

MIMBRES RESOURCE MANAGEMENT  
PLAN AMENDMENT  
AND  
ENVIRONMENTAL ASSESSMENT  
FOR  
GRANT COUNTY

DOI-BLM-NM-030-2009-035-EA



**United States Department of the Interior  
Bureau of Land Management  
Las Cruces District Office  
1800 Marquess Street  
Las Cruces, NM 88005**

**Mimbres Resource Management Plan Amendment  
and  
Environmental Assessment  
For  
Grant County**

**T. 17 S., R. 12 W., Sections 3, 4, 9, 10, 15, 16, 20, 21, 22, 23, 24 and 31;  
T. 17 S., R. 11 W., Sections 19 and 20; and  
T. 19 S., R. 15 W., Sections 8, 16, 17, 21, 27 and 28.**

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## 1 INTRODUCTION

The 1993 Mimbres Resource Management Plan (RMP) identified 156,460 acres of Federal public land for disposal through a variety of means within a four-county area. This is public land that meets the Federal Land Policy and Management Act (FLPMA) criteria for disposal by being small and isolated as well as being difficult and uneconomical to manage by the Bureau of Land Management (BLM). However, the identified public land did not include numerous, small, isolated parcels adjacent to U.S. Forest Service land in Grant County. A Lands and Realty Decision in the Mimbres RMP states “No public land contiguous to U. S. Forest Service (USFS) will be disposed of regardless of parcel size (p. 2-16).” However, it has been found that there are six parcels of public land adjacent to or contiguous with the Gila National Forest that are small and isolated, and difficult to manage (Figure 1-1). These parcels are found in: secs. 3, 4, 9, 10, 15, 16, 20, 21, 22, 23, 24, 31, T. 17 S., R. 12 W.; secs. 19 and 20, T. 17 S., R. 11 W.; and secs. 8, 17, 21, 27, 28, T. 19 S., R. 15 W, NMPPM.

Freeport McMoRan, the mining company with claims on these above parcels, has proposed to continue and eventually expand their mining operations onto these parcels. Much of this land has been mined for decades as the Continental Mine, the Hanover Pit, the Fierro Pit, and others. Originally, the mining was done on patented claims (private land), but over the years the mining operations, whether through actual ore removal, overburden stockpiles, or tailings pond locations, have spread to unpatented mining claims located on the adjacent public land. The General Mining Law of 1872 (Act of May 10, 1872; 17 Stat. 91, as amended) allows for the location of mining claims on public land, including those parcels recommended for disposal, while the 43 CFR 3809 regulations authorize the activities required to develop and remove locatable minerals from the claims. Mineral development on the public land has been and is being carried out under 43 CFR 3809, Mine Plans of Operation (MPO), which is submitted by a mining company.

None of these existing mining claims have been patented or subject to a validity examination or contest action by the United States. For lands that are open to the location of lode, placer, and mill claims, the claimant has statutory authority under the mining laws for ingress, egress and development of those claims. This authority means that those areas open to mineral entry for the purposes of exploration or development of locatable minerals cannot be unreasonably restricted. A mining claim, therefore, is a lasting encumbrance to the land which limits the Agency’s disposal and management options. While the presence of mining claims does not preclude changes in land status (i.e., changing status from retention to disposal), active mining claims will restrict future exchange and disposal options.

Many MPOs have been submitted for these very small acreages of public land. The BLM process of approving these MPOs requires field surveys by BLM staff to determine potential impacts to biological resources, cultural resources, water quality, and other aspects of the human environment. The BLM must devote a disproportionate amount of time, money, and personnel to complete the approval process for mining activities on very small parcels through the preparation of MPOs and National Environmental Policy Act (NEPA) supporting documents.

The New Mexico Mining Act of 1993 (Mining Act) was passed the same year that the Mimbres RMP was signed. The purposes of the Mining Act include “promoting responsible utilization and reclamation of lands affected by exploration, mining or the extraction of minerals that are vital to the welfare of New Mexico.” The Mining Act establishes requirements for a broad range of hard rock mines to obtain permits, meet certain standards, develop an approved reclamation plan, and post financial assurance to

support the reclamation plan. Implementation of and compliance with the Mining Act is the responsibility of the New Mexico Mining Commission and the New Mexico Energy Minerals and Natural Resources Department, Mining and Minerals Division (MMD). Other aspects of environmental quality are monitored by the New Mexico Environment Department (NMED).

The BLM has determined that disposing of these parcels would benefit the public. While the mineral resource values on this land is moderate to high, other resource values, such as wildlife and recreation, are minor. Exchanging this land for other lands with higher scenic, wildlife or recreation values for example, would have a public benefit. If the BLM were to retain this land in Federal ownership, mining operations are subject to the New Mexico and the BLM permitting process. If the land is disposed of or exchanged, all mine operations would be permitted primarily by the State of New Mexico. Since the BLM and State of New Mexico permitting processes generally overlap and have similar public participation requirements, this latter scenario would help streamline the permitting and planning process for continued mining operations or expansions and help reduce administrative cost.

### 1.1 Purpose and Need for Proposed Action

The purpose of the Mimbres RMP Amendment (RMPA) and supporting Environmental Assessment (EA) is to designate selected public land in the Mimbres RMP from retention to disposal. The need for action would help reduce costs to manage scattered, Federal public land parcels that are primarily used for mining and have low natural resource values. By changing the land tenure designation for these parcels in the Mimbres RMP from retention to disposal, the land would be exchanged or sold and other lands of higher resource value would be acquired to benefit the public. Consolidation of the disposed tracts of land into private ownership would have the net effect of increasing the efficiency of the BLM’s ability to manage other public land in the planning area.

A proposal for a land exchange has been made; the BLM would trade the parcels identified in this EA to Freeport McMoRan Mining Company for lands of higher resource value that are yet to be determined. No final decision can be made yet on that proposal and its terms are subject to change. The change in land status analyzed in this EA would be in the public interest regardless of an existing proposal because of the difficulty in managing these lands in their current status.

### 1.2 Planning Area

This proposed RMPA identifies for disposal public land adjacent to the Gila National Forest in Grant County (Figure 1-1). There are two areas of consideration: the Hanover area and the Tyrone area. The Hanover area is approximately 12 miles northeast of Silver City, New Mexico north of State Highway 152. The Tyrone area is approximately 11 miles southwest of Silver City west of State Route 90. The two sites are approximately 20 miles apart. There are a total of 6 parcels with a total of 1,348 acres. (Table 1). The public land is administered by the Las Cruces District Office of the BLM.

**Table 1 Parcel Size in Acres: Hanover and Tyrone Areas**

Parcel	Hanover	Parcel	Tyrone
1	438.2	5	248.6
2	334.4	6	32.5
3	265.43		
4	29		
	<b>1067 total</b>		<b>281.1 total</b>
<b>Total Acres</b>	<b>1,348.1</b>		

### **1.3 Scoping and Public Involvement Issues**

Preliminary issues for the planning area have been identified by BLM personnel, other agencies, and in meetings with individuals and user groups. These issues are:

- Should public land adjacent to the Gila National Forest be identified for disposal? If so, which public land?
- What potential impacts would this Proposed Action have on the Gila National Forest?
- What effects would this Proposed Action have on mining in the area?
- What effects would this Proposed Action have on adjoining private land?
- Without Federal lands as part of potential future mining operations, will the public have an opportunity to influence cumulative impacts of mining activities on the surrounding environment?

Two Notices of Intent (NOI) were published in the Federal Register. The first, Notice of Intent to Prepare an Amendment to the Mimbres Resource Management Plan and Associated Environmental Assessment was published on December 13, 2008. The second, Correction to Notice of Intent to Prepare an Amendment to the Mimbres Resource Management Plan and Associated Environmental Assessment, Las Cruces District Office, NM, was published January 27, 2009. The first noticed announced a 30-day scoping period. The second corrected legal descriptions and extended the scoping period another 30 days. The NOIs were posted on the BLM New Mexico Planning Website from January 28, 2009 to March 9, 2009. A letter describing the plan amendment process was sent to 110 landowners in the Hanover and Tyrone areas as well as to 50 interested government organizations, interested individuals, and non-government organizations.

During the scoping period, the BLM received 12 phone calls and 4 letters. The majority of the people who contacted the BLM were seeking clarification on the intent of the RMPA. No additional or new issues were brought forward.

The EA was released for a 30-day Public Comment Period, on February 25, 2010. Fifteen members of the public provided input in the form of letters, phone calls, e-mails, or personal visits to LCDO. This input pertained primarily to any potential land exchange in the future.

### **1.4 Relationship to BLM Policies, Plans and Programs**

Criteria for exchange or sale of public land are contained in Section 203 of the FLPMA (43 U.S.C. 1713). The FLPMA allows for disposal of tracts that are difficult and uneconomical to manage due to their location or other characteristics. The FLPMA provides authority for land ownership adjustments by sale, exchange, withdrawal and other means. It requires that land tenure adjustments be in conformance with existing RMPs. Both surface and subsurface would be transferred, ensuring that future management problems would be minimized.

Disposal of these tracts would serve important public objectives including but not limited to economic development. Such use of these tracts could be achieved prudently and feasibly in conjunction with fee land and therefore outweigh other public objectives and values.

An amendment to the Mimbres RMP offering disposal of public land through exchange or sale of public land not currently identified for disposal by the Mimbres RMP may be approved only after analysis of each specific disposal request. This analysis includes the preparation of an EA (this document), a cultural

resource clearance, and a report of mineral values, a Phase I Environmental Site Assessment, and an appraisal to establish fair market value.

BLM decision options include approving the amendment, approving alternatives to the amendment to mitigate environmental impacts, approving the amendment with stipulations to mitigate environmental impacts, or denying the amendment. If BLM approves the amendment, designated parcels of public land would be offered in exchange for other properties. Denial of a request to amend the plan is a plan level decision made by the State Director and is protestable to the BLM Director under 43 CFR 1610.5-2(a).

## **1.5 Planning Criteria**

Planning criteria are the standards, rules, and other guidelines developed by managers and interdisciplinary teams, with public input, for use in forming judgments about plan-level decision making, analysis, and data collection. These criteria are used to establish the parameters or “ground rules” for making planning decisions and simplifying RMP actions. The criteria may be adjusted during RMP development based on management concerns and the results of the public scoping process.

The planning criteria include the following:

1. The RMPA/EA process will be in compliance with the FLPMA, the NEPA, and applicable laws, regulations, and policies.
2. The RMPA process will be governed by the planning and NEPA regulations at 43 CFR 1610 and 40 CFR 1500, the BLM Land Use Planning Handbook (H-1601-1) and the BLM NEPA Handbook (H-1790-1).
3. Lands affected by the RMPA only apply to public surface and mineral estate managed by the BLM. No decisions will be made relative to non-BLM administered lands or non-Federal minerals.
4. Public participation will be an integral part of the planning process.
5. The RMPA will recognize all valid existing rights.
6. The RMPA will strive to be consistent with existing non-Federal plans and policies, provided the decisions in the existing plans are consistent with the purposes, policies, and programs of the BLM and other Federal laws. The RMPA will consider present and reasonably potential uses of public land.
7. The RMPA will consider impacts of uses on adjacent or nearby non-Federal lands and on non-Federal land surface over Federally-owned minerals.

## **2 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES**

### **2.1 Proposed Action**

The Proposed Action is to amend the decision contained in the Lands and Realty Section of the 1993 Mimbres RMP (page 2-16), which states “No public land contiguous to US Forest Service land will be disposed of regardless of parcel size.”

Specifically the land managed by the BLM in secs. 3, 4, 9, 10, 15, 16, 20, 21, 22, 23, 24, 31, T. 17 S., R. 12 W.; secs. 19, 20, T. 17 S., R. 11 W.; and secs. 8, 17, 21, 27, 28, T. 19 S., R. 15 W., NMPM, which total about 1,348 acres in 6 parcels, would be reclassified from *retention land* to *suitable for disposal* (Figure 1).

### **2.2 No Action Alternative**

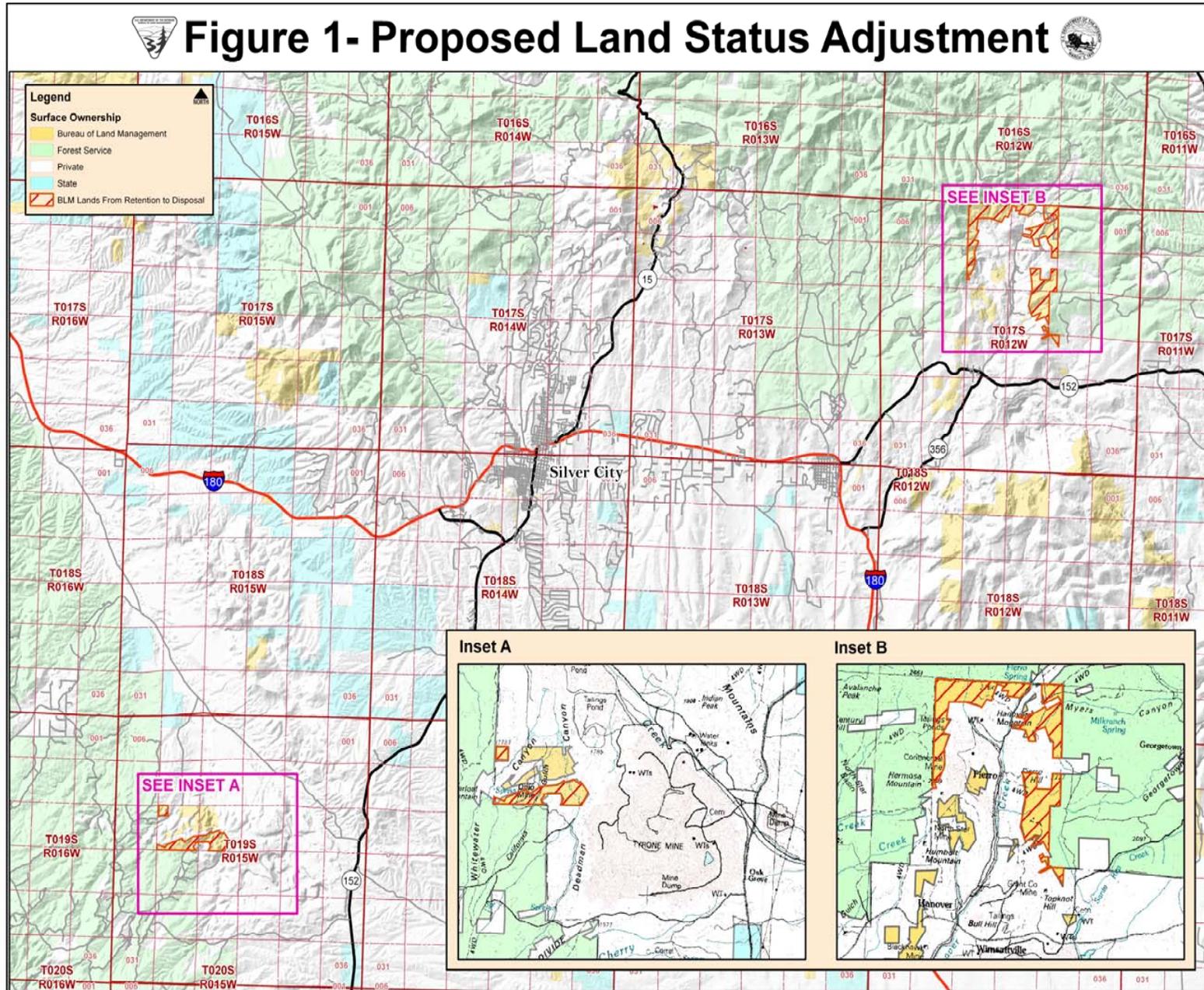
Under the No Action Alternative, the Mimbres RMP would not be amended, and the identified land would not be available for disposal. Land adjacent to the Forest Service boundary would be retained by the BLM.

### **2.3 Alternatives Not Analyzed in Detail**

The BLM considered revising the land tenure decision to allow for disposal of all public land adjacent to US Forest Service land in the Mimbres RMP. After consulting with Gila National Forest staff, this alternative was rejected because some BLM properties afford access via BLM or county-maintained roads. If all BLM land adjacent to the Gila National Forest were sold or exchanged to private parties, public access to National Forest land could be prevented in some areas.

A possible alternative would be to designate the land to remain in Federal ownership but transferred to the US Forest Service. Transferring Federal ownership to the US Forest Service would require legislation. An administrative transfer to another agency is categorically excluded from an Environmental Analysis under NEPA. However, the US Forest Service would be faced with the same management challenges as the BLM on these small, heavily mined parcels of land. Additionally, the public stands to benefit from a potential land exchange. For these reasons, this alternative was not analyzed in further detail.

Figure 1 Proposed Land Status Adjustment



### 3 AFFECTED ENVIRONMENT

Land in both the Tyrone and Hanover areas, which are approximately 20 miles apart, share similar environmental characteristics. The average maximum temperature varies from 52° F in January to 87° F in July. Average minimum temperatures vary between 25° F in January and 58° F in July. Average annual precipitation is 17 inches. Most of the precipitation in the area falls during June through September in the form of rain. The areas are within the Arizona-New Mexico Mountains Ecoregion, which has elevations ranging from 4,500 feet to 12,600 feet (1,371 meters to 3,840 meters). Hanover area is located at approximately 6,800 feet in elevation and Tyrone sits a little lower at 6,400 feet. Both sites are part of a larger landscape of mountain ranges, steep foothills, plateaus, and desert plains.

Land ownership in Grant County is 48 percent Federal, with 12.5 percent of the total land acreage of the County managed by the BLM (Table 2).

Table 2 Land Ownership in Grant County

TABLE 2 LAND OWNERSHIP IN GRANT COUNTY		
LAND OWNERSHIP	ACRES	PERCENT OF TOTAL
<b>Federal</b>	1,210,890	48%
<b>BLM Forest Service</b>	318,120 892,770	12.5% 35.5%
<b>State of New Mexico</b>	352,190	14%
<b>Private</b>	977,910	38%
<b>Total</b>	<b>2,540,990</b>	<b>100%</b>

#### 3.1 Air Resources

##### 3.1.1 Air Quality

The Clean Air Act, which was last amended in 1990, requires the U.S. Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (NAAQS) (40 CFR part 50) for pollutants considered harmful to public health and the environment. The Clean Air Act established two types of National air quality standards. *Primary standards* set limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly. *Secondary standards* set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings.

The EPA Office of Air Quality Planning and Standards (OAQPS) has set NAAQS for six principal pollutants, which are called "criteria" pollutants. Three classes established by the EPA determine the amount, or increment of additional air pollution allowed in each area.

Air pollution damages ecosystems and limits visibility so the Clean Air Act also helps to provide protection for natural systems as well as human health through the prevention of significant deterioration (PSD) and visibility protection programs. Areas that are cleaner than required by the NAAQS for

particulates, SO<sub>2</sub> and NO<sub>2</sub>, are designated in one of three classes that determine the amount, or “increment,” of additional air pollution allowed in each area. Most of New Mexico is in the PSD Class II increments which allow for moderate deterioration of air quality. PSD Class I increments include designated wilderness areas and National parks which permit only minor air quality deterioration. The Hanover area is located approximately 15 miles southwest of the Aldo Leopold Wilderness Area and 12 miles southeast of the Gila Wilderness Area, both PSD Class I areas. Tyrone Mine is further from the Class I sites: 23 miles to the Gila Wilderness, 36 miles to the Aldo Leopold Wilderness.

In 1978, EPA designated the Grant County SO<sub>2</sub> nonattainment area based on past violations of the NAAQS for SO<sub>2</sub>. The exceedances of the SO<sub>2</sub> NAAQS were the result of the former smelter/concentrator facility in Hurley. The nonattainment area includes a 3.5-mile radius around the Hurley smelter and an 8-mile radius for any land above 6,470 feet elevation around the smelter.

Monitors in the area have shown that primary or secondary NAAQS for SO<sub>2</sub> have not been violated since the 1970s. The New Mexico Air Quality Bureau submitted a re-designation plan to EPA in February 2003. The re-designation plan was approved by EPA in September 2003. The Hurley smelter is currently no longer in operation and was demolished in 2007.

The current mining facilities in the immediate area (the Cobre, Chino and Tyrone mines) operate under air quality permits with the NMED Air Quality Bureau. Permitted activities at these facilities include clearing of vegetation, construction of roads, blasting of rock, stockpiling of rock, operation of aggregate screening plants, vehicular traffic, soil/rock loading, dumping and haulage, emissions from power plants, emissions from solution extraction/electrowinning plants and emissions from copper concentrator facilities. Primary emissions from these facilities include total suspended particulates (dust), PM<sub>10</sub> (fine particulate dust), volatile organic carbon, sulfuric acid mist, carbon monoxide, carbon dioxide, sulfur dioxide, and nitrogen oxides. These facilities operate within permitted emission limits established by the NMED. Cobre operates under Construction Permit No. 1089M1R1 (copper concentrator and associated material handling). Tyrone operates under construction permits 2448AR1 (power plant), 2448B (aggregate screening plant) and an operating permit P0147 (mining and solution extraction/electrowinning). Facilities capable of releasing air pollutants at levels that may cause an exceedance of applicable air quality standards are monitored and/or instrumented with monitoring instruments for the pollutants of concern, as well as control devices (such as water sprays, baghouses, enclosures, etc.) to allow control of these releases. Inspections and reporting are required under the terms of the air quality permits, and are carried out by both the mining company and NMED.

The primary pollutant at the Cobre Mine near Hanover and the Tyrone Mine near Tyrone is fugitive dust. Most of the suspended particulate matter in the project region is caused by the effects of wind on unpaved roads and barren lands. However, mining in the region is a source of particulate emissions from the mining, processing, handling and storage of ore, and from the handling of waste rock. The existing air quality in the region does not exceed state or Federal air quality standards. Quantities of particulate matter less than 10-microns in diameter (PM<sub>10</sub>) and total suspended particulates (TSP) emitted are regulated under State of New Mexico Air Quality Bureau.

### **3.1.2 Climate Change**

Global mean surface temperatures have increased nearly 1.0°C (1.8°F) from 1890 to 2006 (Goddard Institute for Space Studies 2007). However, observations and predictive models indicate that average temperature changes are likely to be greater in the Northern Hemisphere. Without additional meteorological monitoring systems, it is difficult to determine the spatial and temporal variability and

change of climatic conditions, but increasing concentrations of green house gases (GHGs) are likely to accelerate the rate of climate change.

In 2001, the Intergovernmental Panel on Climate Change (IPCC) predicted that by the year 2100, global average surface temperatures would increase 1.4 to 5.8°C (2.5 to 10.4°F) above 1990 levels. The National Academy of Sciences (2006) supports these predictions, but has acknowledged that there are uncertainties regarding how climate change may affect different regions. Computer model predictions indicate that increases in temperature will not be equally distributed, but are likely to be accentuated at higher latitudes. Warming during the winter months is expected to be greater than during the summer, and increases in daily minimum temperatures is more likely than increases in daily maximum temperatures. It is not, however, possible to predict with any certainty regional or site-specific effects on climate relative to the proposed lease parcels and subsequent actions.

Potential impacts to natural resources and plant and animal species due to climate change are likely to be varied, including those in the southwestern United States. For example, if global climate change results in a warmer and drier climate, increased particulate matter impacts could occur due to increased windblown dust from drier and less stable soils. Cool season plant species' spatial ranges are predicted to move north and to higher elevations, and extinction of endemic threatened/endangered plants may be accelerated. Due to loss of habitat or competition from other species whose ranges may shift northward, the population of some animal species may be reduced or increased. Less snow at lower elevations would likely impact the timing and quantity of snowmelt, which, in turn, could impact water resources and species dependant on historic water conditions. Forests at higher elevations in New Mexico, for example, have been exposed to warmer and drier conditions over a 10-year period. Should the trend continue, the habitats and identified drought sensitive species in these forested areas and higher elevations may also be more affected by climate change.

When compared to baseline information, periods between 1991 and 2005 show temperature increases in over 95 percent of the geographical area of New Mexico. Warming is greatest in the northwestern, central, and southwestern parts of the state (Enquist and Gori 2008).

### **3.2 Cultural Resources**

In the Tyrone area, approximately 150 acres have been surveyed to Class III Inventory standards (Michalik 1993a; Michalik 1993b; and Rogge and Shepard 1996). One historic site, the Ohio Mine, was identified on one of the subject parcels and recommended eligible for listing on the National Register of Historic Places (NRHP).

In the Hanover area, approximately 438.2 acres (one of the subject parcels) have been surveyed to Class III Inventory standards (Poague and Evaskovich 1993; Brown 1994; Brown and Randolph 1995; and Brown 1996). Some 32 archaeological and historic sites have been identified on public land managed by the BLM; 20 of which have been determined eligible for the NRHP based primarily on their potential to provide important information about prehistory.

Based upon intensive inventories in the Hanover and Tyrone areas, substantial information has accrued regarding cultural resources in these areas. These sources would be the basis for predicting the nature of cultural resources not yet recorded and evaluated. Known and anticipated cultural resources may be summarized as follows:

1. Lithic and artifact scatters dating from the Archaic Period or that period of prehistory occurring within 6000 BCE (Before the Christian Era begins) to shortly After the Christian Era (ACE). This is a sustained period of mobile hunters and gatherers using sites on a seasonable basis.
2. Thermal rock features from all periods.
3. Archaeological remains of small settlements or pueblo hamlets and isolated farmsteads of the Mimbres Mogollon are known. The Mimbres Mogollon were prehistoric farming peoples inhabiting the subject area from 200 ACE to around 1150 ACE. Although agriculturalists, they supplemented their food with hunting and gathering as well.
4. The archaeological remains of the Protohistoric Period are hard to distinguish from those of the Archaic Period and present. The Protohistoric peoples had a mobile hunting and gathering lifestyle. Nevertheless, various named peoples including local groups of the Chiricahua Apache inhabited the subject area from shortly prior to 1600 ACE to the latter part of the 19<sup>th</sup> century and have left an archaeological record.
5. Historic mining sites. Historic mining began in the 1870s ACE. Historic is defined by the National Historic Preservation Act of 1966 as being 50 years or older. Mining has continued in the subject area to the present.

### **3.3 Geology & Minerals**

#### **3.3.1 Hanover/Cobre Area**

The Hanover Area is located within the Central Mining District of the Santa Rita Quadrangle in a broad transition zone between the Colorado Plateau and the Basin and Range Province (BLM 1997a). To the south and southwest of the area, Paleozoic to Mesozoic age sedimentary rocks and younger volcanic rocks are exposed in north to northwest trending ranges; to the north sedimentary formations thicken and form the broad highlands of the Colorado Plateau. Within the Santa Rita Quadrangle, northwest-trending faults, such as the Mimbres and Silver City Faults, and northeast trending faults, such as the Barringer, Nancy, and Groundhog Faults, define a broad area of uplift in the Central Mining District called the Santa Rita Horst. The surface area of the Santa Rita Horst is about 40 square miles and within the horst the strata are flexed into elongate arches, domes, small synclines, and locally into tight folds (BLM 1997a).

The mineralization that has fueled mining operations within the Hanover/Cobre Area is largely associated with a complex history of volcanic events. Volcanic rocks have intruded into upper sedimentary formations along the fault lines and other zones of weakness. These volcanic intrusions have contained magmas and hydrothermal fluids with higher than average metal contents into the surface and near-surface rock formations. Portions of the volcanic intrusions contain economic concentrations of metals, including copper, molybdenum, zinc, lead, and precious metals. Other areas have been further enriched in metals by selective reaction of the intrusive magmas and hydrothermal fluids with the pre-existing geologic strata, allowing deposition of the metals along faults and fracture zones.

Underground and open-pit mining in the Hanover/Cobre District is localized on the contact-metamorphosed sediments adjacent to the Tertiary-age Hanover-Fierro stock. The upper Paleozoic-age Oswaldo and Lake Valley Formations are particularly good hosts for copper ore.

##### **3.3.1.1 Mining Operations**

The area in and around the Cobre Mine is reported to have produced commercial amounts of copper since 1858. The Cobre Mining Company Continental Mine (owned by Freeport McMoRan) has been on standby since 1999 and is not currently producing copper. It is a limestone “skarn” open-pit and

underground copper mine and processing facility. The primary copper ores at the Cobre mine are chalcopyrite and chalcocite, with minor amounts of copper oxides. Continental includes a 20-acre tailings pond that contains magnetite recovered during the milling process by previous operators. Cobre has been reducing the pond volume by selling magnetite, an iron ore, which is used for many purposes, including soil fertilizer, a concrete additive, and water purification, as well as a potential feedstock for iron and steel production (EMNRD 2008; FMI 2009).

Cobre has two copper concentrators, which produce copper by grinding and flotation methods. Cobre also holds environmental permits to construct copper leaching facilities which would yield copper through the solution extraction/electro-winning (SX/EW) method. These facilities have not yet been constructed.

### **3.3.2 Tyrone Area**

Within the Tyrone area, there are four major geologic units:

*Precambrian Rocks:* This consists of granite with lesser amounts of other alkaline igneous rocks. This unit forms the majority of the Burro Mountain batholith complex. These are the host rock to economic grade copper ore.

*Tertiary Intrusive Rocks:* Composed of quartz monzonite porphyry intrusive and dikes that crosscut the Precambrian granite and are younger than the primary mineralization and the Tyrone stock.

*Gila Conglomerate:* This is a Miocene age outcrop. It consists primarily of locally derived granitic and monzonitic rocks. Caliche formation is common. The base of the conglomerate is locally cemented by iron oxides which is host to anomalous copper mineralization.

*Quaternary Alluvium:* Composed of unconsolidated alluvium deposited in stream channels and basins. Its thickness varies from 0 to 70 feet.

Large scale open-pit copper mining commenced in the late 1960s. Mining is centered on the Tertiary-age quartz monzonite composite intrusive body known as the Tyrone stock and the Precambrian granite the stock was intruded into. Just to the west of the Tyrone deposit is the area known as Little Rock. Evidence from exploratory borings at Little Rock suggests there are approximately 100 million tons of leachable materials of economic grade ore (BLM 1997b). Mineralized material here is related to a Tertiary-age, dike-like intrusive body. The only sediments of the region that crop out at Tyrone are the Miocene-age Gila Conglomerate which overlies the ore body in the main pit area.

Geologic mapping of the Little Rock ore body and nearby Tyrone Mine area reveal several fault systems characterized by high angle faults exhibiting some normal component of movement. Displacement of rocks by these faults has produced uplifted blocks and corresponding troughs.

#### **3.3.2.1 Mining Operations**

Tyrone is a porphyry open-pit copper mine and processing facility. Prior to 1860, American Indians mined turquoise at the site. Phelps Dodge, a mining company, acquired mining claims in the area from 1909 to 1916, and began concentrating ore produced from large-scale underground mining in 1916. Operations ended in 1921. The property returned to operation as an open pit in 1967, with copper

production from a concentrator. The SX/EW plant was commissioned in 1984. Tyrone’s concentrator suspended operations in 1992 when the property made the transition to 100 percent SX/EW copper production. Freeport McMoRan Copper & Gold acquired the Tyrone mine in a 2007 merger with Phelps Dodge. Tyrone is currently producing at approximately 50 percent of capacity due to current market conditions.

### 3.4 Livestock Grazing

There are no livestock allotments in the Tyrone area. Cattle and horses are permitted to graze on two allotments in the Hanover area parcels (Table 3). The Snowflake Lease authorizes six cows year long (CYL) but the public land is adjacent to a private land grazing lease (on land owned by Freeport McMoRan) with additional cattle.

Table 3 Summary of Livestock Allotments

Table 3 Summary of Livestock Allotments			
Allotment No./Name	Acres	Animal Unit Months	Cows Year Long
04557/Fierro Lease	87.02	24	2 (horses)
04567/Snowflake Lease	611	72	6

Within the Hanover area, only one allotment contains permanent range improvements that have been authorized by the BLM (Table 4).

Table 4 Summary of Range Improvements

Table 4 Summary of Range Improvements		
Allotment No./Name	Range Improvement No./Name	Agreement Type
04557/Fierro Lease	6351222/Fierro Fence	Permit

### 3.5 Lands and Realty

The BLM administers approximately 318,000 acres of public land in Grant County. The proposed disposal area is characterized by its rural qualities and generally sparse population. Mining and ranching activities occur within the proposed disposal area. Mining has been active in this area for hundreds of years, and over time, mining patents have created small, isolated parcels of public land. Typical nearby actions and authorizations on public land include leases, permits, sales, communication site rights-of-way (ROWs), and linear ROWs. The existing ROWs for roads, power lines, pipelines, water facilities, and other linear uses within the proposed disposal area are shown in Table 5.

**Table 5 Rights of Way in Proposed Disposal Area**

<b>Table 5 Rights-of-Way in Proposed Disposal Area</b>		
<b>Casefile Number</b>	<b>ROW Holder</b>	<b>Type of ROW</b>
NMNM 000555	Cobre Mining	Water Plant
NMNM 004705	Public Service Company of NM	Transmission Line
NMNM 006411	Public Service Company of NM	Transmission Line
NMNM 012323	Public Service Company of NM	Transmission Line
NMNM 016390	Public Service Company of NM	Oil and Gas Pipeline
NMNM 099220	Hanover MDWCA	Road
NMNM 100774	Public Service Company of NM	Transmission Line

### **3.5.1 Utility Corridors, Exclusion Areas, and Avoidance Areas**

Within the proposed disposal area, there are no existing ROW utility corridors. A utility corridor is a linear corridor designated for future placement of facilities such as power lines, pipelines, fiber optic cables, roads, etc.

The BLM establishes ROW exclusion and avoidance areas to guide decisions about where ROWs may be granted. In exclusion areas, no ROWs are allowed unless mandated by law; in avoidance areas, ROWs may be granted only when no feasible alternative route (or designated ROW corridor) is available (BLM 1993a). There are no ROW exclusion and avoidance areas in the proposed disposal area which means that ROWs for roads, power lines, pipelines, communication sites and other needs may be permitted.

### **3.6 Recreation**

*Hanover Area:* Recreational use of BLM public land adjacent to the Gila National Forest is limited due to restricted public access to both Freeport McMoRan patented land, and to the BLM parcels surrounded by Freeport McMoRan patented land. However, light recreation use occurs in the Gila National Forest north of the Cobre Mine via County Road 3-5 (BLM 1997). The main recreational activities include hunting, target shooting, horseback riding, off-road vehicle use, hiking, and camping.

*Tyrone Area:* As with the Hanover area, the main recreational activities include hunting, target shooting, horseback riding, off-road vehicle use, hiking, and camping. A proposed section of the Continental Divide National Scenic Trail is located approximately 2.5 miles from the BLM parcels considered in this EA. The Trail is accessed from Forest Road 136, and runs south to Burro Peak and ends at the junction of Forest Road 828 and State Highway 90. Primitive roads from the US Forest Service land provide access into Deadman Canyon and California Gulch (BLM land), but use of the area for dispersed recreation is very low.

### **3.7 Socio-Economics**

The population of Grant County in July 2007 was 29,699. Of these, 58 percent are considered urban and 42 percent are rural residents (Table 6). The county seat, Silver City, has a population of 10,000. The majority of New Mexico's population (54 percent) is Hispanic and 48 percent of Grant County is Hispanic. Grant County also has a 54 percent minority population proportion. The State of New Mexico's low-income population rate is 18 percent and Grant County's is slightly above this at 18.7 percent (US Census Bureau 2000).

Grant County has diversified, becoming, among other things, a retirement destination. It has a diverse service economy compared to other counties in the region and actively promotes itself as the gateway to public land, including the Gila and Aldo Leopold Wilderness Areas. Mining plays a large role, both in absolute and relative terms. The unemployment rate in the County for 2008 was 4.0 to 4.9 percent, which is similar to the State of New Mexico. Private wage or salary workers make up 62 percent of the workforce. Government employees are 26 percent and self-employed are 11 percent (Rasker et al. 2008).

**Table 6 Demographics of Grant County**

<b>Table 6 Demographics of Grant County</b>		
<b>Demographics</b>	<b>% Grant County</b>	<b>% New Mexico</b>
White	95	84
Two or more races	3.1	1.7
American Indian	1.8	9.8
Black	1.0	2.5
Income below poverty level	18.7	18.4
Income below 50% of poverty level	8.3	7.8

*Income:* Close to half of personal income in the County is from retirement, investment and other non-labor sources, and over a third of employment is in Government (including Western New Mexico University). Mining plays a significant role (11 percent of employment) (Rasker et al. 2008).

*Mining:* Mining is the largest base employer, with retail and services employing the largest number in non-base jobs. In 2005, Grant County had 1,200 jobs in mining directly. However, the economic slow-down and decline in copper prices that began in late 2008 has led to the temporary cessation of mining at Chino Mine in Grant County, which normally employs approximately 600 workers (FMI 2008 press release).

*Livestock:* US Department of Agriculture (USDA) Agricultural Statistics report 28,000 head of cattle in Grant County; half of those beef cows for 2009. Net farm and ranch income has been negative since 1995 but livestock sales generated \$7,698,000 in Grant County in 2008 (USDA NASS 2009).

### **3.8 Soils**

There are six soil associations in the Hanover area and three of these also dominate the Tyrone area:

*Hanover Area:*

1. Encierro-Rock outcrop complex, 15 to 35 percent slope
2. Gaddes-Santa Fe-Rock outcrop complex, 15 to 45 percent slope
3. Oro Grande-Rock outcrop complex, 25 to 75 percent slope
4. Santa Fe-Rock outcrop complex, 20 to 45 percent slope
5. Santana-Rock outcrop complex, 1 to 25 percent slope
6. Pits-Dumps, 3 to 75 percent slope

*Tyrone Area:*

1. Santa Fe-Rock outcrop complex, 20 to 45 percent slope
2. Santana-Rock outcrop complex, 1 to 25 percent slope
3. Pits-Dumps, 3 to 75 percent slope

Soils data were obtained from the Natural Resources Conservation Service (NRCS) Soil Survey found on the internet at the Web Soil Survey (2009). These soils are shallow rocky soils typical of soils found in mountains and are usually stable. Coarse fragments protect the soil surface from erosion in normal rainfall events.

Both the Hanover and Tyrone areas are dominated by Santana and Santa Fe Rock outcrop complexes. The Santana-Rock outcrop complex is 45 percent Santana and similar soils and 40 percent Rock outcrop. It is found on ridges and hill slopes, with a parent material of mixed alluvium or colluvium derived from igneous, metamorphic and sedimentary rock. Restrictive features are found 4 to 18 inches to lithic bedrock. It is well-drained, and the available water capacity is very low, about 2 inches. The ecological site associated with Santana-Rock outcrop is Hills (R038XB103NM).

The Santa Fe-Rock outcrop is 55 percent Santa Fe and similar soils and 25 percent Rock outcrop. It is found on hill slopes and mountain slopes, and its parent material is also mixed alluvium or colluvium derived from igneous, metamorphic and sedimentary rock. The depth to restrictive features is 8 to 20 inches to lithic bedrock. It is also well-drained, and the available water capacity is also very low (about 1.5 inches). The ecological site associated with Santa Fe-Rock outcrop is Hills (R038XB103NM).

Due to the long history of mining in the area, many areas of existing soils are covered by mining waste rock, or have been removed from mining areas. Current regulations under the New Mexico Mining Act require that any new mining operations remove and stockpile existing soils for use in reclamation activities at the time of mine closure. They also require that a post-mining land use be identified for existing mines and/or prior to mining and that this land use be attained after closure. The post-mining land use for most areas of present mining is “wildlife habitat”, which requires soils to be suitable to support this use following mine closure.

### **3.9 Special Status Species**

A comparison of special status species lists with species habitat requirements, distribution information and habitats occurring in the parcels adjoining the US Forest Service indicate a potential for 32 Special Status Species to occur at least part of the year. These lists were obtained from the UNM Rare Plant website (2009), the NM State Bison website (2009) and the US Fish and Wildlife Service Southwest Region website (2009).

The presence of special status species habitats on the BLM parcels considered in this EA were inferred using the most recently available surveys (Metric Corporation 1993; BLM 1997a; BLM 1997c). Other sources also provided insight as to species potentially occurring in those habitats (BLM 2000; Christman and Painter 2000). Table 7 lists special status species that may occur in the area of potential impact and includes one federally threatened species, Federal species of concern, State-listed species and species designated by the BLM as Sensitive Species.

### **3.10 Vegetation**

#### **3.10.1 Ecological Site Description**

Both the Hanover and Tyrone areas are classified into the Hills Ecological Site (R038XB103NM), whose descriptions appear in full on the NRCS Web Soil Survey (2009). The hills site often intergrades with breaks sites and may border loamy sites. The historic plant community type is dominated by sideoats grama (*Bouteloua curtipendula*). Shrubs and trees, including one-seed juniper (*Juniperus monosperma*)

and shrub oak (*Quercus* spp.) are more common on north-facing slopes. It is unclear why trees such as juniper and pinyon pine (*Pinus edulis*) become dominant at the expense of grasses in some cases. Regional increases in the relative amount of winter rainfall, decreases in fire frequency or grazing, may facilitate woody plant establishment, and subsequent erosion or competition may inhibit the recolonization of grasses.

**Table 7 Special Status Species: Hanover and Tyrone Areas**

<b>Table 7 Special Status Species: Hanover and Tyrone Areas</b>		
<b>Species</b>	<b>Status</b>	<b>Status Key</b>
Arizona toad	BLMS	FT=Federal Threatened FWSS=NM Species of Concern FNEP=Federal Nonessential Experimental Population NMT=NM Threatened NME=NM Endangered BLMS=BLM Sensitive
Chiricahua leopard frog	FT	
Texas horned lizard	BLMS	
Mexican garter snake	FWSS, NME, BLMS	
Narrowhead garter snake	FWSS, NMT, BLMS	
Common black-hawk	FWSS, NMT	
Northern goshawk	FWSS, BLMS	
Peregrine falcon	FWSS, NMT	
Bald eagle	NMT	
Burrowing owl	BLMS, FWSS	
Varied bunting	NMT	
Bell's vireo	FWSS	
Gray vireo	NMT	
Loggerhead shrike	BLMS	
Broad-billed hummingbird	NMT	
Costa's hummingbird	NMT	
Burrowing owl	FWSS, BLMS	
Mexican spotted owl	FWST	
Western small-footed myotis	BLMS	
Cave myotis	BLMS	
Fringed myotis	BLMS,	
Long-eared myotis	BLMS	
Yuma myotis	BLMS	
Little brown myotis	BLMS	
Long-legged myotis	BLMS	
Pale Townsend's big-eared bat	BLMS, FWSS	
Western red bat	BLMS	
Allen's big-eared bat	BLMS	
Mexican gray wolf	FNEP	
Viceroy obsolete butterfly	FWSS	
Pinos Altos flame flower	FWSS	
Parish's alkali grass	FWSS, NME	

The New Mexico Noxious Weed Specialist has identified the following species as being high priority in Grant County (BLM 1997b):

- Dalmatian toadflax (*Linaria genisitifolia* ssp. *dalmatica*)
- Purple loosestrife (*Lythrum salicaria*)
- Yellow starthistle (*Centaurea solstitialis*)
- African rue (*Peganum harmala*)
- Malta starthistle (*Centaurea melitensis*)

### **3.10.2 Reclamation**

Freeport McMoRan utilizes a reclamation seed mix, approved by the New Mexico Energy, Minerals and Natural Resources Department that does not contain any noxious weeds. Reclamation sites are monitored, documenting the species of all plants present. This ongoing data collection is used to determine whether weed abatement is required on disturbed areas.

## **3.11 Visual Resources**

Visual resources include the natural and manmade physical features that give a particular landscape its character and value. The features that form the overall impression a viewer has of an area include landform, vegetation, water, color, adjacent scenery, scarcity, and manmade modifications (BLM 1986).

There are four visual resource management (VRM) classes. The management objectives for each are based on criteria identified within BLM's Visual Resource Inventory Handbook (BLM 1984b).

### **3.11.1 Hanover Area VRM Class**

This region is designated VRM Class II, which means that the level of change to the existing landscape would be low. In the Mimbres RMP, all land adjacent to the Gila National Forest was designated Class II. The definition for a Class II is broad and includes many natural, undisturbed areas. The natural features of the adjacent Gila National Forest consist of low mountains interspersed with valleys vegetated with pinyon juniper forests, shrubs, and grasses. The predominant colors are browns, tans, grays, and greens. In the project area, however, the dominant visual features are the extensive disturbances associated with mining, the primary land use of the area such as open pits, mining head frames and buildings, waste rock piles, and tailings facilities (BLM 1997a).

### **3.11.2 Tyrone Area VRM Class**

This area is designated as VRM Class IV. This management class allows for activities that may result in major change to the character of the landscape, although it does require consideration of methods for minimizing visual impact. The natural features of the landscape are similar to the Hanover area, with a mosaic of exposed rock, mixed woodland with junipers, pinyon pine, ponderosa pine and various shrubs, and disturbed areas. The scenic quality is common for the region. The area is part of the existing Tyrone Mine complex with disturbance and a highly industrialized area. The mine includes large areas of exposed rock, haul roads, and leaching and processing facilities which have created a strong visual contrast with the surrounding native landscape (BLM 1997b).

### **3.12 Wastes- Hazardous and Solid**

On the public land parcels adjacent to the US Forest Service, no known hazardous materials are stored. The impact of heavy metals used for leaching is discussed in the Water Resources section (3.13).

Historic mining waste rock piles may contain solid waste such as pipes, roofing materials, wood, asbestos or solvents in cans or jars. These waste rock piles may occur on the BLM public land considered in this EA, but no systematic survey has been undertaken. They may exist at a low frequency on public land (Eddie Humphrey, FMI, Personal Communication).

### **3.13 Water Resources**

#### **3.13.1 Hanover Area Local Surface Water**

The project area is situated within the Hanover Creek Drainage system, bounded on the north by the Pinos Altos Range. The eastern hydrologic system boundary is defined by a ridge that includes the Fierro Topknot Hills. The highest point within the Hanover Creek Drainage system is located north of Hanover Mountain, in the Pinos Altos Range, at an elevation of 7,820 feet. The lowest elevation, 6,000 feet, occurs at the mouth of Hanover Creek at its confluence with Whitewater Creek near the Chino Mine. Over the length of its course, Hanover Creek is generally an ephemeral stream. However, small perennial flows exist near Fierro Spring and, in some locations, adjacent to the towns of Hanover and Fierro, where it is suspected that local septic systems recharge the stream flow (BLM 1997a).

The contributing drainage area of Hanover Creek is approximately 6,990 acres of which about 70 percent is down-gradient from previous mining activity. Additional tributaries in the Hanover Creek watershed are Grape Gulch, Poison Spring Drainage, Buckhorn Gulch and Ansones and Beartooth Creeks.

Surface waters associated with the Hanover Creek Drainage have historically been affected by ephemeral storm water discharges from mining operations and private septic systems. In recent years, a large scale mine reclamation program has sought to identify the historic mining operations with potential to impact surface water quality and to reclaim them. Most of the largest historic mining areas have now been reclaimed. Many small historic mines, with associated surface rock stockpiles remain in the District, on both private and Federal lands. The NM Environment Department's (NMED's) current (2008-2010) NM 303(d)/305(b) Integrated Report classifies Hanover Creek as fully supporting wildlife habitat uses, but the Creek has not been assessed for other uses. Hanover Creek is not a perennial water source, thereby limiting its potential uses.

The current mining operations in the District are regulated by the Environmental Protection Agency's (EPA's) National Pollutant Discharge Elimination System (NPDES) regulations, which regulate potential point source discharges of process waters impacted by industrial operations, and/or EPA's Multi-Sector General Permit (MSGP) for storm water potentially impacted by industrial operations. Under these permits, industrial process waters are contained inside the permitted facilities, and storm water is allowed to be released only if meeting applicable water quality criteria. NMED, along with the EPA, conducts compliance inspections under these programs. Water quality monitoring and storm water pollutant controls are required to be implemented to ensure compliance.

Septic systems remain an issue in the District, especially older unpermitted systems. However, as septic systems are repaired and replaced, they must meet new standards for septic system construction, as

defined in the NMED's Liquid Waste Program regulations, which would gradually improve surface water quality in the District.

### **3.13.2 Hanover Area Groundwater**

Generally, groundwater is the main source of municipal, domestic, livestock, agricultural, and industrial water supplies in Grant County. The availability, volume, and quality of groundwater are dependent mainly on the rock type. The following four main rock types are found in Grant County: metamorphic and plutonic igneous rocks, volcanic igneous rocks, marine sedimentary rocks and continental sedimentary deposits.

Regionally, groundwater exists in the deeper formations as well as in small, perched units around the County. Recharged groundwater from the Pinos Altos and Black Ranges discharges to the Mimbres River system, of which the Hanover District is part. Deep groundwater flows into Gila Conglomerate and Bolson Formations in the southern portion of the County. Within the Hanover District, two groundwater flow regimes exist; groundwater in the basement (deep) rocks and groundwater in shallow alluvial systems (BLM 1997a).

Residents of the Hanover District area obtain most of their water either from deep rock aquifers or from sources outside the Hanover area (deeper alluvium deposits down gradient). Historic underground mine workings in the area can locally dominate the groundwater flow directions, as well as its availability and water quality. Underground workings, dating back many generations, were advanced to great depths (in excess of 1,000 feet) and act as local or regional groundwater sinks. Water in these workings can still be at great depth, making accessing it uneconomic. The water can also be high enough in dissolved water contaminants to make it unacceptable for human consumption. The primary water contaminants in the Hanover area groundwater are sulfates and total dissolved solids. While not considered primary human health constituents, they are regulated as secondary (aesthetic) contaminants and can render the water non-potable, if at high levels.

Current mining operations in the Hanover area (the Continental/Cobre Mine) are regulated by the NMED Groundwater Quality Bureau, Mining Environmental Compliance Section. The mine currently maintains three discharge permits (DP-181, DP-1056, and DP-1403), which govern the mine's current operations, proposed future operations, and proposed closure activities, insofar as those activities may affect groundwater. These discharge permits impose specific conditions, based on the New Mexico Water Quality Control Commission regulations, which require the Mine to comply with numerical limits on groundwater contamination. These regulations also require abatement of any impacts to groundwater not allowed under the regulations. They require posting of financial assurance for closure of the mining facilities, including long-term control or abatement of any legacy water quality issues within those operations.

### **3.13.3 Hanover Area Water Quality**

In 1987, EPA investigated the Hanover-Fierro mining area to determine if it should be included on the National list of Superfund sites. Sampling results from the investigation focused on heavy metals in soils, water and air. The agency chose not to put any mining sites in the Hanover-Fierro area on its National Priorities List at the time. Since then, the State of New Mexico, through the NMED Ground Water Quality Bureau and MMD, has issued permits governing mine closure and abatement of water quality impacts and mine reclamation. Under these permits, most of the historic mining sites in the Hanover-

Fierro mining area have been reclaimed, further limiting the potential risk to human health or the environment.

Over time, the water samples taken in the Hanover-Fierro mining area have generally met the New Mexico Human Health Water Quality Standards for Discharge to Surface and Groundwater; with the exception that the standards for domestic water supply for total dissolved solids, sulfates and occasionally iron and manganese have been exceeded. Due to dumping of household refuse and the discharge of human waste from local residences, the presence of fecal coliform bacteria in Hanover Creek precludes its use as a domestic water supply (BLM 1997a). Additionally, Hanover Creek is not a perennial creek; therefore, it is not available as a year-round water source.

### **3.13.4 Tyrone Area Local Surface Water**

There are four small drainages: Deadman Canyon, California Gulch, Whitewater Canyon and a small tributary to the North of Whitewater. Deadman Canyon has an alluvial sandy bed, which is subject to downcutting and gulying in its upper reaches. It has no perennial surface water flow. Springs in the watershed are small and flow at the ground surface for very short distances. The Canyon has an average channel slope of 7 percent. Maximum elevation of the drainage is 8,020 feet, and the outlet elevation is about 5,620 feet (BLM 1997b). These drainages flow to the north to Mangas Creek, which in turn flows to the Gila River.

### **3.13.5 Tyrone Area Groundwater**

Regional groundwater in the project area occurs primarily within the Tertiary igneous rocks and flows generally to the northeast, toward the Tyrone Main Pit. Depth to groundwater in the Deadman Canyon drainage is typically about 50 to 100 feet below the ground surface. Recharge to the regional groundwater system primarily comes from infiltration of snowmelt and rainfall events through bedrock fractures. Regional groundwater is used for domestic livestock, irrigation, and mining purposes. There are, however, no current groundwater users in Deadman Canyon other than Freeport McMoRan.

Groundwater flowing into the open pits at Tyrone is the primary source of water used in Tyrone mining operations. A relatively small amount of additional groundwater is pumped from wells and is used to supply potable water and water for limited, specific industrial purposes.

A relatively thin, shallow groundwater system is present in the surficial alluvial sediment of a portion of Deadman Canyon. This shallow system is perched on top of the less permeable bedrock (BLM 1997b). Within the portion of Deadman Canyon that crosses BLM public land, the alluvium is only several feet thick, and there is generally no shallow alluvial water present.

### **3.13.6 Tyrone Area Water Quality**

Current mining operations in the Tyrone area (Tyrone Mine) are regulated by the NMED Groundwater Quality Bureau, Mining Environmental Compliance Section. The mine currently maintains nine operational discharge permits which govern the mine's current operations, a Settlement Agreement that governs closure for groundwater protection and monitoring of the Mangas Valley tailing area north of the subject area, and one closure/closeout permit (DP-1341) which governs the mine's current and proposed closure activities, insofar as those activities may affect groundwater. These discharge permits impose specific conditions, based on the New Mexico Water Quality Control Commission regulations, which

require the mine to comply with numerical limits on groundwater contamination. These regulations also require abatement of any impacts to groundwater not allowed under the regulations. They require posting of financial assurance for closure of the mining facilities, including long-term control or abatement of any legacy water quality issues within those operations.

Operational DP-166 covers the western portion of the Tyrone Mine and that portion of Deadman Canyon closest to the Tyrone area BLM parcel. Groundwater monitoring information collected under DP-166 and DP-1341 indicate that groundwater beneath Deadman Canyon adjacent to the BLM parcel meets all applicable water quality standards. If groundwater quality were to become impacted in this area, the impacted groundwater would flow east-northeast beneath the Tyrone Mine, and eventually would be extracted by pumping at the Main Pit where it would be utilized for mine operations under mining conditions or would be treated to meet groundwater standards under mine closure conditions.

Deadman Canyon is ephemeral and therefore, surface water quality is not available. The Tyrone Mine does have a Stormwater Pollution Prevention Plan (SWPP) that incorporates a variety of Best Management Practices to minimize the impact of the Tyrone mining operations on surface water quality.

### **3.14 Wildlife**

Wildlife habitats in both the Hanover and Tyrone areas are considered Pinyon-Juniper Grass Mountains (BLM IHICS database). Several wildlife and habitat surveys have been conducted in the area of the parcels with various mine expansion projects (Metric Corporation 1993, BLM 1997a, BLM 1997c, BLM 2000) and for BLM inventory purposes (Christman and Painter 2000).

#### **3.14.1 Hanover Area Wildlife Habitat**

Habitat on the Hanover parcels is dominated by mixed woodland characterized by alligator juniper, gray oak and pinyon. Areas described as xeric montane shrub, pinyon-juniper woodland and mixed conifer forest occur in smaller amounts. The xeric montane shrub community is dominated by oaks, mountain mahogany, agave, yucca and opuntias. The mixed conifer forest community is dominated by ponderosa pine, junipers, pinyon and oaks. Riparian habitat exists on public land in small areas of Hanover Creek, below Poison Spring (US Forest Service), Grape Gulch, and Buckhorn Gulch. Aquatic habitat exists in conjunction with some of the spring/seep areas, but is generally not adequate to provide breeding habitat for vertebrates. An exception is Buckhorn Gulch below a tailings pile which provides an amount of water suitable for Chiricahua leopard frog breeding habitat, but is too high in total dissolved solids to allow amphibians to survive (Christman and Painter 2000). Numerous historic mine workings and caves occur that provide potential roost habitat. Water impoundments associated with current mining activity and the small amount of natural aquatic habitat likely provide bat foraging habitat. The size and quality of habitats in terms of juxtaposition and human disturbance detract from the value of habitat to wildlife in the general vicinity.

#### **3.14.2 Tyrone Area Wildlife Habitat**

Habitat occurring on these parcels is largely dominated by pinyon-juniper/chaparral with smaller areas of juniper grassland and inclusions of ponderosa pine and ephemeral arroyo habitats along three main drainages. The area contains historic mining features that provide potential bat roosts. There is no perennial aquatic or riparian habitat on the Tyrone parcels although a small amount of riparian vegetation occurs on nearby private land. Ponds associated with mining may contribute to the species assemblage occurring on the public land parcels. The list of potential species for the Tyrone area parcels includes 52

mammal species, 58 bird species and 36 species of amphibians and reptiles (BLM 1997b). Surveys conducted in the area of the Tyrone parcels lists a total of 39 mammal and 45 bird species observed (BLM 1997b). Value of the habitat is severely limited by historic and current human impacts, the small size of the parcels, and the juxtaposition of the parcels in and around active mine workings.

## 4 ENVIRONMENTAL EFFECTS OF ALTERNATIVES

Chapter 4 analyzes potential impacts that would result from implementation of the Proposed Action and the No Action Alternative. Selection of the No Action Alternative would result in no amendment to the Mimbres RMP, and the land would not be designated for disposal. Selection of the Proposed Action would designate the selected lands for disposal and a future land exchange may occur.

### 4.1 Analytical Assumptions

The decision and related analysis in the Proposed Mimbres RMPA/EA is either to identify the subject public land for disposal (Proposed Action), or retain it by not amending the Mimbres RMP (No Action Alternative). Future projects affecting the proposed disposal area in the No Action Alternative (under the Reasonable Foreseeable Future Action) would be subject to site-specific analysis as required by the National Environmental Policy Act (NEPA) and would also be subject to the State permitting process under the 1993 Mining Act. Future projects affecting the proposed disposal area in the Proposed Action (under the Reasonable Foreseeable Future Action) would be subject to only the State permitting process. Chapter 4 characterizes these differences between the No Action and the Proposed Action under the Reasonable Foreseeable Future Action. This EA examines the environmental effects of the change in land status from retention to disposal. Before any land exchange could occur, which is a Reasonable Foreseeable Future Action, a subsequent EA will be prepared to examine the environmental impacts of this exchange.

**Related Plans:** The impact analysis is based on an understanding of the existing conditions in the Planning Area, including the area proposed for disposal, and environs, characterized in Chapter 3. Some of the information provided in Chapter 3 (Affected Environment) and Chapter 4 (Environmental Consequences) are also tiered from the 1993 Mimbres RMP, including incorporation through reference.

**Climate Change:** Climate change analyses are comprised of several factors, including greenhouse gases (GHGs), land use management practices, the albedo effect, etc. The tools necessary to quantify climatic impacts from the Proposed Action or No Action Alternative are presently unavailable. As a consequence, impact assessment of specific effects of anthropogenic activities cannot be determined. Additionally, specific levels of significance have not yet been established. Therefore, climate change analysis for the purpose of this document is limited to accounting and disclosing of factors that may contribute to climate change. Qualitative and/or quantitative evaluation of potential contributing factors within the planning area is included where appropriate and practicable.

**New Mexico Mining Act of 1993:** In New Mexico, the primary oversight related to geology and minerals is through the Mining and Minerals Division of the State of New Mexico Energy, Minerals and Natural Resources Department (NMENRD). Mining in New Mexico is regulated by the Mining Act Reclamation Program (MARP) created by the New Mexico Mining Act of 1993. The program through the New Mexico Mining Commission and the Mines and Minerals Division (NMMMD) of NMENRD, regulates hardrock mining and requires reclamation for all minerals operations except the exploration and extraction of potash, sand, gravel, caliche, borrow dirt and quarry rock used as aggregate in construction, and the exploration and extraction of oil and gas. The State regulates mining on both private and public lands.

The permit application process for a new mining operation requires details on the nature and impacts of the proposed operation, and the applicant must collect at least 12 months of environmental baseline data on the permit area. Information provided by the operator must ensure that the operation and reclamation

of the facility will protect human health and safety, wildlife, cultural resources, and hydrologic balance. The new mining operation must employ best management practices, which include designing the operations to avoid or minimize acid drainage and other impacts to ground and surface water, to control erosion, and to use contemporaneous reclamation when practicable. A new mining permit will not be issued unless the reclaimed operation will achieve “a self-sustaining ecosystem appropriate for the life zone of the surrounding areas” unless conflicting with a post-mining land use (no other waivers allowed), that the proposed reclamation is economically and technically feasible, and that all environmental requirements can be met without perpetual care (NMEMNRD 2008).

#### **4.1.1 Reasonably Foreseeable Future Actions (RFFA)**

While the Proposed Action is to modify the land tenure adjustment decision in the Mimbres RMP to allow for potential land exchanges in the future and disposal of the parcels described in this EA, the land tenure adjustment itself would have no direct impact on the condition and management of the land in question. However, once the public land is designated as *disposal*, it is reasonable to expect that these lands adjacent to the Forest Service would be part of a land exchange with Freeport MacMoRan to facilitate mine operations at both the Cobre and Tyrone Mines. At each mine, it is reasonable to expect mining to continue in the pits. In addition, copper ore will continue to be leached and tailing ponds may be used. Sites will eventually be reclaimed when mining ceases.

#### **4.1.2 Types of Impacts to be Addressed**

The Environmental Effects Section analyzes the impacts of mining continuing on parcels adjacent to the Gila National Forest without BLM administration (a Reasonably Foreseeable Future Action).

The following analysis focuses on three types of impacts: **direct, indirect, and cumulative:**

**Direct impacts** – Effects caused by the action and occur at the same time and place as the action. Examples include elimination of original land use through erection of a structure. Direct impacts may cause indirect impacts such as ground disturbance resulting in particulate matter emission.

**Indirect impacts** – Effects caused by the action, but occur later than or are somewhat distant from the action; however, they are still reasonably foreseeable and related to the action by a chain of cause and effect. Indirect impacts may reach beyond the natural and physical environment (e.g., environmental impact) to include growth-inducing effects and other effects related to induce changes in the pattern of land use, population, density or growth rate, and related effects on air and water and other natural systems, including ecosystems.

**Cumulative impacts** – Effects that result from the incremental impact of the action when it is added to other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such actions. Cumulative impacts may result from actions that take place over time and that are individually minor, but are collectively significant.

#### **4.1.3 Incomplete or Unavailable Information**

The EA of a Land Use Plan Amendment that changes the category from *retention* to *disposal* can provide a general overview of potential effects of a reasonably foreseeable action; however, this EA is not intended to analyze the specific effects of disposing and/or exchanging the parcels. At the time a disposal action occurs, a detailed site-specific analysis in an EA or EIS would be undertaken.

## 4.2 Direct and Indirect Impact Analysis

### 4.2.1 Proposed Action Alternative

Under the Proposed Action, changing the land tenure decision in the Mimbres RMP from retention to disposal would have no direct or indirect effects on air quality, climate change, cultural resources, environmental justice, geology and minerals, livestock grazing, recreation, socio-economic conditions, soils, special status species, vegetation, visual resources, hazardous or solid waste, water, or wildlife. Land disposal could have long-term potential direct or indirect impacts to these resources as a result of the land disposal/exchange based on the Reasonably Foreseeable Future Actions (RFFA) below. The direct/indirect effects on these resources as a result of the actual disposal/exchange would be analyzed in a separate environmental assessment (EA).

### 4.2.2 No Action Alternative

Under the No Action Alternative, the decisions regarding land tenure adjustment in the Mimbres RMP would not change, and the land in question would be retained by BLM. As a result, there would be no impacts to resources other than those identified in the Mimbres RMP.

Certain BLM-authorized activities that would continue to occur within the public land under the No Action Alternative would produce emissions considered to be greenhouse gases (GHGs). BLM public land and activities may help offset any emissions and sequester carbon, such as maintaining vegetative cover, which could help build organic carbon in soils and function as “carbon sinks”.

## 4.3 Cumulative Impacts

In this section, cumulative impacts are addressed by analyzing the direct and indirect effects of the Proposed Action with the effects of other actions that combined may have a cumulative effect. The No Action is also analyzed. The geographic scope of cumulative impacts is the parcels identified for a change in land status and the surrounding mine lands. In the event of an exchange, a more detailed and in-depth cumulative impacts analysis will be made in the associated NEPA document. The cumulative impacts under the Reasonable Foreseeable Future Actions (RFFAs) are analyzed since the change in designation from retention to disposal has neither direct nor indirect impacts.

### 4.3.1 Air Resources

#### 4.3.1.1 Air Quality

**No Action Alternative-** Air quality would continue to be impacted by mining activities as described in Chapter 3, Affected Environment. These facilities operate within permitted emission limits established by the New Mexico Environment Department. Cobre operates under Construction Permit No. 1089M1R1 (copper concentrator and associated material handling). Tyrone operates under construction permits 2448AR1 (power plant), 2448B (aggregate screening plant) and an operating permit P0147 (mining and solution extraction/ electrowinning). The Mining Plan of Operation submitted to the BLM must also contain air quality measures stipulated by the authorized officer.

**Proposed Action-** In this scenario, Mining Plans of Operation and EAs would not be prepared. Any impacts to air quality from continued mining activity would be analyzed and permitted by the State of New Mexico as described in Chapter 3, Affected Environment.

#### 4.3.1.2 Climate Change

**No Action Alternative and Proposed Action-**The assessment of GHG emissions, their relationship to global climatic patterns, and the resulting impacts is an ongoing scientific process. It is currently not feasible to know with certainty the net impacts from the Proposed Action on climate—that is, while BLM actions may contribute to the climate change phenomenon, the specific effects of those actions on global climate are speculative given the current state of the science. The BLM does not have the ability to associate a BLM action’s contribution to climate change with impacts in any particular area. The technology to be able to do so is not yet available. The inconsistency in results of scientific models used to predict climate change at the global scale coupled with the lack of scientific models designed to predict climate change on regional or local scales, limits the ability to quantify potential future impacts of decisions made at this level and determining the significance of any discrete amount of GHG emissions is beyond the limits of existing science. When further information on the impacts to climate change is known, such information would be incorporated into the BLM’s planning and NEPA documents as appropriate.

Impacts to Air Quality and Climate Change would be similar under the No Action Alternative and the Proposed Action’s Reasonable Foreseeable Future Action.

#### 4.3.2 Cultural Resources

**No Action Alternative-**Under this alternative, there would be no direct impacts other than those described in the Mimbres RMP (p. 2-44 through p. 2-45). Cultural resources would continue to be managed so that disturbance of sites is avoided. Other aspects of managing cultural resources would continue to be (1) inventory and evaluation when specific ground disturbing proposals are received, (2) protection and preservation, (3) resource use in accordance with resource allocations, and (4) planning. In the No Action, mitigation would occur as the mine expands on BLM land.

**Proposed Action-**When land leaves Federal ownership, they also leave the protection of Federal cultural resource laws. Therefore, land disposals and exchanges are considered to be adverse effects on any cultural resources located within the exchange or disposal boundaries, if the cultural resource is eligible for listing or is listed on the National Register of Historic Places. Based on those findings, the BLM may retain nationally significant cultural resources to Federal ownership. A Reasonably Foreseeable Future Action is one in which Freeport McMoRan exchanges land with BLM and all BLM land is inventoried, all sites located are evaluated and significant sites mitigated prior to the completion of the exchange or disposal. The remaining land is transferred after cultural resources stipulations have been met. These include the requirement for Section 106 cultural resource inventories before the land is disturbed or developed. Any sites that would be impacted would be mitigated by intensive recordation where appropriate and/ or excavation of the site(s) and a report.

The Reasonable Foreseeable Future Action under the Proposed Action of a land exchange would put the BLM parcels in private ownership. This constitutes an adverse impact which must be mitigated before the land is patented. Various mitigation techniques are employed for cultural sites eligible for the NRHP registry. Excavation, while a mitigation technique enhancing our knowledge of local culture, destroys the archaeological site. In the Proposed Action, surveys and mitigation would occur before the land is patented.

### 4.3.3 Geology & Minerals

**No Action Alternative-** Mineral extraction would continue to be governed by the New Mexico Mining Act of 1993 which is administered by the New Mexico Energy, Minerals and Natural Resources Department and the New Mexico Environment Department as described in Chapter 3. Mining would continue under the No Action Alternative; minerals would be extracted, and the mines would eventually play out.

**Proposed Action-** The impacts to geology and mining would be similar to the impacts in the No Action Alternative since the mines would continue to be regulated by the Mining and Minerals Division of the State of New Mexico Energy, Minerals and Natural Resources Department under the New Mexico Mining Act of 1993. The primary difference between the No Action and the Proposed Action is that once the Federal parcels are patented, an MPO would not be required. The State of New Mexico permitting process and the BLM MPO largely overlap.

Impacts to Geology and Minerals would be similar under the No Action Alternative and the Proposed Action's Reasonable Foreseeable Future Action.

### 4.3.4 Livestock Grazing

**No Action Alternative-** Under the No Action Alternative, the land tenure decision would not change and there would be no impacts to resources other than those described in the Mimbres RMP (p. 2-24 through p.2-27). Livestock grazing permitted by the BLM would continue at the current permitted level (96 AUMs). Continued mining at Hanover would not impact grazing operations because the grazing leases do not overlay Freeport McMoRan mining claims.

**Proposed Action-** If the land were to be exchanged, permits associated with the 96 AUMs would be cancelled. The permittees may graze on public land for a period of less than 2 years if they sign a grazing preference waiver which waives their 2-year notification requirement. However, Freeport McMoRan could provide livestock grazing leases on their patented land.

Impacts to Livestock Grazing under the No Action would differ from the Proposed Action's Reasonable Foreseeable Future Action. In this scenario, grazing leases on the BLM land would be cancelled.

### 4.3.5 Lands and Realty

**No Action Alternative-** In this alternative, the parcels of public land would remain in *retention* status and would not be sold or exchanged. There would be no impact to lands other than those identified in the Mimbres RMP (p. 2-10 through 2-21).

**Proposed Action-** By changing the land tenure decision for secs. 3, 4, 9, 10, 15, 16, 20, 21, 22, 23, 24, 31, T. 17 S., R. 12W.; secs. 19, 20, T. 17 S., R. 11 W.; and secs. 8, 17, 21, 27, 28, T. 19 S., R. 15 W., NMPM in the Mimbres RMP, this land would be designated as available for disposal. Implementation of the proposed land disposal would result in the disposal of approximately 1,340 acres of public land. Public access to the Gila National Forest via County Road 3-5 would not be impacted (near the Hanover area) under the Reasonable Foreseeable Future Action. The public would continue to have access on this County Road.

Impacts to Lands and Realty under the No Action would differ from the Proposed Action. In this scenario, the parcels would be changed to *disposal* and would be available for sale or exchange. Under the Reasonable Foreseeable Future Action, the land would no longer be held in Federal ownership.

#### **4.3.6 Recreation**

**No Action Alternative-** There would be no impacts to recreation under the No Action Alternative other than those identified in the Mimbres RMP (p. 2-47 through p.2-51).

**Proposed Action-** This would have a direct local impact to recreation. Permission to access lands exchanged to Freeport McMoRan would likely be required of the public. However, surrounding Forest Service land offers the same dispersed recreational opportunities as those being considered for exchange.

Impacts to Recreation under the No Action would differ from the Reasonable Foreseeable Future Action under the Proposed Action. In this scenario, permission would be required from Freeport McMoRan to access lands surrounding the mines.

#### **4.3.7 Socioeconomic Conditions and Environmental Justice**

**No Action Alternative-** Under the No Action Alternative , economic activity generated by the mine would continue to be an important part of the regional economy. No Environmental Justice issues were identified.

**Proposed Action-** In the Reasonable Foreseeable Future Action, mining would continue but under private ownership. No Environmental Justice issues were identified.

Impacts to Socioeconomic Conditions under the No Action would be similar to the impacts from the Reasonable Foreseeable Future Action because no impacts to commercial mining are expected as a result of the six parcels being transferred into private ownership.

#### **4.3.8 Soil Resources**

**No Action Alternative-** Land tenure would remain in retention status. There would be no new impacts other than those identified in the Mimbres RMP (p. 2-33 through p. 2-36). As with Vegetation (see below), reclamation oversight on mine land would be administered through a BLM MPO and the Mining and Minerals Division (MMD) Reclamation Plan. Through the New Mexico Mining Act, MMD requires and regulates reclamation of all active metal mines. The permits require stockpiling of soils prior to new disturbances and the use of MMD-approved native seed mixes during reclamation. The MPO submitted to the BLM must also contain a reclamation plan containing reclamation measures stipulated by the authorized officer.

**Proposed Action-** Soils would be impacted during the life of the mine by excavation and mining. Soil horizons would be mixed. Soils would be eroded from construction sites by wind and water. Soils would be stockpiled for reclamation as required by the New Mexico Mining Act. The mining operation would employ best management practices, which include designing the operations to control erosion, and to reclaim sites as quickly as possible. As with Vegetation (see below), reclamation oversight on mine land would be administered through the MMD Reclamation Plan.

Impacts to Soil Resources would be similar under the No Action Alternative and the Proposed Action's Reasonable Foreseeable Future Action.

#### **4.3.9 Special Status Species**

**No Action Alternative-** In the No Action Alternative, BLM management prescriptions for special status species would be developed during the MPO phase. When a mining company initiates an MPO, the areas are surveyed for special status species and if any are found or deemed likely to occur, mining activities are designed in a manner to mitigate or avoid impacts to the species. If there is potential for Federally listed species, the BLM determines if the mining activity will affect that species, and then engages in Section 7 consultation with the US Fish and Wildlife Service. The Migratory Bird Treaty Act is administered by the US Fish and Wildlife Service. BLM special status species management activities also include species that are listed by the State of New Mexico as threatened or endangered.

**Proposed Action-** If the parcels under consideration leave Federal ownership, MPOs would not be written for future mining operations. However, in a NEPA analysis for an exchange, if special status species are found or may be present, the BLM may choose not to exchange or the BLM may require off-site mitigation for the long-term viability of a species on public land. The New Mexico Department of Game and Fish has the opportunity to review and provide comment to the mining permit application (submitted to the Mining and Minerals Division of NMEMNRD) and during this time may make recommendations for management specific to state listed species. The US Fish and Wildlife Service would continue to administer the Endangered Species Act and the Migratory Bird Treaty Act on the patented mine lands.

Impacts to Special Status Species would be similar under the No Action Alternative and the Proposed Action's Reasonable Foreseeable Future Action.

#### **4.3.10 Vegetation**

**No Action Alternative-** Decisions regarding land tenure would not change, and there would be no impacts other than those identified in the Mimbres RMP (p. 2-3 through p. 2-5). Vegetation would continue to be impacted by mining activities. Reclamation oversight on mine land would be administered through a BLM MPO and the MMD Reclamation Plan. Through the New Mexico Mining Act, MMD requires and regulates reclamation of all active metal mines. Vegetation would be removed as a result of mining activities. Most new mining areas would be returned to suitable wildlife habitat following permanent cessation of mining, as required under existing permits for Cobre and Tyrone under their New Mexico Mining Act permits with MMD. The process involves establishing an undisturbed reference area that serves as the standard to which land is returned after mining. The permits require stockpiling of soils prior to new disturbances and the use of MMD-approved native seed mixes during reclamation. Test plots are established that would allow the mines to determine what revegetation practices are optimal, including how noxious or invasive plants are managed. The MPO submitted to the BLM must also contain a reclamation plan containing reclamation measures stipulated by the authorized officer.

**Proposed Action-** Under the Reasonable Foreseeable Future Action, the oversight of reclamation on mine land is through the Mining and Minerals Division of the State of New Mexico Energy, Minerals and Natural Resources Department.

Impacts to Vegetation would be similar under the No Action Alternative and the Proposed Action's Reasonable Foreseeable Future Action.

#### **4.3.11 Visual Resources**

**No Action Alternative-** Decisions regarding land tenure would not change, and there would be no impacts other than those identified in the Mimbres RMP (p. 2-3 through p. 2-5). In this alternative, scenic qualities of the area would be considered in the development and implementation of the MPO, and reclamation would be detailed in both an MPO and in any MMD Reclamation Plan.

**Proposed Action-** In the Reasonable Foreseeable Future Action, no MPOs would be developed and Visual Resource Management would not be specifically addressed. However, in the long-term, the mines would implement reclamation plans after mining ceases. These would enhance the scenic qualities once slopes are contoured and vegetation establishes, diminishing contrasts.

Impacts to Visual Resources under the No Action would differ from the Proposed Action. In the Reasonable Foreseeable Future Action scenario, the mining areas would not be managed by Freeport McMoRan to enhance visual quality.

#### **4.3.12 Wastes- Hazardous and Solid**

**No Action Alternative-** There would be no impacts to solid waste if the land tenure decisions remains as *retention*.

**Proposed Action-** In the Reasonable Foreseeable Future Action scenario, hazardous and solid wastes would be inventoried in an Environmental Site Assessment process to perform due diligence. Law, regulation and BLM policy require that remedial action be taken before transferring land out of US ownership, unless the new owner is the potentially responsible party under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA)120(h) for disposal of Federal land and for support of innocent landowner defenses under CERCLA for land exchanges and acquisitions.

Impacts to Wastes would be similar under the No Action Alternative and the Proposed Action's Reasonable Foreseeable Future Action.

#### **4.3.13 Water Resources**

**No Action Alternative-** Under this alternative, there would be no impacts to water resources other than those identified in the Mimbres RMP (p. 2-33 through p. 2-36). The mining facilities operate under water quality permits with the NMED Surface Water Quality Bureau. Permitted activities at these facilities include clearing of vegetation, construction of roads, blasting of rock, stockpiling of rock, operation of aggregate screening plants, vehicular traffic, soil/rock loading, and dumping and haulage. These facilities operate within permitted emission limits established by the NMED.

Surface and groundwater resources would continue to be impacted by current mining activities and be regulated by the State of New Mexico and the EPA.

The MPO submitted to the BLM would contain detailed plans that protect ground and surface water resources as stipulated by the authorized officer.

**Proposed Action-** In the Reasonable Foreseeable Future Action scenario of continued or expanded mining activities, an MPO would not be developed. Water resources would be regulated by State of New Mexico as described above in the No Action Alternative and in the Affected Environment, Chapter 3.

Impacts to Water Resources would be similar under the No Action Alternative and the Proposed Action's Reasonable Foreseeable Future Action.

#### **4.3.14 Wildlife**

**No Action Alternative-** Under this alternative there would be no new impacts to wildlife other than those identified in the Mimbres RMP (p. 2-39 through p. 2-42). In the MPO, the operator shall take such action as may be needed to minimize or prevent adverse impact upon plants, fish, and wildlife, including threatened or endangered species, and their habitat which may be affected by the operations. Wildlife would continue to be impacted by displacement and loss of habitat, until the mine is closed and reclaimed. Currently, mining activities, housing, and livestock grazing may reduce cover or forage or disturb habitat and result in impacts to wildlife such as displacement from the area. Mine expansion would have the potential to further impact wildlife by removing any remaining habitat on the parcels. Until the mines are played out, wildlife habitat would continue to be negatively impacted by past, present and future actions. Once mining ceases, reclamation of the sites would improve wildlife habitat by restoring vegetation. As with Special Status Species (see above), the New Mexico Department of Game and Fish has the opportunity to review and provide comment to the mining permit submitted to MMD and during this time may make recommendations for modifications to the permit that will reduce impacts to wildlife species.

**Proposed Action-** If a proposal for exchange is entertained in the future, protective and mitigative measures would be developed based on the NEPA analysis conducted for the exchange to ensure biotic values are not lost to public land. As with Special Status Species (see above), in a NEPA analysis for an exchange, the BLM may choose not to exchange or the BLM may require off-site mitigation for the long-term viability of a wildlife species or habitat on public land. In the Reasonable Foreseeable Future Action of mining on patented lands, without an MPO, the New Mexico Department of Game and Fish would provide the primary oversight for wildlife through the MMD permitting process.

Impacts to Wildlife would be similar under the No Action Alternative and the Proposed Action's Reasonable Foreseeable Future Action.

## 5 CONSULTATION, COORDINATION, AND PREPARATION

BLM has consulted with the following federally recognized tribal entities for this amendment: Fort Sill Apache Tribe of Oklahoma; Hopi Tribe; Pueblo of Isleta; Mescalero Apache Tribe; Navajo Nation; and White Mountain Apache Tribe (as per Tribal Consultation, Department of Cultural Affairs, New Mexico Historic Preservation Division). White Mountain Apache Tribe responded by stating that "...we've determined the proposed action and/or evaluation *will not have an effect* to the White Mountain Apache tribe's Cultural Heritage Resources and/or historic properties."

Native American consultation will be included in the Section 106 process, should there be a land disposal or exchange. At some future date, traditional cultural properties (TCP) may be identified and may be difficult to mitigate.

Technical personnel from the following agencies and organizations were consulted regarding the State of New Mexico mine permitting process: New Mexico Energy Minerals and Natural Resources Department, Mineral and Mining Division, New Mexico Department of Game and Fish; US Fish and Wildlife Service; US Forest Service.

### 5.1 Finding of No Significant Impact

BLM has determined that there would be no significant impacts associated with the Proposed Action and an environmental Impact Statement is unnecessary. In accordance with 40 CFR 1508.13 a Finding of No Significant Impact (FONSI) has been prepared and is included in this document. There are no known inconsistencies between any of the alternatives and officially approved and adopted resource-related plans of other federal agencies, state and local governments, and Indian Tribes or Pueblos.

## 6 LIST OF PREPARERS

Bureau of Land Management Las Cruces District Office NEPA Interdisciplinary Team:

Lori Allen	Realty Specialist
Jack Barnitz	Wildlife Biologist
Bruce Call	Soil, Water & Air
Tom Holcomb	Archaeologist
David Jevons	Hazardous Materials
Adam Merrill	Geologist
Jennifer Montoya	Planning & Environmental Coordinator

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## 8 GLOSSARY AND ABBREVIATIONS

**CFR**-Code of Federal Regulations is the codification of the general and permanent rules published in the Federal Register by the executive departments and agencies of the Federal Government. It is divided into 50 titles that represent broad areas subject to Federal regulation.

**DISPOSAL**- Transfer of land from Federal ownership, including sales, exchanges, and Recreation and Public Purposes.

**EA**-Environmental Assessment. An analysis of a Federal action under the National Environmental Policy Act.

**FEDERAL REGISTER**- The official daily publication for rules, proposed rules, and notices of Federal agencies and organizations, as well as executive orders and other presidential documents.

**FLPMA**-Federal Land Policy & Management Act of 1976. Guides most BLM policy.

**MMD**-New Mexico Energy Minerals and Natural Resources Department, Mining and Minerals Division.

**MPO**-Mine Plan of Operation

**NMED**-New Mexico Environment Department

**NMEMNRD**-New Mexico Energy Minerals and natural Resources Department

**NAAQS**-National Ambient Air Quality Standards- Set by the U.S. Environmental Protection Agency (40 CFR Part 50).

**NO<sub>2</sub>**-Nitrogen dioxide. This air pollutant is discharged by internal combustion engines.

**NOI**-Notice of Intent. Published in the Federal Register to notify the public.

**NPDES**- National Pollutant Discharge Elimination System

**PSD** - Prevention of Significant Deterioration. Established by the US Environmental Protection Agency. This applies to new major sources or major modifications at existing sources for pollutants where the area the source is located is in attainment or unclassifiable with the National Ambient Air Quality Standards. It requires the following: installation of the Best Available Control Technology; an air quality analysis; an additional impacts analysis; and public involvement.

**RETENTION**-Public land retained by the BLM.

**RMP**-Resource Management Plan. A document that provides direction and is the framework the management of BLM resources.

**SO<sub>2</sub>**-Sulfur dioxide. Produced by the combustion of petroleum.

**SX/EW**-Solution extraction/electro-winning. A chemical process to extract copper.

**FINDING OF NO SIGNIFICANT IMPACT  
ENVIRONMENTAL ASSESSMENT  
DOI-BLM-NM-030-2009-035-EA**

STATE: New Mexico

DISTRICT OFFICE: Las Cruces

ACTION: Grant County Mimbres Resource Management Plan Amendment

COUNTIES: Grant

PROPONENT: Bureau of Land Management, Las Cruces District Office

**FINDING OF NO SIGNIFICANT IMPACT**

Based on the analysis of the potential environmental impacts contained in the Grant County Mimbres Resource Management Plan Amendment Environmental Assessment (EA) DOI-BLM-NM-030-2009-035-EA, it has been determined that the impacts of the selected BLM Proposed Action Alternative, as described in the EA, are not expected to be significant to the human environment and an environmental impact statement (EIS) is not required. There are no known inconsistencies with the Proposed Action Alternative and officially approved and adopted resource-related plans of other Federal agencies, State, local, and tribal governments.

\_\_\_\_\_/s/ Bill Childress\_\_\_\_\_ 5-28-2010\_\_\_\_\_

Bill Childress  
District Manager, Las Cruces District

Date