) guidance on incorporating environmental justice alaysis throughout the preparation of the Ray Land Exchange Final EIS and Final SEIS.</p> <p>The Record of Decision of the Final SEIS will acknowledge environmental justice concerns, such as those offered in this comment.</p>
Terry Rambler	San Carlos Apache Tribe	173	18	<p>BLM must provide a more inclusive definition of cultural resources and deliver a complete analysis of all direct, indirect, and cumulative impacts to cultural resources from the proposed action. BLM must define "cultural resources" to include all places, objects, and associated traditions that constitute essential links between the human past and present. Fragile, and generally irreplaceable and non-renewable, cultural resources are recognized using various terms of reference in many Arizona State and U.S. Federal laws, regulations and policies. As you must know, these include, but are not limited to, historic properties (National Historic Preservation Act-NHPA); human remains, cultural items and cultural patrimony (Native American Graves Protection and Repatriation Act-NAGPRA), archaeological resources (Archaeological Resources Protection Act-ARP A), sacred sites (Executive Order 13007), and elements of the human environment (NEPA). Cultural resources define and orient national and tribal identities, providing senses of orientation, place, belonging, and distinctiveness.</p> <p>The existence of cultural resources, as well as their settings, locations, materials, workmanship, feelings, and associations, is profoundly significant for people and groups. Individuals and communities rely upon, utilize, ascribe meanings to, and derive benefits from cultural resources values, including aesthetic, economic, educational, historical, inspirational, political, scientific, social, spiritual, etc. The DEIS fails to adequately acknowledge, address, and assess the range of cultural resources that are being affected by existing mining operations and will be affected by expanded mining activity.</p> <p>...</p> <p>The fact that cultural resource investigations and assessments to date have failed to identify cultural resources created, used, and valued by Apaches is a sure indicator that the investigation and assessment process is woefully inadequate and utterly incomplete.</p>	<p>Cultural and archaeological resources, Traditional Cultural Properties, and human remains are addressed in Sections 3.10 and 4.10 in the Final SEIS. These sections have been revised to address these concerns, and provide greater clarity with regard to the impacts resulting from the alternatives.</p>
Terry Rambler	San Carlos Apache Tribe	173	22	<p>Further steps in NEPA and NHPA processes must identify the full range of effects on all cultural resources by assessing the number, nature and significance of the effects, and considering all reasonable means for avoiding and reducing the impacts of these effects. In other words, the EIS and the record being developed to claim compliance with NHPA must include the results of efforts to identify direct, indirect, biophysical (including chemical, mechanical, atmospheric and hydrologic), visual, sociocultural, and other-short-term, long-term, and cumulative effects of the proposed land exchange and mining expansion on all cultural resources and the people and communities who rely on these resources. This means the EIS and additional efforts to achieve NHPA compliance must, at a minimum, identify effects and impacts on the settings, locations, materials, workmanship, associations, and feelings for each and every qualifying cultural resource.</p>	<p>Cultural and archaeological resources, Traditional Cultural Properties, and human remains are addressed in Sections 3.10 and 4.10 in the Final SEIS. These sections have been revised to address these concerns, and provide greater clarity with regard to the impacts resulting from the proposed alternatives.</p>
Terry Rambler	San Carlos Apache Tribe	173	24	<p>...follow-up planning for the proposed land exchange and mining expansion must affirm and demonstrate BLM commitment to Apache welfare, to the protection of regional water and air, and to a fair return to the American people for the millions of dollars in mineral wealth planned for extraction from our Apache homeland.</p>	<p>Environmental justice considerations and impacts from the land exchange have been updated in Sections 3.11 and 4.11 in the Final SEIS. BLM has adhered to CEQ guidance on incorporating environmental justice throughout the development of the Ray Land Exchange EIS and SEIS.</p> <p>The Record of Decision of the Final SEIS will acknowledge environmental justice concerns, such as those offered in this comment.</p>

Table J-2. Comments Regarding Accuracy

Commenter Name	Agency / Organization	Letter ID #	Comment ID #	Comment	Response to Comment
Robin Barnes	ASARCO	119	245	BLM should specifically address the changes that have occurred in BLM's 3809 Regulations since the FEIS was published in 1999 in Section 1.7 (possibly as a supplement to Section 1.7.3.1). The disclosure and analysis of the key components of those regulations are central to a sound “with and without” analysis. We are attaching a summary of the primary changes that resulted from BLM's 2001 adoption of the current 3809 Regulations as Attachment 3 for BLM's consideration. [NOTE: See submittal for attachment.]	
Robin Barnes	ASARCO	119	248	The land exchange is completed, the direct result will be an adjustment of land tenure. In other words, lands now in federal ownership become private, and lands now in private ownership become federal. That change in ownership is perhaps the only direct effect of the completion of the land exchange. Notwithstanding, much of the analysis of the direct effects of the exchange in the DSEIS incorrectly presumes that the land exchange will immediately result in mining on most, if not all, of the Selected Lands. This mischaracterization pervades the entire effects analysis (including direct, indirect and cumulative effects) and should be corrected in the final SEIS.	
Robin Barnes	ASARCO	119	249	The DSEIS section on Water Resources is a good example of the problems associated with the erroneous assumption that mining will be a direct impact of the exchange (i.e., Sections 3.3.2.1 and 4.3). The issues with the water quantity analysis begin in Chapter 3, where the baseline conditions of the Selected Lands are incorrectly described. First, Chapter 3 includes a detailed discussion of the Hayden well field.6 [NOTE FOOTNOTE 6] This well field is approximately two (2) miles south of the majority of the CH parcels on Asarco's private land and is not part of the Selected Lands. For this reason, the Hayden well field was properly excluded from analysis in the 1999 FEIS.7 [NOTE FOOTNOTE 7] There is no reason for it to now be included in the DSEIS. Second, the water pumped from the wells is characterized in the DSEIS as groundwater when, in fact, it is appropriable surface water to which Asarco holds a federally decreed water right pursuant to the 1935 Globe Equity decree. Finally, the baseline data also includes misleading information regarding water levels (citing depth to groundwater information from isolated wells that are not located on the Selected Lands parcels).	
Robin Barnes	ASARCO	119	250	In Chapter 4, where the effects of “increased pumping from the Hayden well field” are analyzed, BLM erroneously concludes that: (i) if the exchange is approved, mining will result, requiring additional volumes of groundwater to be withdrawn; and (ii) if the exchange is not approved, BLM will retain authority to regulate water use on Asarco's other private land and the effects of drawdown of groundwater levels.8 [NOTE FOOTNOTE 8] Neither of these assumptions is correct. Again, the land exchange does not result in mining—it is simply a change in land tenure. No MPO has been proposed for agency review, and if a plan is proposed in the future, BLM will have no authority to regulate Asarco extraction of water from Asarco's private land, pursuant to Asarco's federally decreed water right, to supply those operations. Accordingly, the effects of water use in the “with and without” scenario” are essentially the same, and no further analysis is warranted.	
Robin Barnes	ASARCO	119	251	BLM's third-party contractor elected to utilize a rudimentary two-dimensional groundwater model to analyze how water levels will decline when future mining occurs. This model has no place in the draft SEIS for the reasons stated above. Even if it did, it is flawed on several levels, including: (1) there are no known pumping rates for future mine water demand; (2) transmissivity of the local aquifer and storage coefficients were estimated using data from four wells a mile away from the Hayden well field; (3) a 100-year pumping duration was used without any basis in fact (i.e., the life of mine of any future facilities on the CB or CH parcels is unknown). The final SEIS should dispense with this unnecessary analysis, which erroneously treats Asarco's surface water withdrawals as groundwater pumping and is driven by the erroneous conclusion that mining will be a direct effect of the land exchange. The discussion in the final SEIS should include a proper analysis of effects (respecting the prior scope of analysis used in the 1999 FEIS) and the “with and without” scenario.9 [NOTE FOOTNOTE 9] Put simply, with the exception of possible imposition of mitigation measures by the BLM for future demonstrated impacts on federal land (based on substantiated increased water demands attributable to the proposed action at the time), there is no difference in the “with and without” scenario for water resources.	
Robin Barnes	ASARCO	119	256	the direct effects of the exchange are simply a change in land ownership. The indirect effects, i.e., the effects of the exchange occurring later in time, are based on land tenure and other future uses of the Selected Lands without the 3809 Regulations, while taking into account the other laws and regulations that will continue to apply. In other words, the cumulative environmental impact is the incremental effect caused by mining if the 3809 Regulations no longer apply, added to the impact of other past, present, and reasonably foreseeable future actions. Where there are no significant direct and indirect effects, there is no cumulative impact.12 [NOTE FOOTNOTE 12] For example, there are no cumulative effects to air quality because the CAA and other air quality standards will continue to apply to Asarco's land use activities after the exchange. As a result, the exchange will not impact air quality, and no cumulative effects will occur.	
Robin Barnes	ASARCO	119	258	In conjunction with the reconsideration of the direct, indirect and cumulative impacts for the final SEIS, a complete rewrite of the content of Table 2.3-1 should be undertaken. Table 2.3-1 purports to summarize the anticipated environmental consequences of the No Action and All Action Alternatives. Unfortunately, Table 2.3-1 is replete with errors and mischaracterizations.	

Commenter Name	Agency / Organization	Letter ID #	Comment ID #	Comment	Response to Comment
Robin Barnes	ASARCO	119	259	One example is the table entry [Table 2.3-1] for “Mineral Resources” specific to the “Mineral Potential” subheading states that the “Selected Lands would be mined for copper under all the alternatives, including the No Action Alternative.” ¹⁸ [NOTE FOOTNOTE 18] This statement is incorrect as the occurrence of the land exchange has no impact on the known mineralization of the Selected Lands parcels (which is, in fact, low for most of the Selected Lands). Moreover, as we have explained above, approximately 50% of the Selected Lands are anticipated to be used for buffer not mining. In addition, under the “Mineral Rights” subheading as an “Impact Common to All Action Alternatives”, the entry states “ASARCO would exercise mineral rights on all mining claims.” In fact, if the land exchange is approved the Selected Lands will become private land and there would be no “exercise of mining rights” or “mining claims” remaining.	
Robin Barnes	ASARCO	119	260	A better tool (in lieu of this erroneous table) would be a table that attempts to summarize the regulatory gap that may exist relative to the future environmental effects associated with mining if mining were to occur without BLM 3809 Regulations. This gap reflects the difference between mining with the MPO requirement in effect, and mining without the MPO requirement under the 3809 Regulations. That is the “with and without” analysis the Ninth Circuit Court found lacking in the FEIS. Unfortunately, as written, Table 2.3-1 does nothing to address this deficiency.	
Robin Barnes	ASARCO	119	273	[Pg 2, § 1.2, ¶ 1] ASARCO assumes the reference to "in situ mine" relates to the Casa Grande parcel. ASARCO does not operate an 'in situ mine." This term should be deleted from the SEIS	
Robin Barnes	ASARCO	119	274	[Pg 3, § 1.2.2, ¶ 6] Remove the text " (or vice versa)" at the top of page 4. The Selected Lands do not include split-estate property where BLM owns the surface estate only.	
Robin Barnes	ASARCO	119	280	[Pg 7, § 1.7, Table 1.7-1] The Federal Land Exchange Facilitation Act of 1988 has expired (and should be removed from the table) and the words, "Federal land exchanges" should be added as an "Applies To" item next to the FLMPA table entry. A revised Table 1.7-1 has been provided with ASARCO's comments.	
Robin Barnes	ASARCO	119	285	[Pg 10, § 1.7.3, Table 1.7-3] The SPCC program is administered by EPA, not ADEQ.	
Robin Barnes	ASARCO	119	287	[Pg 11, § 1.7.3, Table 1.7-4] The 404 permit for "8 dump" should read "Ray Mine Rock Deposition Area (RDA)." See ASARCO's revised Table 1.7-4 in Attachment 6.	
Robin Barnes	ASARCO	119	289	[Pg 11, § 1.7.3, Table 1.7-5] If Table 1.7-5 is not removed from the SEIS, please add APP Permit No. P511223 for the concentrator's WWTP. See ASARCO's revised Table 1.7-5 at Attachment 6.	
Robin Barnes	ASARCO	119	293	[Pg 16, § 1.7.3.2, ¶ 4] The characterization that consultation is required with USFWS regarding listed species when "take" cannot be avoided is a misstatement. There is no consultation requirement under Section 9 of the ESA unless a Section 10 Habitat Conservation Plan is being obtained. Further, Section 10 permits are not required and agency consultation would occur only if an applicant elected to obtain permit coverage to avoid Section 9 liability. Other measures could be taken by an operator to avoid liability under Section 9 of the ESA. See ASARCO's Attachment 5 (Discussion of the ESA in the with and without analysis).	
Robin Barnes	ASARCO	119	294	[Pg 16, § 1.7.3.2, ¶ 5] This paragraph contains many misstatements. It fails to recognize the extensive Section 106 consultation that has taken place in connection with the land exchange and does not address the difference in regulatory oversight. Further, state agency permits on private land are not a trigger for SHPO consultation (only the discovery of funerary objects or human remains trigger consultation with the Arizona State Museum).	
Robin Barnes	ASARCO	119	295	[Pg 17, Table 1.7-6] Although the text in this section discusses the regulatory oversight “with and without” 43 CFR 3809, it should be noted that NEPA analysis has been conducted on the Selected and Offered Lands as part of the NEPA review for this land exchange. In addition, additional NEPA analysis would be required under other federal regulations (e.g. Clean Water Act Section 404).	
Robin Barnes	ASARCO	119	296	[Pg 17, § 1.7.3.2, Table 1.7-6] Though this table identified key resource areas that may lack analysis without BLM regulatory oversight under 43 CFR 3809, it should be noted that NEPA analysis has been conducted on the Selected and Offered Lands as part of the NEPA review for this land exchange. Further, the citation to 3809.420(a)(6) as relating to groundwater quality is not correct. ASARCO provides a revised Table 1.7-6 with correct BLM regulation citations. See Attachment 6.	
Robin Barnes	ASARCO	119	297	[Pg 19, § 2.1. In the third sentence there is discussion of the Donation Parcel, which is not part of the Proposed Action or any alternative. The Donation Parcel is not part of the Offered or Selected Lands packages, and analysis of the effects of the exchange on the Donation Parcel is neither relevant nor warranted. References to an analysis of the Donation Parcel throughout the Draft SEIS should be removed (see Sections 3.2.1.2, 4.1, 4.2.1.2, 4.2.3.1, 4.6.3.2, 4.6.4.1, 4.6.4.2, 4.7.2.1, 4.7.2.2, 4.7.2.3, 4.7.2.4, 4.7.2.5, 4.7.3.1, 4.8.3.3, 4.8.3.4, 4.8.3.5, 4.10.2, 4.10.3, 4.10.4, 4.10.5, the Executive Summary and Table 2.3-1).	
Robin Barnes	ASARCO	119	300	[Pg 26, § 2.1.1.1, ¶ 3] The penultimate paragraph is a misstatement. It indicates that "this parcel contain springs, which are currently used to provide water to livestock." ASARCO does not lease the property for grazing purposes.	
Robin Barnes	ASARCO	119	301	[Pg 37, § 2.2.2, Table 2.2-1] The entry under EXIST (acres) for RM-1 should read “0.4”.	
Robin Barnes	ASARCO	119	305	[Pg 42, § 2.3, Table 2.3-1] Table entry under No Action Alternative/Surface Water states that BLM would have the opportunity to be a party to any CWA 404 permit application. This is erroneous and should be removed.	

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Robin Barnes	ASARCO	119	306	[Pg 43, § 2.3, Table 2.3-1] Discussion of groundwater in this table is not consistent with information presented in remainder of the document and it misstates BLM's authority to regulate groundwater quantity and quality under the State permitting process. As an example, the Table entry under No Action Alternative/Groundwater states that BLM would have the opportunity to "propose groundwater withdrawal restrictions or mitigation/monitoring requirements at the MPO level and would be a party to any APP application process." This is erroneous.	
Robin Barnes	ASARCO	119	307	[Pg 43, § 2.3, Table 2.3-1] The Groundwater Impacts Common to All Alternatives described in this table are inaccurate and misstated. Please refer to ASARCO's key concept comments on Groundwater/Surface Water and specific comments on Section 4.3.	
Robin Barnes	ASARCO	119	308	[Pg 43, § 2.3, Table 2.3-1] The table entry under Groundwater for "Impacts Common to all Action Alternatives" is a summary of the groundwater modeling effects and asserts cumulative effects from Resolution Copper pumping in the Mammoth groundwater sub-basin. This statement is incorrect and inconsistent with the impacts discussed in Section 4.3.2.3. In addition, it is unnecessary to analyze impacts on water because mining is not an effect of the land exchange. See ASARCO's key concept comments regarding the With and Without Analysis.	
Robin Barnes	ASARCO	119	309	[Pg 43, § 2.3, Table 2.3-1] Table entries under "Impacts Common to All" and "No Action" for "Mineral Resources" is not correct and is inconsistent with other text in the DSEIS. Most of the Selected Lands will not be mined.	
Robin Barnes	ASARCO	119	311	[Pg 44, § 2.3, Table 2.3-1] The table entry describing "Management of Public Lands" under the Impacts Common to All Action Alternatives does not appropriately describe the change in land tenure and erroneously describes the foreseeable uses. See ASARCO key concept comments regarding the Analysis of Effects of the Ray Land Exchange.	
Robin Barnes	ASARCO	119	312	[Pg 44, § 2.3, Table 2.3-1] The table entry under "Impacts Common to All" for Rights of Way refers to a re-route of SR 177. No such reroute is planned by ASARCO. ASARCO will take title to the Selected Lands subject to any existing rights of way. See ASARCO key concept comments regarding the Analysis of Effects of the Ray Land Exchange.	
Robin Barnes	ASARCO	119	318	[Pg 47, § 3.1.1, ¶ 5] Under Section 3.1.1, paragraph 1 is inaccurate. The Ray Mine does not produce anodes. Based on Asarco 2016 production information, the mine produced 46 million pounds of copper cathode. The Ray Mine has been under ASARCO ownership for 31 years.	
Robin Barnes	ASARCO	119	323	[Pg 50, § 3.2.1.2, ¶ 2] The observation of yellow starthistle near Kearny is not relevant to any significant changed conditions within the Selected Lands and there is no evidence to suggest that it occurs within the Selected Land. Yellow starthistle is designated by the state of Arizona as a noxious weed and should be referred to as such.	
Robin Barnes	ASARCO	119	324	[Pg 50, § 3.2.2.1, ¶ 2] As discussed above, the MBTA is a criminal statute that prohibits “take” of migratory birds. It will apply regardless of whether the exchange occurs. It does not affect the “with and without analysis.” It is not new information or a changed circumstance. Nor does it apply to accidental or incidental take, as the Interior Solicitor recently clarified.	
Robin Barnes	ASARCO	119	326	[Pg 50, § 3.2.2.1, ¶ 6] The Bald and Golden Eagle Protection Act (16 U.S.C. 668–668d) (BGEPA) prohibits “take” of bald eagles and golden eagles by otherwise lawful activities, except pursuant to Federal regulations. BGEPA allows the Secretary of the Interior to authorize certain otherwise prohibited activities through regulations. Like the MBTA, BGEPA will apply to ASARCO's current and potential future mining activities in the same manner regardless of whether the exchange occurs, and does not affect the “with and without analysis.” Consequently, BGEPA was not discussed in 1999 FEIS because no impacts on migratory birds are expected to be caused by the exchange. NEPA requires only that significant impacts of a proposed action be discussed, not all possible impacts, as the CEQ has explained: “Most important, NEPA documents must concentrate on the issues that are truly significant to the action in question, rather than amassing needless detail.” 40 C.F.R. § 1500.1(b).	
Robin Barnes	ASARCO	119	331	[Pg 52, § 3.2.2.2, ¶ 2] The discussion in paragraph 2 contains several errors as follows: (1) Critical Habitat under the Endangered Species Act (CH) for spinedace has been removed from the middle segment of Gila River and lower San Pedro River based on lack of occupation (last sighted in 1991). 77 FR 10812 (Feb. 12, 2012). (2) Loach minnow are not present and no CH is designated along the middle segment of Gila River and lower San Pedro River. 77 FR 10812 (Feb. 12, 2012). (3) Gila chub is no longer recognized as a distinct species. Gila chub, roundtail chub and headwater chub are now considered by USFWS to constitute a single species, roundtail chub (Gila robusta). 82 FR 16981 (April 7, 2017). (4) RM-7 contains CH for Gila chub (on Mineral Creek above Big Box Dam), as designated in 2005. However, that the CH is arguably void due to current status of species (see above). Moreover, ASARCO owns the surface of RM-7 and the land exchange would involve only the mineral estate. (5) The roundtail chub and headwater chub proposed listing rule was withdrawn, based on new information about species' taxonomy (see above). 82 FR 16981 (April 7, 2017). (6) There is no evidence of northern Mexican gartersnakes along middle segment of Gila River and CH is not proposed by USFWS in the area; the nearest proposed CH unit on lower San Pedro River. 78 FR 41550 (July 10, 2013). (7) There is no evidence of Chiricahua leopard frogs along middle segment of Gila and San Pedro Rivers, or in vicinity of Selected Lands, and no CH is designated by USFWS in these areas. 77 FR 16324 (March 20, 2012). (8) The Selected Lands outside the known range of the Mexican wolf and ocelot.	

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Robin Barnes	ASARCO	119	332	[Pg 52, § 3.2.2.2, ¶ 4] Game species identified in this section are not analyzed in Chapter 4.2.2. Therefore, the information is extraneous and does not comply with CEQ Regulation for Implementing the Procedural Provisions of NEPA, 40 CFR 1500.4. (See below) Agencies shall reduce excessive paperwork by: (a) Reducing the length of environmental impact statements (§1502.2(c)), by means such as setting appropriate page limits (§§1501.7(b)(1) and 1502.7). (b) Preparing analytic rather than encyclopedic environmental impact statements (§1502.2(a)). (c) Discussing only briefly issues other than significant ones (§1502.2(b)).	
Robin Barnes	ASARCO	119	333	[Pg 53, § 3.2.3.1, ¶ 2] Information available in Table 5 of the SWCA (2013) Re-initiation of Consultation of the Proposed Ray Land Exchange, Pinal and Gila Counties, Arizona should be incorporated into this section to provide greater detail and clarity regarding Special Status Species' potential to occur within the Selected and Offered Lands. The information presented here is imprecise and inconsistent (e.g., "At least 11 of the 23 species have been recorded on one or more of the Ray Complex Selected Land Parcels"). The data presented in this section are occurrence records from within 5 miles of the Selected and Offered Lands, and they do not represent the species that have the potential to occur within the Selected Lands based on the habitat within those lands.	
Robin Barnes	ASARCO	119	334	[Pg 53, § 3.2.3.1, ¶ 2] Fifth Sentence: The BLM Sensitive Species List was updated on March 1, 2017.	
Robin Barnes	ASARCO	119	339	[Pg 54, Fig. 3.2-1] Table contains several errors: <ul style="list-style-type: none">• “SC” (species of concern) is not a category of species under the ESA or other USFWS laws and should be removed wherever shown.• Roundtail chub is not proposed for listing-- Gila chub, roundtail chub and headwater chub are now considered by USFWS to constitute a single species, roundtail chub (Gila robusta). 82 FR 16981 (April 7, 2017). Roundtail chub and headwater chub proposed listing rule was withdrawn, based on this new information. 82 FR 16981.• Spikedace have not been detected in the Gila River since 1991 and critical habitat has been removed from the middle segment of Gila River and lower San Pedro River based on this lack of occupation 77 FR 10812 (Feb. 12, 2012).	
Robin Barnes	ASARCO	119	342	[Pg 56, Fig. 3.2-2] “SC” (species of concern) is not a category of species under the ESA or other USFWS laws and should be removed wherever shown.	
Robin Barnes	ASARCO	119	343	[Pg 57, § 3.3.1.1, ¶ 5] Paragraph 2 under Section 3.3.1.1 contains several errors and omissions as follows: <ul style="list-style-type: none">• The statement “NWPs can be used where unnecessary destruction of WUS has been avoided and impacts are minimized” is incorrect. NWPs can be used when the impacts associated with the proposed action meets the terms and conditions of that NWP.• New NWPs were issued in 2017.• Impacts to WUS generally require compensatory mitigation pursuant to the USACE 2008 mitigation rule (40 CFR 230).	
Robin Barnes	ASARCO	119	358	[Pg 61, § 3.3.2.1, ¶ 6] Clarification needs to be made that Mineral Creek is ephemeral upstream from the Big Box Reservoir and it is perennial downstream from the Big Box Dam due to dam modulation of flow.	
Robin Barnes	ASARCO	119	359	[Pg 63, § 3.3.1.1, ¶ 5] This paragraph misstates the characterization of ASARCO's facilities as follows: <ul style="list-style-type: none">• The Belgravia Tailings is not a treated discharge facility. This facility has been reclaimed and is closed. The Belgravia tailings never discharged treated wastewater to the Gila River.• The Mineral Creek tunnel never contributed stormwater to Mineral Creek (i.e., there is no "permitted stormwater emanating from the tunnel") - outfall 011 is solely for seepage into the tunnel.• Outfall 003 has been eliminated from the permit. Upgradient stormwater runoff on the west side of the mine is now diverted around all mining operations and into Mineral Creek.The Draft SEIS should provide a succinct update to the 1999 FEIS pages 3-21 through 3-23.	
Robin Barnes	ASARCO	119	363	[Pg 67, § 3.3.2.1, ¶ 2] The Hayden well field is withdrawing appropriable surface water, under the rights granted in the Globe Equity Decree. In other words, the water is withdrawn and used pursuant to a decreed water right; Asarco does not pump groundwater at the Hayden Well Field. There has been no significant change to groundwater resource conditions since the issuance of the 1999 FEIS.	
Robin Barnes	ASARCO	119	365	[Pg 68, § 3.3.2.1, ¶ 2] The CB/Buckeye parcels are located north of the Gila River so groundwater flowing towards the north would not be towards the Gila River.	
Robin Barnes	ASARCO	119	373	[Pg 83, § 3.4.1.2, Table 3.4-3] There are misstatements and omissions in Table 3.4-3. Please note the following: Hayden Smelter and Concentrator: <ul style="list-style-type: none">• Asarco submitted its Title V Renewal permit application on April 7, 2006 not November 22, 2011.• On May 5, 2017, Asarco submitted a replacement Title V air quality permit renewal application to ADEQ. The renewal permit application will combine the Hayden Concentrator and Hayden Smelter air quality permits as well as include the on-site Smithco crushing and screening operations (ADEQ Permit No: M070399P1-99). It should also be emphasized that regardless of whether the exchange occurs, Asarco will be subject to the CAA's requirements.	
Robin Barnes	ASARCO	119	374	[Pg 84, § 3.4.1.4, ¶ 3] The major source thresholds for SO2 and lead provided in paragraph 3 of page 84 are incorrect and should be amended. The des minimus level for SO2 is 100 tpy, not 25 tpy. The des minimus level for Lead is 10 tpy, not 100 tpy. Please note that lead is unique in that it is a criteria air pollutant and a hazardous air pollutant (HAP) and that 10 tpy is the des minimus level for any single HAP and 25 tpy for the combined total of all HAPs. It should also be emphasized that regardless of whether the exchange occurs, Asarco will be subject to the CAA's requirements.	

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Robin Barnes	ASARCO	119	393	[Pg 121, § 3.10.1.1, ¶ 2] At the end of the second paragraph (end of Section 3.10.1.1), insert the following: "On December 19, 2014 Public Law 13-287 moved the National Historic Preservation Act provisions from Title 16 of the United States Code to Title 54 of the United States Code. The transfer resulted in minimal and non-substantive changes to the NHPA. However, Section 106 is now codified at 54 U.S.C 306108."	
Robin Barnes	ASARCO	119	394	[Pg 122, § 3.10.4, ¶ 4] The first sentence says 80 sites were identified on the Selected Lands, but the 1999 FEIS states two sites were removed from analysis because one was determined to be outside the project area and the other was determined to be a natural feature. Therefore, there are a total of 78 sites assessed within the Selected Lands.	
Robin Barnes	ASARCO	119	395	[Pg 123, § 3.10.4, ¶ 2] ASARCO suggests clarifying in paragraphs 2 and 4 that are 57 NRHP-eligible sites, not 56 NRHP-eligible sites.	
Robin Barnes	ASARCO	119	398	[Pg 128, Table 3.11-2] The information presented in Table 3.11-2 is confusing and includes the following errors: •The unit at the top of the table states "% Race," which is incorrect. The first 5 columns are % Race, and the last column is % Ethnicity. • The Race columns do not add up to 100 % because the data does not include "Two or More Races" and "Some Other Race", therefore, not all the population is accounted for. •The most recent data is not used and data is incorrect throughout. See revised Table 3.11-2 in Attachment 6.	
Robin Barnes	ASARCO	119	400	[Pg 132, § 3.11.3.2, Table 3.11-4] The information presented in Table 3.11-4 is confusing and includes the following errors: • The table does not include the column "Two or More Races" and "Some Other Race", therefore, not all the population is accounted for. • The ethnicity data only includes "Hispanic or Latino" data, not the "White Alone, not Hispanic or Latino" data. •The most recent data is not used and data is incorrect throughout. See revised Table 3.11-4 in Attachment 6.	
Robin Barnes	ASARCO	119	409	[Pg 143, § 4.2.2.2, ¶ 3] In the discussion of Impacts Common to All Action Alternatives- Selected Lands on page 143, Table 4.2-1 is described as a "quantification of vegetation removed under each alternative," which is incorrect and misleading. It provides a range of acres impacted in each Selected Lands Parcel Group (RM, CB, CH, and CG). The land exchange would result in a change in land tenure and not the permitting of mining activities, as explained above.	
Robin Barnes	ASARCO	119	411	[Pg 143, § 4.2.2.2, ¶ 4] There are no mitigation obligations under the MBTA. The MBTA is a strict liability criminal statute that applies to acts intentionally directed at migratory birds. See discussion above concerning Section 3.2.1.1.	
Robin Barnes	ASARCO	119	416	[Pg 148, § 4.2.4.1, ¶ 6] The Cumulative Impacts discussion in Section 4.2.4.1 - Selected Lands misstates the findings of the USACE Ray Mine Tailings Storage Facility Draft Environmental Impact Statement as follows: • The Hackberry Alternative analyzed occurs within a portion of the RM-18 parcel, and has been determined to be technologically and logistically feasible. • The Ripsey Wash Alternative is the preferred alternative in the DEIS, but it is an overstatement to say it will be constructed at this time. • ASARCO has not purchased the ASLD lands in the Ripsey Wash area.	
Robin Barnes	ASARCO	119	420	[Pg 149, § 4.2.4.1, ¶ 3] Clarification is need in the first sentence to correct the acreage of the proposed Ripsey Wash Tailings Storage Facility, which is 2,636 acres, not 7,402 acres. In addition, the statement that cumulative effects to biological resources within the analysis area, which is approximately 7,850 square miles (50-mile radius), is moderate to major is unsubstantiated. Again, the Proposed Action is a land exchange and only title to the land is transferred. The transfer of title does not cause mining to occur.	
Robin Barnes	ASARCO	119	422	[Pg 149, § 4.3, ¶ 6] No significant changes in water resources have occurred within the Selected or Offered Lands since the issuance of the 1999 FEIS. The Proposed Action is a change in land tenure (a land exchange). Any foreseeable mining activities should be analyzed in the context of the "with and without analysis" required by the Ninth Circuit Court of Appeals. Any direct and indirect effects of the Proposed Action, based on the "with and without analysis", would be nominal. As indicated in the 1999 FEIS (page 3-28) groundwater use in Arizona is regulated by the State. Under Arizona law, outside an active management area, groundwater can be withdrawn for reasonable and beneficial uses. Further, BLM cannot regulate water withdrawals on private land.	
Robin Barnes	ASARCO	119	425	[Pg 150, § 4.3.1, ¶ 1] The statement that "current state and federal laws are in place that would regulate all other water resources except groundwater quantity" is inaccurate. As stated in the 1999 FEIS (at Page 3-28) groundwater in Arizona is regulated by the State, and outside active management areas, is governed by the doctrine of reasonable use. There is no federal regulation of groundwater use.	
Robin Barnes	ASARCO	119	428	[Pg 150, § 4.3.1, ¶ 3] Asarco suggests removing the discussion of the groundwater model and the threshold of concern for impacts. This discussion is largely in error for the following reasons: x At the Hayden well field, Asarco is pumping subflow of the Gila River, which is legally surface water, under the authority of the 1935 Globe Equity decree. In other words, Asarco is using surface water pursuant to a decreed water right, not pumping groundwater. x Surface water withdrawals in the Hayden area are not subject to the restriction imposed by the Groundwater Code for withdrawing groundwater in an active management area. In fact, the is no AMA near Hayden or Ray. x Citing to ADWR regulations on well spacing is erroneous. The 10-foot drawdown threshold (used only for well replacements) is not legally relevant or applicable in an AMA, where a mineral extraction permit would be obtained for mining.	
Robin Barnes	ASARCO	119	432	[Pg 152, § 4.3.2.3, ¶ 2] ASARCO is unclear on what is meant by "monitoring groundwater seepage through the vadose zone" as, by definition, there is no groundwater in the vadose zone. Please provide clarification.	

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Robin Barnes	ASARCO	119	433	Pg 153, § 4.3.2.3, ¶ 1] ADWR standard for groundwater usage outside an AMA is that the use must be reasonable and beneficial, not just beneficial. Please provide clarification.	
Robin Barnes	ASARCO	119	436	[Pg 153, § 4.3.2.3, ¶ 2] ASARCO's foreseeable uses of Copper Butte parcels CB-3 and CB-4 are described as Production Operations and Support (POS), not long-range prospect.	
Robin Barnes	ASARCO	119	438	[Pg 154, § 4.3.2.3, ¶ 2] Discussion of impacts throughout this section should clarify that Asarco's water rights at the Hayden Well Field are federally decreed surface water rights, not groundwater. BLM does not have authority to impose restrictions on Asarco's use of its decreed water rights to prevent UUD of surface resources.	
Robin Barnes	ASARCO	119	439	[Pg 154, § 4.3.2.3, ¶ 3] As summarized in Table 4.3-1, all the wells are owned by ASARCO or its affiliates.	
Robin Barnes	ASARCO	119	440	[Pg 154, § 4.3.2.3, ¶ 3] Water withdrawals in the Hayden area are not subject to ADWR active management area restrictions. Therefore, citing to ADWR regulations on well spacing is inappropriate. The 10-foot drawdown threshold (used only for well replacement) is not legally relevant or applicable in an AMA, where a mineral extraction permit would be obtained for mining.	
Robin Barnes	ASARCO	119	441	[Pg 154, § 4.3.2.3, ¶ 3] The 10-foot drawdown "rule" is a misstatement of the law. Assuming that Asarco was withdrawing groundwater in an AMA (it is not), this "rule" would not apply to mineral extraction permits in an AMA and only applies to well replacement.	
Robin Barnes	ASARCO	119	446	[Pg 159, § 4.4.1, ¶ 6] There are no current or planned smelting activities on any of the Selected Lands. The reference to smelting in the first sentence should be removed.	
Robin Barnes	ASARCO	119	451	[Pg 162, § 4.4.2.4, ¶ 1] Analysis areas described in this section are inconsistent and unclear. This section refers to ta 31-mile radius for cumulative effects analysis. Chapter 3 (Figure 3.4-1) provides the Class I airsheds in the region, and Appendix D provides a 50-mile radius. Clear descriptions of the appropriate CIAAs are required for each resource. The RFFAs described do not align with the definition of the CIAA and the RFFAs described in Appendix D (e.g., the FCX - Bisbee Mine is included).	
Robin Barnes	ASARCO	119	457	[Pg 167, § 4.5.3, ¶ 4] ASARCO believes the status of Pinto Valley, Miami, Carlota are all incorrect (e.g., Pinto Valley expansion in Tonto National Forest is not identified) and recommends that Appendix D be updated.	
Robin Barnes	ASARCO	119	460	[Pg 170, § 4.6.5, ¶ 6] Paragraphs 6 and 7 under Section 4.6.5.2 – Selected Lands are inaccurate. Paragraph 6 describes potential future actions associated with unspecified mining operations that are not effects of the land exchange (e.g. ASARCO has no proposed or contemplated plans to relocate SR-177). ASARCO also suggests removing Paragraph 7 as the rights of way of record are not held under lease and ASARCO is not required to compensate the holders of the rights of way. See 43 CFR 2807.15 (for process related to transfer out of BLM ownership). ASARCO will take title to the Selected Lands subject to the rights of way of record.	
Robin Barnes	ASARCO	119	462	[Pg 171, § 4.6.6.2, ¶ 4] ASARCO suggests deleting sentence 4 as it is not correct. ASARCO would not "likely purchase existing grazing rights," they would take ownership subject to the grazing leases not otherwise terminated and continue to charge rent if they elect to authorize continued grazing.	
Robin Barnes	ASARCO	119	464	[Pg 174, § 4.6.7.3, ¶ 2] The Land Exchange would not directly result in impacts to visual resources. Future mining uses may impact visual resources; indirect impacts to visual resources associated with the Land Exchange would be those incremental impacts to visual resources that would be different under the "with and without analysis". Further, the No Action Alternative discussion improperly assumes all Selected Lands will be mined and does not reflect foreseeable uses that provide buffer and transition (see Appendix C). The bulk of the Selected Lands will not be mined.	
Robin Barnes	ASARCO	119	465	[Pg 175, § 4.6.7.5, ¶ 4] ASARCO has no proposed or contemplated plans to relocate SR-177.	
Robin Barnes	ASARCO	119	466	[Pg 175, § 4.6.7.5, ¶ 6] The Proposed Action discussion improperly evaluates the potential future mining uses, assumes all Selected Lands will be mined, and does not reflect foreseeable uses that provide buffer and transition (see Appendix C). Further, no mention is made of the noticeable degradation of visual resource values along SR-177 associated with active mining on east side of road. Further, the transfer of parcels CB-1 through CB-5 would not result in any noticeable degradation of visual resource values. The mining of those lands that would occur with or without the land exchange may cause impacts to visual resources.	
Robin Barnes	ASARCO	119	468	[Pg 181, § 4.6.7.8, ¶ 1] The reference to "land exchange" in the first sentence of the first paragraph under Table 4.6-2 should be replaced with "MPO." The BLM has no authority to impose mitigation or restrictions as part of the land exchange.	
Robin Barnes	ASARCO	119	469	[Pg 182, § 4.6.8.1, ¶ 1] The Ripsey Wash Project does not reduce BLM-administered lands available for grazing, hunting, or recreation. The project requires rights-of-way for a pipeline and power line and a saleable materials contract. The project would increase availability of BLM lands for recreation through the realignment of the AZ Trail onto BLM lands.	

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Robin Barnes	ASARCO	119	471	[Pg 184, § 4.7.2, ¶ 3] Characterization of BLM opportunity to review and make changes under NEPA is misleading. ASARCO has a right of access to its unpatented claims and at most mitigation may be imposed to avoid UUD. This discussion should also be supplemented to clearly address the “with and without analysis” required by the Ninth Circuit Court of Appeals.	
Robin Barnes	ASARCO	119	478	[Pg 186, § 4.7.2.3, ¶ 2] There is no current legal public access to the White Canyon Wilderness (WCW) Area from SR-177, therefore, access to the WCW cannot be “maintained.” Current physical access to WCW is via Battle Ax Road (a Pinal County right-of-way) and subsequent trespass over ASARCO’s private property. Mechanized vehicles cannot be used within the WCW Area, and there is currently no designated access or parking area for recreational users of the WCW that does not result in trespass on ASARCO’s private property. The legal nature of Battle Ax Road would not change under the Proposed Action. ASARCO will take title to the Selected Lands subject to the current rights-of-way of record. The land exchange will not affect Battle Ax Road. ASARCO suggests that the remainder of the paragraph should be deleted as the relocation of Battle Ax Road is not a part of the Selected Lands package and no changes have been made from the 1999 FEIS.	
Robin Barnes	ASARCO	119	486	[Pg 191, § 4.8.3.1, ¶ 3] BLM’s authority to “review and make changes” is mischaracterized. BLM could impose mitigation to avoid UUD. ASARCO believes that additional “with and without analysis” needs to be included.	
Robin Barnes	ASARCO	119	492	[Pg 193, § 4.8.3.3, ¶ 3] ASARCO suggests the BLM includes a discussion of direct or indirect benefits of inclusion of the Offered Lands into the Special Management Areas.	
Robin Barnes	ASARCO	119	493	[Pg 194, § 4.8.4.1, ¶ 4] The Cumulative Effects analysis described here should provide clarification of the following points: <ul style="list-style-type: none">• Only the incremental direct and indirect effects of the proposed action, based on the “with and without analysis”, should be considered in the Cumulative Effects analysis.• The land exchange doesn’t cause mining to occur. Only the specific effect of the land exchange on Wilderness Areas and Special Management Areas should be discussed.	
Robin Barnes	ASARCO	119	494	[Pg 194, § 4.8.4.1, ¶ 3] ASARCO suggests using the proper reference to the Arizona Desert Wilderness Act of 1990. The last sentence in this paragraph incorrectly references “OHV use, and recreation” as another potential mining project. This is incorrect.	
Robin Barnes	ASARCO	119	495	[Pg 194, § 4.8.4.2, ¶ 5] ASARCO suggests replacing the last sentence with the following: “Inclusion in and expansion of the SMAs would have beneficial cumulative effects and enable targeted BLM management of resources targeted for SMA protection.”	
Robin Barnes	ASARCO	119	497	[Pg 195, § 4.9.1.1, ¶ 6] ASARCO suggests describing the effects of the No Action Alternative on the Offered Lands adjacent to BLM’s Special Management Areas, which would include the potential development of these Offered Lands.	
Robin Barnes	ASARCO	119	498	[Pg 196, § 4.9.1.2, ¶ 2] Though potential future mining on the Selected Lands is not a direct effect of the land exchange, a transfer of a portion of the RM-17 and CB-2 parcels out of federal ownership will eliminate the Granite Mountain WIU eligibility, as it will no longer meet the size criterion. ASARCO recommends that this section be rewritten to address the proper direct and indirect impacts. Where potential future mining is discussed, the anticipated uses of RM 17 and CB-2 must be properly characterized (e.g. CB-2 is all buffer as is about 1/3 of RM-17).	
Robin Barnes	ASARCO	119	511	[Pg 204, § 4.10.6, ¶ 6] The description of the Ripsey Wash Project includes a discussion of the ASLD acquisition process. It should be noted that this project is also undergoing consultation under the NHPA Section 106 as part of its CWA Section 404 Permit process.	
Robin Barnes	ASARCO	119	512	[Pg 205, § 4.11.1.2, ¶ 6] ASARCO estimates that 200 new employees would be hired as a result of the potential future mining uses described in Appendix C.	
Robin Barnes	ASARCO	119	513	[Pg 206, § 4.11.2.1, ¶ 4] ASARCO suggests removing “Mine” from “Copper Butte Mine” throughout.	
Robin Barnes	ASARCO	119	514	[Pg 206, § 4.11.2.1, Table 4.11-1] ASARCO suggests separating Ray Complex and Copper Butte in Table 4.11-1. There should be separate entries for those groups of parcels.	
Robin Barnes	ASARCO	119	515	[Pg 206, § 4.11.2.1, Table 4.11-2] ASARCO suggests separating Ray Complex and Copper Butte in Table 4.11-2. There should be separate entries for those groups of parcels.	
Robin Barnes	ASARCO	119	516	[Pg 208, § 4.11.1.2, ¶ 3] ASARCO believes Mohave County has reached its maximum PILT funding from the federal government. The exchange would result in an estimated \$16,000 a year decrease in County tax revenues.	
Robin Barnes	ASARCO	119	517	[Pg 209, § 4.11.2.4, ¶ 3] The description of the No Action Alternative is incorrect. Under the No Action Alternative, the Offered Lands would remain under private ownership, not under BLM administration. In addition, it should include a proper discussion of the “with and without analysis” as required by the Ninth Circuit Court of Appeals (e.g. Asarco would be able to lease the land for grazing or other uses).	
Robin Barnes	ASARCO	119	518	[Pg 214, § 5.2.2] ASARCO suggests including reference to the many tribal field trips that have been arranged and undertaken as part of this process.	

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Robin Barnes	ASARCO	119	521	[Pg 1, § 1.1, ¶ 1] The distinction between surface estate acres (8,196) and mineral estate acres (2,780) should be recognized at the outset, possibly as an addition to footnote 1.	
Robin Barnes	ASARCO	119	522	[Pg 1, § 1.1, ¶ 3] The statement "The SEIS addresses any substantial changes in the proposed action" is misleading. There have been no changes to the proposed action. It also is misleading to state the SEIS addresses "changes to baseline environmental conditions," as there have been no changes to the baseline conditions.	
Robin Barnes	ASARCO	119	524	[Pg 4, § 1.3, ¶ 4] ASARCO suggests addition of the verbiage "provide buffer lands and" after "and to use the Selected Lands to" in Line 5.	
Robin Barnes	ASARCO	119	525	[Pg 4, § 1.5, ¶ 7] The Chilito 5 (CH-5) parcel is located south the Gila River, but the project location description states 28 of the parcels, including the Chilito parcels, are located north of the Gila River.	
Robin Barnes	ASARCO	119	526	[Pg 9, § 1.7.2.2, ¶ 5] The description of appraisals fails to recognize ongoing market evaluation of the 2014 appraisals, which compounds the reference to "serious" value fluctuations in the 2nd paragraph of this section.	
Robin Barnes	ASARCO	119	527	[Pg 9, § 1.7.2.2, ¶ 6] Last sentence - Please verify the appraisal method for the Selected Lands. ASARCO believes they are being appraised using both the income and sales approach to verify correctness of statement (specifically whether those lands with "known and quantifiable mineral resources" were appraised using the income method).	
Robin Barnes	ASARCO	119	528	[Pg 13, § 1.7.3.1, ¶ 4] The CWA and Federal Water Pollution Control Act should not be listed separately. They are the same thing.	
Robin Barnes	ASARCO	119	529	[Pg 13, § 1.7.3.1, ¶ 5] The last two paragraphs of this section (paragraphs 5 and 6 on page 13) would be better placed in Section 1.7.3.2, which includes the description of the "with and without analysis".	
Robin Barnes	ASARCO	119	530	[Pg 14-17, § 1.7.3.2] There are non-numbered sections here and throughout the Draft SEIS. ASARCO suggests numbering all headings and subheadings throughout the document for ease in review and reference.	
Robin Barnes	ASARCO	119	531	[Pg 16, § 1.7.3.2, ¶ 1] In the last sentence of the first paragraph, ASARCO suggests adding either "AAC" or "Arizona Administrative Code" when referencing R 18-9-A.202.A	
Robin Barnes	ASARCO	119	532	[Pg 19, § 2.1.1.1, ¶ 4] This subheading (2.1.1.1 Ray Land Exchange) is redundant and not needed.	
Robin Barnes	ASARCO	119	533	[Pg 20, § 2.1.1.1, Table 2.1-1] The Offered Lands include 18 parcels, not 5.	
Robin Barnes	ASARCO	119	534	[Pg 35, § 2.2.2] ASARCO suggests stating that the foreseeable uses of the Casa Grande parcels are unknown as described in Appendix C and Tables 2.2-1 and 2.2-2.	
Robin Barnes	ASARCO	119	535	[Pg 36, § 2.2.2, ¶ 4] ASARCO suggests removing the first part of the sentence that states "ASARCO has selected a different site for future tailings storage facility; therefore,". The USACE is currently finalizing an EIS which does not identify the RM-18 site as the preferred alternative.	
Robin Barnes	ASARCO	119	536	[Pg 42, § 2.3, Table 2.3-1] T&E Species, Paragraph 1 - The USACE has not permitted the Ripsey Wash TSF, therefore, RM-18 (Hackberry) could be used for a TSF. Also, paragraphs 1 and 2, the verbiage "(if range extension occurs)" should be deleted, as this is too vague.	
Robin Barnes	ASARCO	119	537	[Pg 44, § 2.3, Table 2.3-1] Rights-of-Way, No Action Alternative - Change "Selected Lands" to "ROW." Also, there is no effects discussion for the Offered Lands. The Comparison Summary of Anticipated Environmental Consequences (Table 2.3-1) does not consistently describe impacts to Offered Lands.	
Robin Barnes	ASARCO	119	538	[Pg 37, § 2.2.2, ¶ 3] Second to last sentence before table: "Tables 2.2-1 and 2.2-2 summarize the foreseeable mining uses by parcel and vice versa." Reword for clarity and precision to: "Table 2.2-1 summarizes the foreseeable mining uses by parcel. Table 2.2-2 summarizes the allocation of parcels to their foreseeable use."	
Robin Barnes	ASARCO	119	539	[Pg 49, § 3.2.1.1] Footnote 7 - Remove "ed" from "document".	
Robin Barnes	ASARCO	119	540	[Pg 57, § 3.3.1, ¶ 1] Clean Water Action Section 404 has a section heading number, but none of the other regulations or policies in this section have their own heading numbers. As a result, it appears that these regulations or policies are part of Clean Water Act Section 404 section.	
Robin Barnes	ASARCO	119	541	[Pg 60, § 3.3.2.1, ¶ 4] None of the features discussed are shown on Figure 3.3-1.	
Robin Barnes	ASARCO	119	542	[Pg 60, § 3.3.2.1, ¶ 6] Add "RM-18" after "the parcels" in line 3. It is not clear why this paragraph is needed if as noted in line 4, "the number and locations of these have not changed since the 1999 FEIS."	
Robin Barnes	ASARCO	119	543	[Pg 63, § 3.3.2.1, ¶ 4] The reference to the "draft 2010 303(d)" list is incorrect. The list renamed to the 2012/14 303(d) list, and was approved and finalized in 2015.	
Robin Barnes	ASARCO	119	544	[Pg 63, § 3.3.2.1, ¶ 6] The reference to the "draft 2010 303(d)" list is incorrect. The list renamed to the 2012/14 303(d) list, and was approved and finalized in 2015.	
Robin Barnes	ASARCO	119	545	[Pg 77, § 3.3.2.2, ¶ 3] Insert "drinking" before "water" and after ", but"	

Commenter Name	Agency / Organization	Letter ID #	Comment ID #	Comment	Response to Comment
Robin Barnes	ASARCO	119	546	[Pg 89, § 3.5.1, ¶ 8] Incorrect characterization of "bonding requirements." Bonding is one form of financial assurance which backstops on operator default in reclamation obligations under approved reclamation plan. Other forms of financial assurances are routinely authorized as well.	
Robin Barnes	ASARCO	119	547	[Pg 115, § 3.8.1, ¶ 6] Verify reference to BLM Manual 6280. ASARCO believes the correct citation should be BLM Manual 6250.	
Robin Barnes	ASARCO	119	548	[Pg 122, § 3.10.4, ¶ 1] The first sentence of this section references 7 archaeological surveys. Section 3.2.5.1 of the 1999 FEIS, page 3-59, states that the Selected Lands were covered by 8 surveys. ASARCO believes the missing reference in the Draft SEIS is Ackerly, Neal W. 1986. Archaic Adaptive Strategies in the Middle Gila River Basin. 2 vols. Unpublished Doctoral dissertation, Department of Anthropology, Arizona State University, Tempe.	
Robin Barnes	ASARCO	119	549	[Pg 124, § 3.10.4, ¶ 1] ASARCO is unclear of the significance of this paragraph to archaeological resources.	
Robin Barnes	ASARCO	119	550	[Pg 124, § 3.10.5, ¶ 1] The second sentence cites "(16 USC 470)", that citation should be "(15 USC 306108)".	
Robin Barnes	ASARCO	119	551	[Pg 128, § 3.11.2.3, ¶ 1] Line 1 of this paragraph should be amended to state that ASARCO would "be able to" use the Selected Lands. This sentence also mischaracterizes ASARCO's use of parcels for mining. Most would be used for mining support or buffer lands.	
Robin Barnes	ASARCO	119	552	[Pg 146, § 4.2.3.1, ¶ 2] The 1st sentence describes "The proposed project" causing impacts. ASARCO suggests replacing "The proposed project" with "All action alternatives".	
Robin Barnes	ASARCO	119	553	[Pg 147, § 4.2.3.1, ¶ 2] ASARCO suggest adding "and animals" to better describe the federally listed species provided protection under the ESA.	
Robin Barnes	ASARCO	119	554	[Pg 149, § 4.2.4.1, ¶ 2] This paragraph should include "animals" as a part of the biological resources analysis.	
Robin Barnes	ASARCO	119	555	[Pg 149, § 4.2.4.2, ¶ 5] ASARCO suggests adding the phrase "vegetative and riparian" before the last word "habitat."	
Robin Barnes	ASARCO	119	556	[Pg 160, § 4.4.1.2, Table 4.4-1] ASARCO suggest replacing the word "impacts" with "degradation" in the footnote to properly reference the BLM regulations.	
Robin Barnes	ASARCO	119	557	[Pg 163, § 4.5] This section provides no "Impact Assessment Methodology and Assumptions" subsection as provided in other sections in Chapter 4.	
Robin Barnes	ASARCO	119	558	[Pg 164, § 4.5.2] This section does not track with Chapter 3. The No Action Alternative is discussed last rather than first.	
Robin Barnes	ASARCO	119	559	[Pg 168, § 4.6.2, ¶ 3] This section is already discussed in Chapter 3 and does not track with other sections in Chapter 4.	
Robin Barnes	ASARCO	119	560	[Pg 168, § 4.6.3.1, ¶ 5] Remove the last sentence as it is duplicative.	
Robin Barnes	ASARCO	119	561	[Pg 174, § 4.6.7.4, ¶ 4] Remove the following language: "for purposes of mineral development." The purpose of the conveyance of the property to ASARCO is erroneous and has already been described in the 1999 FEIS and Chapter 1.	
Robin Barnes	ASARCO	119	562	[Pg 203, § 4.10.5, ¶ 5] Under the Ray Complex heading, the reference to "six" should be "five".	
Robin Barnes	ASARCO	119	563	[Pg 204, § 4.10.6, ¶ 5] An incorrect acronym (NRPA) is used incorrectly in the last 2 sentences of this paragraph. It should be NHPA.	
Robin Barnes	ASARCO	119	564	[Pg 207, § 4.11.2.1, ¶ 3] Please clarify which county will receive tax revenues. Pinal County for RM, CB parcels, and CH-5; and Gila County for CH 1-4. Add the word "stated" after "As" at the beginning of the paragraph. Add the % increase in taxes for Pinal County as well as the % increase provided for Gila County.	
Robin Barnes	ASARCO	119	565	[Pg 209, § 4.11.2.4, ¶ 3] The Offered Lands would remain under Asarco ownership under the No Action Alternative, not BLM ownership.	
Robin Barnes	ASARCO	119	566	[Pg 209, § 4.11.3, ¶ 5] Update name of Curis Resources to Florence Copper.	
Kathleen Martin Goforth	U.S. EPA	124	38	The most recent year for Arizona's 303(d) impaired waters listings is 2016, rather than 2010.	
Kathleen Martin Goforth	U.S. EPA	124	39	It is incorrect to characterize the Middle Gila stretch as attaining water quality standards for the designated uses. The 2010 and 2016 impaired waters lists identify this segment of the Gila River as "Inconclusive" for fish consumption, full body contact, agricultural irrigation, and agricultural livestock watering.	
Kathleen Martin Goforth	U.S. EPA	124	40	The Mineral Creek Diversion Tunnel was constructed to isolate Mineral Creek from the mine. NPDES permit #AZ0000035, issued to the ASARCO Ray facility, allows for the discharge of groundwater from the diversion tunnel (Outfall 011). Stormwater potentially impacted by mining activities is collected for reuse in mining processes. Past monitoring data show exceedances for copper, lead, and zinc at Outfall 003 (as of 2015 no longer a NPDES permitted outfall) and exceedances for selenium and copper at Outfall 011 (ADEQ 2014a).	
Kathleen Martin Goforth	U.S. EPA	124	41	Walnut Creek is not currently identified as ephemeral by the Arizona Department of Environmental Quality. Its designated uses are aquatic and wildlife warm water, fish consumption, full body contact, and agricultural livestock.	

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Kathleen Martin Goforth	U.S. EPA	124	44	On page 82, Table 3.4-2, revise the Sulfur Dioxide concentrations to parts per billion rather than parts per million.	
Kathleen Martin Goforth	U.S. EPA	124	45	Section 1 IO(a)(I) and (2): Implementation of 2008 Pb NAAQS (final submitted date October 14, 2011 -Approved, 80 FR 47859, August 10, 2015). The Arizona SIP Revision for the implementation of the 2008 Pb NAAQS was submitted in response to the promulgation of the 2008 revisions to the Pb NAAQS by EPA. New or existing copper mining operations would need to ensure compliance with this plan in the event that it is finalized."	
Kathleen Martin Goforth	U.S. EPA	124	46	On page 87, add the following bullets to this section: • Arizona SIP Revision: Hayden Sulfur Dioxide Nonattainment Area for the 2010 SO ₂ NAAQS, March 9, 2017. • Arizona Infrastructure SIP Revisions for 1997 PM _{2.5} , 2006 PM _{2.5} and 2008 Ozone, approved on 111512012, 77 FR 66398. The interstate transport requirement of the infrastructure SIP Revisions for the 2008 ozone NAAQS were approved on May 19, 2016, 81 FR 31513.	

Table J-3. New/Updated Information Offered

Commenter Name	Agency / Organization	Letter ID #	Comment ID #	Comment	Response to Comment
Robin Barnes	ASARCO	119	269	If the BLM elects to continue to use species' occurrence records within a 5-mile radius of the Selected and Offered Lands as provided in Tables 3.2-1 and 3.2-2, those occurrence records should be reviewed and appropriately updated. Asarco is providing suggested updates to both tables in redline format for ease of reference based on a recent search using the AGFD HDMS online tool (see Attachment 6, Tables 3.2-1 and 3.2-2).	AGFD maintains a database of species observations, the Heritage Database Management System that can be queried using the Environmental Review Tool; however, the minimum distance that can be queried is 5 miles from an identified area. The tables have been updated to reflect the most current online tool export for the Selected and Offered Lands.
Robin Barnes	ASARCO	119	337	[Pg 54, § 3.2.3.2, ¶ 2] Proposed critical habitat for the Yellow-billed cuckoo also occurs on the Gila River within 5 miles of the Selected Lands.	The text was updated to include a discussion of the proposed critical habitat for the yellow-billed cuckoo in proximity to the selected lands (jdj 061018)
Robin Barnes	ASARCO	119	338	[Pg 54, § 3.2.3.2, ¶ 2] Clarify that the critical habitat of these species occurs specifically along the Gila River and not in other areas.	The text has been revised to specify the general geographic location of the discussed designated and proposed critical habitats.
Robin Barnes	ASARCO	119	340	[Pg 55, § 3.2.3.2, ¶ 1] Proposed critical habitat for the yellow-billed cuckoo also occurs on the Cochran Parcel.	The text was updated to include a discussion of the proposed critical habitat for the yellow-billed cuckoo in including the Cochran parcel.
Robin Barnes	ASARCO	119	341	[Pg 55, § 3.2.3.2, ¶ 1] The Tomlin parcel along the Big Sandy River contains critical habitat for the southwestern willow flycatcher.	The table and text have been revised to specify the locations of the discussed designated and proposed critical habitats including SWFL CH along the Big Sandy River at the Cochran parcel.
Robin Barnes	ASARCO	119	350	[Pg 58, § 3.3.1.1, ¶ 2] It should be noted that the Clean Water Act Section 401 has been amended to required public notice of all applications for certification.	The FSEIS has been edited for clarity and accuracy. Your comment has been noted and considered as BLM conducted revisions.
Robin Barnes	ASARCO	119	352	[Pg 58, § 3.3.1.1, ¶ 4] Under the heading Clean Water Act Section 402, it should be noted that outfall 003 no longer exists. ASARCO has an individual AZPDES permit (AZ0000035) that has recently been renewed with modifications. The Draft SEIS states that "The permit is for stormwater discharges from the Mineral Creek Diversion Tunnel (Outfall 003) and groundwater seepage in the tunnel (Outfall 011)." This statement is incorrect and outdated. The Outfall 003 was never for stormwater discharges from the tunnel. Asarco undertook and completed the 7F diversion project to isolate stormwater runoff from making its way to Mineral Creek.	The FSEIS has been edited for clarity and accuracy. Your comment has been noted and considered as BLM conducted revisions.
Robin Barnes	ASARCO	119	353	[Pg 59, § 3.3.1.1, ¶ 1] The discussion under Clean Water Act Section 303 needs to be updated with the most recent information for impaired waters from ADEQ. There is a 2012/2014 updated list available on ADEQ's website.	Reference to Section 303 waters has been updated accordingly.
Robin Barnes	ASARCO	119	360	[Pg 64, § 3.3.2.1, ¶ 2] There is a 2012/2014 updated list available on ADEQ's website. Aravaipa Creek to Gila River is no longer listed for E Coli. or anything else.	The FSEIS has been edited for clarity and accuracy. Your comment has been noted and considered as BLM conducted revisions.
Robin Barnes	ASARCO	119	362	[Pg 67, § 3.3.1.1, ¶ 2] BLM should describe the justification for continued reliance on 2012 aerial photography data (e.g., there have been no changes) or provide updated aerial photography data.	Aerial photography was reviewed again in 2018 and it was determined that there were no changes to the 2012
Robin Barnes	ASARCO	119	368	[Pg 78, § 3.4.1.1, ¶ 2] Changes in climate change guidance should be discussed. Relevant citations for the withdrawal of the former CEQ guidance (finalized in 2016) on considering climate change in NEPA reviews: (1) Executive Order 13783, Promoting Energy Independence and Economic Growth, 82 Fed. Reg. 16093 (March 31, 2017) (directing CEQ to withdraw its 2016 climate change guidance); (2) CEQ, Withdrawal of Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews, 82 Fed. Reg. 16576 (April 5, 2017) (formally withdrawing the 2016 climate change guidance); and (3) BLM, WO-IM 2018-002, Rescinding the Washington Office Permanent Instruction Memorandum No. 2017-003, The Council on Environmental Quality Guidance on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews (October 24, 2017) (rescinding an earlier IM directing BLM to follow the 2016 CEQ guidance). https://www.blm.gov/policy/im-2018-002	The Final SEIS was updated based on BLM, WO-IM 2018-002.

Commenter Name	Agency / Organization	Letter ID #	Comment ID #	Comment	Response to Comment
Robin Barnes	ASARCO	119	370	<p>[Pg 78, § 3.4.1.1, ¶ 6] It should be noted that ASARCO entered into a Consent Decree No. CV-15-02206-PHX-DLR with the EPA that requires the Hayden Operations to complete a converter retrofit project (CRP) whereby smelter upgrades are being made that will "dramatically reduce lead concentrations in 2018" (from ADEQ web site).</p> <p>The CRP will lower the smelter's emissions of particulate matter including lead. The Consent Decree requires that the old converters must cease operation by May 1, 2018 with 2 out of the 3 new converters & associated ventilation improvements be operational at that time. The entire CRP must be completed by December 1, 2018. Additionally, ADEQ incorporated the CRP improvements as a part of the Lead SIP for the Hayden Non-Attainment Area. The Consent Decree requires that the Hayden Operations create a Fugitive Dust Plan. ADEQ also incorporated the Fugitive Dust Plan requirements for sources that have the potential to contain lead-bearing fugitive dust emissions in the Lead SIP for the Hayden Non-Attainment Area. ADEQ created a SIP for the Hayden SO2 Non-Attainment Area and submitted it to EPA on March 10, 2017 for review and approval. It should also be emphasized that regardless of whether the exchange occurs, Asarco will be subject to the CAA's requirements.</p>	A summary of the consent decree was added to the Final SEIS. In addition, the point that regardless of whether the exchange occurs, ASARCO will be required to comply with all applicable CAA requirements.
Robin Barnes	ASARCO	119	372	<p>[Pg 83, § 3.4.1.2, Table 3.4-4] Asarco suggests providing updated information that is consistent with the Average Ambient Concentration data provided in Table 3-12 of the 1999 FEIS (page 3-34), which includes data for all the Selected Lands, and not only from ASARCO's facilities at Ray and Hayden. The existing emissions inventory data provided in Table 3.4-4 of the Draft SEIS is not considered in the Environmental Consequences discussion in Section 4.4, and is therefore extraneous information only. Please note the land exchange would result in a change in land tenure, not the implementation of mining activities. Regardless of whether the exchange occurs, Asarco will be subject to the CAA's requirements. If Table 3.4-4 is retained within the SEIS, please note the following corrections:</p> <ul style="list-style-type: none">• Remove the reference to Chilito Parcel. They are not included in Hayden's air permit or in ASARCO's air emissions inventory.• In 2012, Hayden reported 3.86 tons of the 10 metal HAPS (minus Pb) and 11.4 tons of sulfuric acid mist. SAM is an Arizona hazardous air pollutant.• In 2013, Hayden reported 2.55 tons of all 10 metal HAPS (minus Pb) and Sulfuric Acid Mist for 2013 was 76.93 tons.• In 2014, Hayden reported 6.77 tons of the 10 metal HAPS (minus Pb) and 130.05 tons of Sulfuric Acid Mist which is an Arizona HAP.	The existing emissions inventory is provided to characterize the affected environment and is retained in the Final SEIS. The Final SEIS was clarified with respect to the Hayden Copper Smelter reported inventories.
Robin Barnes	ASARCO	119	376	<p>[Pg 87, § 3.4.2, ¶ 2] There are omissions in the discussion of regulatory changes to State Implementation Plans (SIPs) in the second paragraph under Section 3.4.2.</p> <ul style="list-style-type: none">• Add the following text to the 2nd bullet point: On October 4, 2013, EPA designated the Hayden area to be non-attainment for the 2010 SO2 NAAQS. ADEQ created a SIP for the Hayden SO2 Non-Attainment Area and submitted it to EPA on March 10, 2017 for review and approval.• Add the following text to bullet point 3: On October 3, 2014 EPA designated the Hayden area as non-attainment of the 2008 Pb NAAQS. ADEQ created a SIP for the Hayden Non-Attainment Area and submitted it to EPA for review and approval on March 3, 2017. It should also be emphasized that regardless of whether the exchange occurs, Asarco will be subject to the CAA's requirements.	The FSEIS has been edited for clarity and accuracy. Your comment has been noted and considered as BLM conducted revisions.
Robin Barnes	ASARCO	119	377	<p>[Pg 88, § 3.4.3, ¶ 2] The referenced CEQ guidance on climate change analysis has been withdrawn and should not be cited.</p>	The CEQ guidance was removed from the text in the Final SEIS.
Robin Barnes	ASARCO	119	382	<p>[Pg 97, § 3.6.2.4, Table 3.6-2] Table 3.6-2 should be revised to show that the permit for the Sleeping Beauty Allotment was renewed in 2016 and expires in 2026.</p>	The document has been updated with the grazing lease information.
Robin Barnes	ASARCO	119	383	<p>[Pg 98, § 3.6.2.4, ¶ 1] Language in paragraph 1 of page 98 should be revised to show the permit for the Sleeping Beauty Allotment was renewed in 2016 and expires in 2026.</p>	The document has been updated with the grazing lease information.
Robin Barnes	ASARCO	119	384	<p>[Pg 98, § 3.6.2.4, ¶ 6] Language in paragraph 6 of page 98 should be amended to include language that the grazing permit was renewed in 2010 and expires in 2020.</p>	The document has been updated with the grazing lease information.
Robin Barnes	ASARCO	119	399	<p>[Pg 130, § 3.11.2.3, ¶ 1] The data in paragraphs 1-3 and 5-6 are dated (from 2011). BLM needs to describe the justification for continued reliance on this data or provide updated information.</p>	The Chapter 3 Socioeconomic Conditions section was revised with the more recent data where available.
Robin Barnes	ASARCO	119	401	<p>[Pg 133, § 3.11.3.3, ¶ 2] The data in paragraphs 2-3 are dated (from 2011-2012). BLM should describe the justification for continued reliance on this data or provide updated information.</p>	The Chapter 3 Socioeconomic Conditions section was revised with the more recent data where available.
Robin Barnes	ASARCO	119	410	<p>[Pg 143, § 4.2.2.2, ¶ 3] A 2007 study by Brian Janson from the University of Arizona refutes the theory that bighorns are negatively affected by mining operations. The conclusions of the study (which was conducted at Silver Bell) was that while males stayed away from the mine more, females stayed on the mine property and that they prefer the mine area during the lambing season because of the proximity of water sources and the absence of predators. In the same vein, Silver Bell now has such an abundant sheep population that AZGF is relocating sheep from Silver Bell to other areas for reintroduction. Reference: Jansen, Brian D., Paul R. Krausman, James R Hefflefinger and James C. de Vos Jr. 2007. Influence of Mining on Behavior of Bighorn Sheep. The Southwestern Naturalist Vol. 52, No. 3 (Sept. 2007), pp.418-423.</p>	The Final SEIS has been updated per BLM guidance to remove reference to bighorn as they are a game species.
Robin Barnes	ASARCO	119	415	<p>[Pg 146, § 4.2.3.1, ¶ 2] This paragraph overstates potential impacts to LLNB foraging habitat. SWCA (1991) notes that the limits of its late spring and early summer range are over 40 miles from the mine area, and that by late summer, saguaros would be unlikely to provide sufficient food resources. Therefore, no foraging habitat occurs within the RM, CB, and CH Selected Lands parcels. Reference: SWCA, Inc. (1991) Evaluation of the Status of Sanborn's Long-Nosed Bat in the Area of the Ray Mine. Prepared for ASARCO, INC. - Ray Unit. February 1991.</p>	No change made, we do not have enough information to state no foraging habitat is available for the species.

Commenter Name	Agency / Organization	Letter ID #	Comment ID #	Comment	Response to Comment
Kathleen Martin Goforth	U.S. EPA	124	38	The most recent year for Arizona's 303(d) impaired waters listings is 2016, rather than 2010.	The FSEIS has been edited for clarity and accuracy. Your comment has been noted and considered as BLM conducted revisions.
Kathleen Martin Goforth	U.S. EPA	124	50	App. D, p. D-1, par. 3: We recommend disclosing that RM-18 (Hackberry Gulch) is being analyzed as a practicable alternative in the forthcoming Ray Tailings Final EIS, and that it is currently unknown which of the Ray Tailings alternatives may be determined to be the least environmentally damaging practicable alternative to meet the purpose of that project. In addition, we recommend that Figures 2.1-1 and 2.2-1 include the site of the proposed Ray Tailings facility in Ripsey Wash.	Appendix D in the Final SEIS was revised to include the Hackberry Gulch Alternative in the Ray Mine Tailings Storage Facility Final EIS.

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Appendix K

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Appendix L

INSTRUCTION MEMORANDUM – AZ-IM 2019-004

AZ-IM-2019-004

Instruction Memorandum

United States Department of the Interior
BUREAU OF LAND MANAGEMENT
Arizona State Office
One North Central Avenue, Suite 800
Phoenix, Arizona 85004-4427

November 20, 2018

In Reply Refer To:
2200, 2370, 2700, 7250 (9300) P

EMS TRANSMISSION 11/21/18
Instruction Memorandum No. AZ-IM-2019-004
Expires: 9/30/2021

To: District Managers and Field Managers
Attention: Lands & Realty Staff, Hydrologists, Assistant Field Managers

From: Deputy State Director, Resources, Planning, and Fire

Subject: Consideration of Public Water Reserves (PWR 107) in Land Disposal Transactions

Purpose: This Instruction Memorandum (IM) clarifies the procedures to be followed to ensure that federal water rights associated with PWR 107s are addressed in all land disposal actions.

Policy/Action: If public lands contain springs or waterholes, the 40-acre parcel containing these water sources are withdrawn from settlement, location, sale, or entry through PWR 107. Consequently, land disposals cannot occur until the property identified for disposal has been inventoried for these water sources and the PWR has been revoked. For guidance on the withdrawal revocation process, please review 43 CFR 2370 – Restorations and Revocations.

Once public lands are identified for disposal, please inventory these lands for the presence of springs and waterholes or documented PWR 107 claims filed with the Arizona Department of Water Resources.

The water source inventory process should be coordinated with your Field Office Hydrologist and/or with the State Office Hydrologist or Water Rights Specialist.

Timeframe: This IM is effective upon receipt.

Budget Impact: None.

Background: On April 17, 1926, PWR 107 was created by Presidential Executive Order which ordered that “every smallest legal subdivision of the public land surveys which is vacant unappropriated unreserved public land and contains a spring or waterhole, and all land within one quarter of a mile of every spring or waterhole located on unsurveyed public land is hereby, withdrawn from settlement, location, sale, or entry, and reserved for public use.”

The Bureau of Land Management 7250 Water Rights Handbook states that “the executive order and reserved right applies to all springs and waterholes on such public lands, regardless of the size or flow rate of the water source. The executive order applies only to naturally occurring springs and waterholes. The uses associated with the reserved right are restricted to domestic and livestock use.” Further, “before public lands leave Federal ownership, any land withdrawals must be revoked (including Public Water Reserves) and the associated federally based water rights relinquished (as a non-Federal entity cannot hold title to a Federal reserved water right).

Directives Affected: None.

Coordination: This IM has been coordinated with the State Office Water Rights Specialist (9300) and State Office Lands, Minerals, and Energy staff (9200).

Contact: Questions concerning withdrawal revocations or land disposal actions should be referred to Lucas Lucero, Deputy State Director, Lands, Minerals, and Energy at (602) 417-9301 or by email at llucero@blm.gov. PWR 107 or water rights questions should be referred to Mark D’Aversa, State Office Hydrologist at (208) 524-7596 or by email at msdaversa@blm.gov or to David Murray, Tucson Field Office Hydrologist at (520) 258-7256 or by email at drmurray@blm.gov.

SIGNED BY:
Jody L. Weil
Deputy State Director
Resources, Planning, and Fire

AUTHENTICATED BY:
Susan Williams
Staff Assistant

3 Attachments:

- 1 - Order of Withdrawal Public Water Reserve No. 107 (1 p)
- 2 - 43 CFR 2370 (3 pp)
- 3 - Outline of Partial Revocation Process (1 p)

Order of Withdrawal
Public Water Reserve No. 107

Under and pursuant to the provisions of the act of Congress approved June 25, 1910 (36 Stat., 847) entitled "An act to authorize the President of the United States to make withdrawals of public lands in certain cases", as amended by act of Congress approved August 24, 1912 (37 Stat., 497), it is hereby ordered that every smallest legal subdivision of the public land surveys which is vacant unappropriated unreserved public land and contains a spring or water hole, and all land within one quarter of a mile of every spring or water hole located on unsurveyed public land be, and the same is hereby , withdrawn from settlement, location, sale, or entry, and reserved for public use in accordance with the provisions of Sec. 10 of the act of December 29, 1916 (39 Stat., 862), and in aid of pending legislation.

Calvin Coolidge
April 17, 1926

The Secretary of the Interior
Washington

April 17, 1926

My Dear Mr. President,

I transmit herewith a proposed order of withdrawal of 40-acre tracts containing and surrounding springs or water holes on the vacant unappropriated unreserved public lands.

The control of water in the semiarid regions of the west means control of the surrounding grazing areas, possibly in some regions of millions of acres, and in view of the pending bill to authorize the leasing of grazing lands upon the unreserved public domain, it is believed important to retain the title to and supervision of such springs and water holes on the unreserved public lands as have not already been appropriated.

Private parties have used various lieu selections and scrip note as a vehicle of acquiring small areas surrounding these springs and water holes, thus withdrawing them from the common use of the general public, this prime essential to grazing legislation mentioned, it is believed advisable to make a temporary general order of withdrawal.

Very truly yours,
Hubert Work
Secretary

Part 2370-RESTORATIONS AND REVOCATIONS

Subpart 2370-Restorations and Revocations; General

§ 2370.0-1 Purpose.

The regulations of this part 2370 apply to lands and interests in lands withdrawn or reserved from the public domain, except lands reserved or dedicated for national forest or national park purposes, which are no longer needed by the agency for which the lands are withdrawn or reserved.

§ 2370.0-3 Authority.

The Federal Property and Administrative Services Act of 1949 (63 Stat. 377), as amended, governs the disposal of surplus Federal lands or interests in lands. Section 3 of that Act (40 U.S.C. 472), as amended, February 28, 1958 (72 Stat. 29), excepts from its provisions the following:

- (a) The public domain.
- (b) Lands reserved or dedicated for national forest or national park purposes.
- (c) Minerals in lands or portions of lands withdrawn or reserved from the public domain which the Secretary of the Interior determines are suitable for disposition under the public land mining and mineral leasing laws.
- (d) Lands withdrawn or reserved from the public domain, but not including lands or portions of lands so withdrawn or reserved which the Secretary of the Interior, with the concurrence of the Administrator of the General Services Administration, determines are not suitable for return to the public domain for disposition under the general public-land laws, because such lands are substantially changed in character by improvements or otherwise.

Subpart 2372-Procedures

§ 2372.1 Notice of intention to relinquish action by holding agency.

- (a) Agencies holding withdrawn or reserved lands which they no longer need will file, in duplicate, a notice of intention to relinquish such lands in the proper office (see § 1821.2-1 of this chapter).
- (b) No specific form of notice is required, but all notices must contain the following information:
 - (1) Name and address of the holding agency.
 - (2) Citation of the order which withdrew or reserved the lands for the holding agency.
 - (3) Legal description and acreage of the lands, except where reference to the order of withdrawal or reservation is sufficient to identify them.
 - (4) Description of the improvements existing on the lands.
 - (5) The extent to which the lands are contaminated and the nature of the contamination.

(6) The extent to which the lands have been decontaminated or the measures taken to protect the public from the contamination and the proposals of the holding agency to maintain protective measures.

(7) The extent to which the lands have been changed in character other than by construction of improvements.

(8) The extent to which the lands or resources thereon have been disturbed and the measures taken or proposed to be taken to recondition the property.

(9) If improvements on the lands have been abandoned, a certification that the holding agency has exhausted General Services Administration procedures for their disposal and that the improvements are without value.

(10) A description of the easements or other rights and privileges which the holding agency or its predecessors have granted covering the lands.

(11) A list of the terms and conditions, if any, which the holding agency deems necessary to be incorporated in any further disposition of the lands in order to protect the public interest.

(12) Any information relating to the interest of other agencies or individuals in acquiring use of or title to the property or any portion of it.

(13) Recommendations as to the further disposition of the lands, including where appropriate, disposition by the General Services Administration.

§ 2372.2 Report to General Services Administration.

The holding agency will send one copy of its report on unneeded lands to the appropriate regional office of the General Services Administration for its information.

§ 2372.3 Return of lands to the public domain; conditions.

(a) When the authorized officer of the Bureau of Land Management determines the holding agency has complied with the regulations of this part, including the conditions specified in § 2374.2 of this subpart, and that the lands or interests in lands are suitable for return to the public domain for disposition under the general public land laws, he will notify the holding agency that the Department of the Interior accepts accountability and responsibility for the property, sending a copy of this notice to the appropriate regional office of the General Services Administration.

Subpart 2374-Acceptance of Jurisdiction by BLM

§ 2374.1 Property determinations.

(a) When the authorized officer of the Bureau of Land Management determines that the holding agency has complied with the regulations of this part and that the lands or interests in lands other than minerals are not suitable for return to the public domain for disposition under the general public land laws, because the lands are substantially changed in character by improvements or otherwise, he will request the appropriate officer of the General Services Administration, or its delegate, to concur in his determination.

(b) When the authorized officer of the Bureau of Land Management determines that minerals in lands subject to the provisions of paragraph (a) of this section are not suitable for disposition under the public land mining or mineral leasing laws, he will notify the appropriate officer of the General Services Administration or its delegate of this determination.

(c) Upon receipt of the concurrence specified in paragraph (a) of this section, the authorized officer of the Bureau of Land Management will notify the holding agency to report as excess property the lands and improvements therein, or interests in lands to the General Services Administration pursuant to the regulations of that Administration. The authorized officer of the Bureau of Land Management will request the holding agency to include minerals in its report to the General Services Administration only when the provisions of paragraph (b) of this section apply. He will also submit to the holding agency, for transmittal with its report to the General Services Administration, information of record in the Bureau of Land Management on the claims, if any, by agencies other than the holding agency of primary, joint, or secondary jurisdiction over the lands and on any encumbrances under the public land laws.

§ 2374.2 Conditions of acceptance by BLM.

Agencies will not be discharged of their accountability and responsibility under this section unless and until:

(a) The lands have been decontaminated of all dangerous materials and have been restored to suitable condition or, if it is uneconomical to decontaminate or restore them, the holding agency posts them and installs protective devices and agrees to maintain the notices and devices.

(b) To the extent deemed necessary by the authorized officer of the Bureau of Land Management, the holding agency has undertaken or agrees to undertake or to have undertaken appropriate land treatment measures correcting, arresting, or preventing deterioration of the land and resources thereof which has resulted or may result from the agency's use or possession of the lands.

(c) The holding agency, in respect to improvements which are of no value, has exhausted General Services Administration's procedures for their disposal and certifies that they are of no value.

(d) The holding agency has resolved, through a final grant or denial, all commitments to third parties relative to rights and privileges in and to the lands or interests therein.

(e) The holding agency has submitted to the appropriate office mentioned in paragraph (a) of § 2372.1 a copy of, or the case file on, easements, leases, or other encumbrances with which the holding agency or its predecessors have burdened the lands or interests therein.

PROCESS – REVOKING PUBLIC WATER RESERVES*

Path A - Stand Alone Action	Path B - As Part of Exchange or Disposal
<p>Purpose: Remove Public Water Reserves (PWR) for general management purposes.</p> <ol style="list-style-type: none"> 1. Conduct field work to document justification for removing PWR <ul style="list-style-type: none"> - no spring exists in withdrawn location - spring doesn't meet PWR criteria - discuss why losing reserved water right does not harm BLM interests 2. Complete National Environmental Policy Act (NEPA) analysis on proposed action. 3. Send written request to State Office with justification and NEPA analysis. 4. State Office drafts Public Land Order, issue paper, transmittal memo, obtains surnames. 5. Public Land Order and justification reviewed by Solicitor's Office. 6. State Office sends Public Land Order and justification to Washington Office. 7. Washington Office obtains necessary signatures and arranges for printing in Federal Register. 8. Public Land Order takes effects 30 days after publication in Federal Register. 	<p>Purpose: Remove PWR so that a specific lands action can be taken.</p> <ol style="list-style-type: none"> 1. In exchange/disposal proposal and feasibility report, specifically include a request to the State Office that the PWR be removed as soon as possible. 2. The proposal must include justification for the PWR revocation, such as the land use plan identified the parcel for disposal, or the spring is no longer needed to meet BLM's management objectives for the area. 3. Complete NEPA analysis on proposed action and send to State Office as soon as possible. 4. State Office drafts Public Land Order, issue paper, transmittal memo, obtains surnames. 5. Public Land Order and justification reviewed by Solicitor's Office. 6. State Office sends Public Land Order and justification to Washington Office. 7. Washington Office obtains necessary signatures and arranges for printing in Federal Register. 8. Public Land Order takes effects 30 days after publication in Federal Register. 9. Land exchange may be closed as soon as the Public Land Order takes effect.

* Modified from Colorado State Office version.

