



**United States Department of the Interior
Bureau of Land Management**



**Battle Mountain District Office
Battle Mountain, Nevada**

January 2011

**Cortez Hills Expansion Project
Final Supplemental Environmental Impact Statement**

**NVN-067575
DOI-BLM-NV-2010-0132-SEIS**

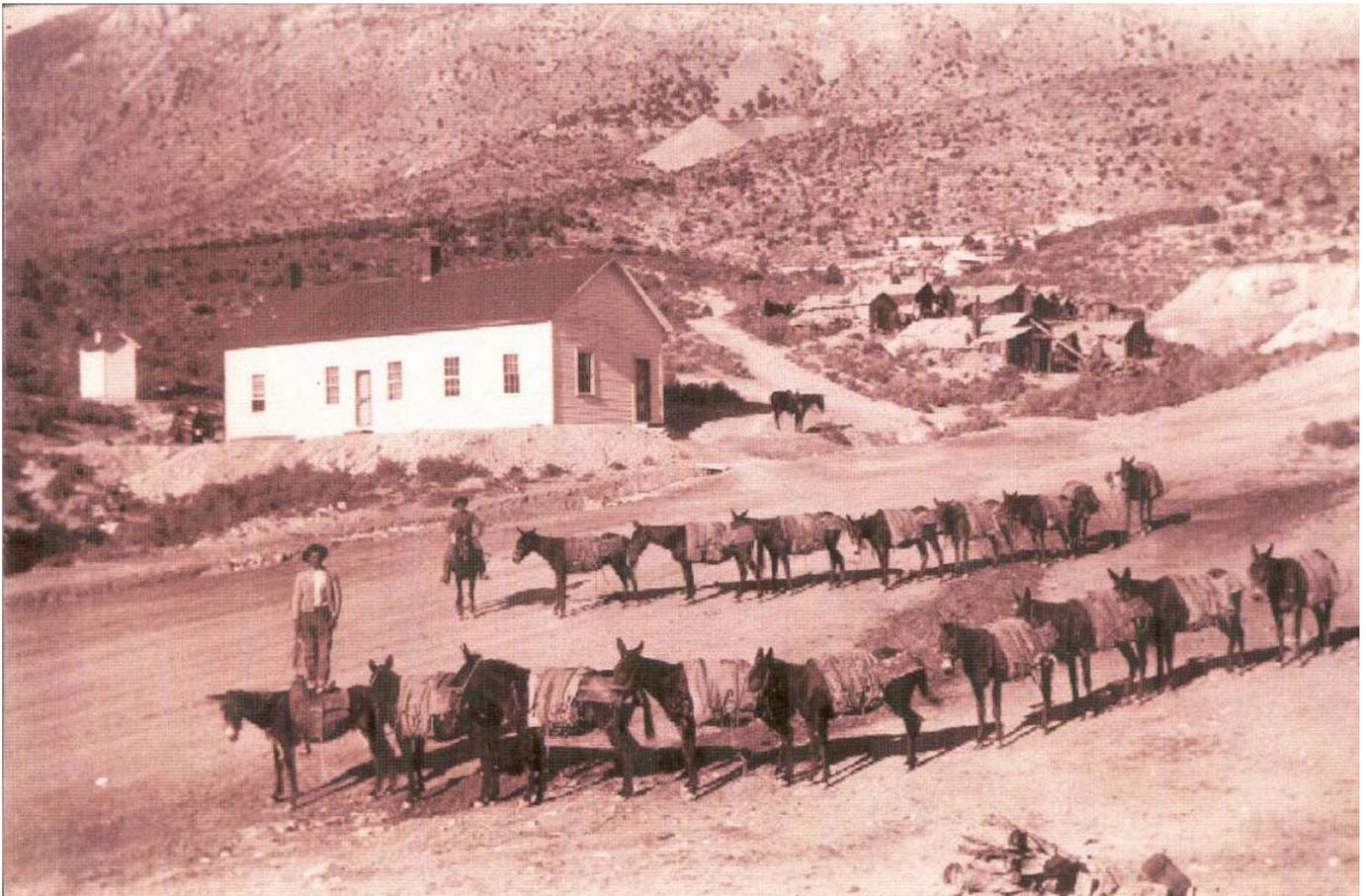


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COOPERATING AGENCY:
Nevada Department of Wildlife

BLM Mission Statement

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Management is based upon the principles of multiple use and sustained yield of our nation's resources within a framework of environmental responsibility and scientific technology. These resources include recreation, rangelands, timber, minerals, watershed, fish and wildlife, wilderness, air and scenic, scientific, and cultural values.

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*Cover: Photo of historic Cortez townsite looking northeast toward the site of the proposed Cortez Hills Expansion Project.
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United States Department of the Interior



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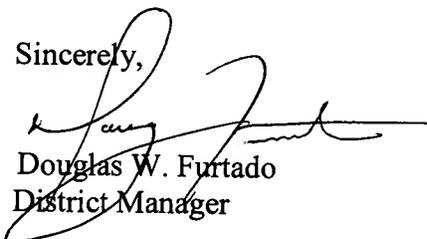
Dear Reader:

Enclosed for review is the Cortez Hills Expansion Project Final Supplemental Environmental Impact Statement (Final SEIS), prepared by the Bureau of Land Management (BLM), Battle Mountain District Office. Specifically, this Final SEIS analyzes the air quality impacts of the transportation and processing of refractory ore at the existing Goldstrike Mine. This Final SEIS also refines the analysis of the effectiveness of measures adopted to mitigate potential impacts to surface water resources from mine-related groundwater drawdown. An air quality analysis of particulate matter with an aerodynamic diameter of up to 2.5 microns or less (PM_{2.5}) also is included in this SEIS.

During the comment period for the Draft SEIS, the BLM received approximately 2,000 comment letters. Comment responses and resultant changes in the impact analyses are documented in the Final SEIS. Comments resulted in the addition of clarifying text but did not identify any substantial issues that changed the BLM Preferred Alternative. The BLM Preferred Alternative remains the same as identified in the Draft SEIS published on August 20, 2010.

The 30-day review period for the Final SEIS begins with the Federal Register publication of the Notice of Availability on January 14, 2011. If you would like any additional information, please contact Christopher Worthington at (775) 635-4000.

Sincerely,



Douglas W. Furtado
District Manager

FINAL
SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT
CORTEZ HILLS EXPANSION PROJECT

Lead Agency: U.S. Department of the Interior
Bureau of Land Management
Battle Mountain District Office

Cooperating Agencies: Nevada Department of Wildlife

Project Location: Lander and Eureka counties, Nevada

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ABSTRACT

The Bureau of Land Management (BLM) Battle Mountain District Office authorized the Cortez Gold Mines (now Barrick Cortez Inc.) Cortez Hills Expansion Project in a Record of Decision and Plan of Operations Amendment Approval on November 12, 2008. The expansion project includes development of new facilities and expansion of existing open-pit gold mining and processing facilities at the Cortez Gold Mines Operations Area, located in north-central Nevada. When completed, the expansion will result in the surface disturbance of 6,412 acres of public land and 221 acres of private land owned by Barrick Cortez Inc.

The BLM elected to prepare this Supplemental Environmental Impact Statement (SEIS) after the U.S. Court of Appeals for the Ninth Circuit issued a decision on December 3, 2009, which found that plaintiffs South Fork Band Council of Western Shoshone of Nevada, Timbisha Shoshone Tribe, Great Basin Resource Watch, and Western Shoshone Defense Project were likely to succeed on the merits of their challenge with respect to two specific analyses in the Final EIS for this project. This SEIS analyzes the air quality impacts of the off-site transportation to and processing of Cortez refractory ore at the existing Goldstrike Mine. An air quality analysis of particulate matter with an aerodynamic diameter of up to 2.5 micrometers also is included in this SEIS. In addition, this SEIS refines the analysis of the effectiveness of measures adopted to mitigate potential impacts to surface water resources from mine dewatering.

Authorized Officer for SEIS: ***Douglas W. Furtado***
District Manager
Battle Mountain District Office

List of Acronyms

$\mu\text{g}/\text{m}^3$	micrograms per cubic meter
AAQS	Ambient Air Quality Standards
AERMOD	American Meteorological Society/Environmental Protection Agency Regulatory Model
AFY	acre-feet per year
BAPC	Bureau of Air Pollution Control
BLM	Bureau of Land Management
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CGM	Cortez Gold Mines
CO	carbon monoxide
EIS	Environmental Impact Statement
Enviroscientists	Enviroscientists, Inc.
gpm	gallons per minute
HAP	hazardous air pollutant
IMPROVE	Interagency Monitoring of Protected Visual Environments
JBR	JBR Environmental Consulting
km	kilometer
kv	kilovolt
lb/yr	pounds per year
m	meter
NAAQS	National Ambient Air Quality Standards
NAC	Nevada Administrative Code
NDEP	Nevada Division of Environmental Protection
NEPA	National Environmental Policy Act
NH_3	ammonia
NOA	Notice of Availability
NOI	Notice of Intent
NO_x	oxides of nitrogen
PM_{10}	particulate matter with an aerodynamic diameter of 10 microns or less
$\text{PM}_{2.5}$	particulate matter with an aerodynamic diameter of 2.5 microns or less
Project	Cortez Hills Expansion Project
REMSAD	Regional Modeling System for Aerosols and Deposition
ROD	Record of Decision
SEIS	Supplemental Environmental Impact Statement
SO_2	sulfur dioxide
SRK	SRK Consulting

LIST OF ACRONYMS

tpy	tons per year
UNR	<i>University of Nevada Reno</i>
U.S.	United States
USEPA	U.S. Environmental Protection Agency
UTM	universal transverse mercator
VOC	volatile organic compound

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1.0 INTRODUCTION

The Battle Mountain District, Mount Lewis Field Office, of the Bureau of Land Management (BLM) has prepared this Supplemental Environmental Impact Statement (SEIS) for the Cortez Hills Expansion Project to refine the analysis of specific air quality effects and dewatering mitigation effectiveness in the Cortez Hills Expansion Project Final Environmental Impact Statement (EIS). The BLM prepared a Draft EIS for Cortez Gold Mines' (CGM's) proposed Cortez Hills Expansion Project in 2007 (BLM 2007) and Final EIS in 2008 (BLM 2008a). The BLM issued a Record of Decision (ROD) and Plan of Operations Amendment Approval on November 12, 2008 (BLM 2008b). Following issuance of the BLM's ROD, CGM proceeded with development of the approved Project.

The South Fork Band Council of Western Shoshone of Nevada, Timbisha Shoshone Tribe, Great Basin Resource Watch, and Western Shoshone Defense Project challenged the BLM's decision to approve the Cortez Hills Expansion Project in federal court and sought to enjoin mining operations during litigation. On December 3, 2009, on appeal from denial of the preliminary injunction motion, the United States (U.S.) Court of Appeals for the Ninth Circuit (Ninth Circuit) found that the plaintiffs were likely to succeed on the merits of their challenge with respect to two specific areas of environmental analysis in the EIS. The BLM subsequently elected to prepare an SEIS to refine these specific analyses.

On remand from the Ninth Circuit, on April 13, 2010, the U.S. District Court, District of Nevada (District Court), entered a limited injunction prohibiting the shipping of refractory ore from Cortez Hills and pumping of groundwater in excess of previously approved rates pending the completion of the SEIS and associated ROD. ***On August 25, 2010, the District Court entered an order granting and denying in part motions for summary judgment. The District Court granted BLM's motion for summary judgment on issues related to the adequacy of the Cortez Hills Expansion Project Final EIS except for those issues that are within the scope of this SEIS.***

Specifically, this SEIS analyzes the air quality impacts of the off-site transportation and processing of a total of 5 million tons of Cortez Hills refractory ore at the existing Goldstrike Mine, located approximately 70 miles north of the Cortez Hills Expansion Project. This SEIS also refines the analysis of the effectiveness of measures adopted to mitigate potential impacts to surface water resources (e.g., seeps and springs) from mine-related groundwater pumping. An air quality analysis of particulate matter with an aerodynamic diameter of 2.5 microns or less (PM_{2.5}) also is included in this SEIS.

In addition to the information included in the Draft SEIS for the proposed Cortez Hills Expansion Project, this Final SEIS contains:

- ***Revisions to the Draft SEIS – text revisions are shown in bold italic font.***
- ***The individual written comments received on the Draft SEIS and responses to the substantive comments (in Appendix A).***

1.0 INTRODUCTION

1.1 Project Overview

Barrick Cortez Inc. (formerly known as Cortez Joint Venture or CGM), as manager of the Cortez Joint Venture, proposed to construct and operate the Cortez Hills Expansion Project, which included the development of new facilities and expansion of its existing open-pit gold mining and processing operations at the Cortez Gold Mines Operations Area. The Project is located approximately 24 miles south of Beowawe in Lander and Eureka counties, Nevada. In response to CGM's submittal in August 2005 of an Amendment to the Pipeline/South Pipeline Plan of Operations for the Cortez Hills Expansion Project and associated Modification to Reclamation Plan Permit Application to the BLM, the BLM prepared the Draft EIS (BLM 2007), Final EIS (BLM 2008a), and ROD (BLM 2008b) for the Cortez Hills Expansion Project.

1.2 Overview of Draft and Final Environmental Impact Statement and Record of Decision

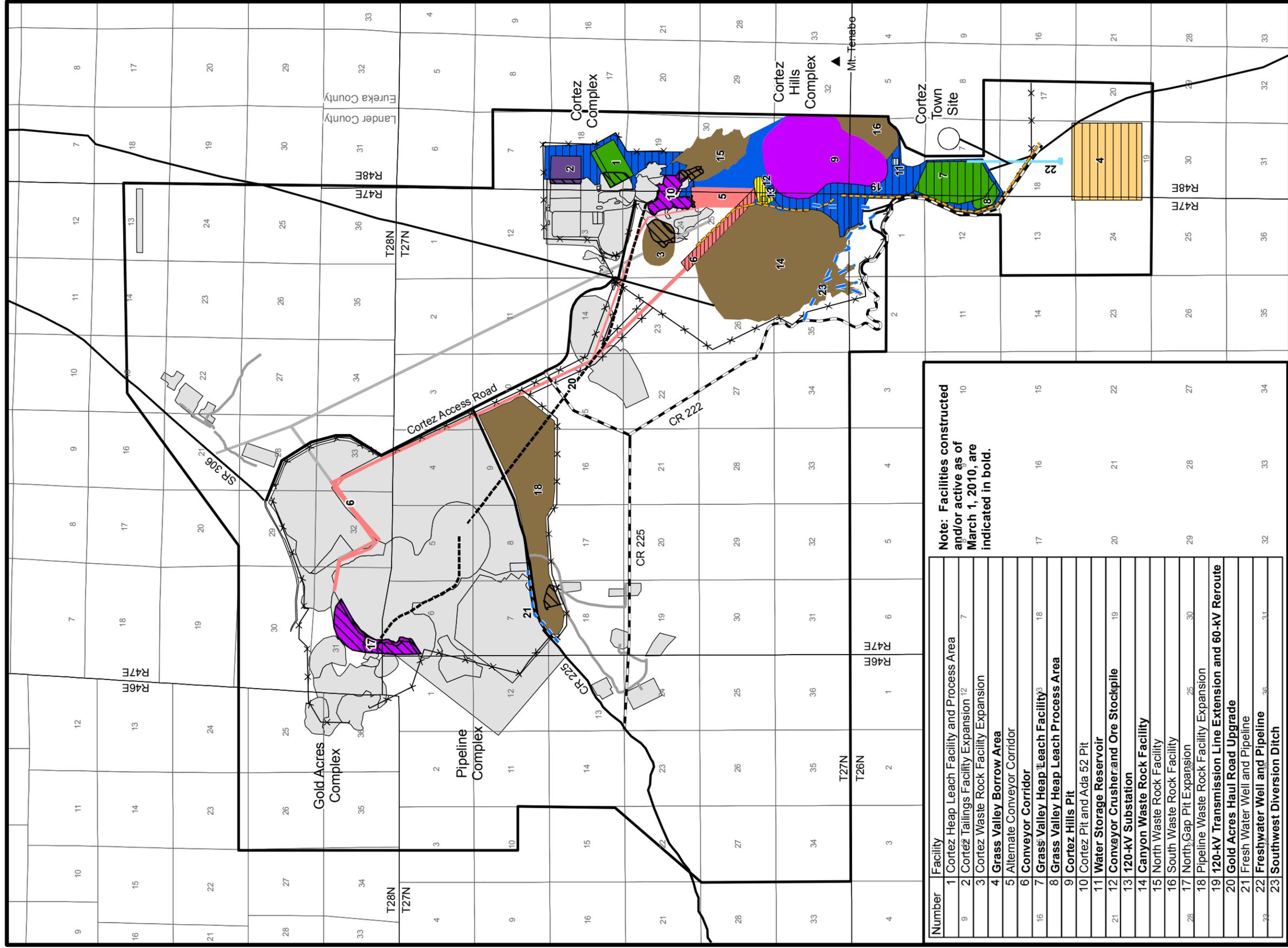
The BLM initiated the scoping process for the EIS by publishing a Notice of Intent (NOI) to prepare an EIS in the *Federal Register* on December 2, 2005. Public scoping meetings for the EIS were held in Crescent Valley and Battle Mountain, Nevada, in December 2005. The comments received during the scoping process were considered in developing the EIS. In addition, as identified in Section 4.2 of the Final EIS (BLM 2008a), the BLM communicated with and received input from various federal, state, and local agencies and private organizations during the preparation of the Draft and Final EIS.

A 60-day comment period for the Draft EIS commenced on October 5, 2007, with the publication of the Draft EIS Notice of Availability (NOA) in the *Federal Register*. Public meetings were held for the Draft EIS in Crescent Valley and Battle Mountain, Nevada, in November 2007. The comments received during the Draft EIS public comment period were considered in preparing the Final EIS, which, in response to public comments and geotechnical concerns identified in the Draft EIS analysis, included a new alternative (Revised Cortez Hills Pit Design Alternative). A 30-day review period for the Final EIS commenced on October 3, 2008, with the publication of the Final EIS NOA in the *Federal Register*.

The BLM signed the ROD for the Cortez Hills Expansion Project on November 12, 2008 (BLM 2008b). In the ROD, the BLM selected the Proposed Action (inclusive of the committed environmental protection measures) with the Revised Cortez Hills Pit Design Alternative for the Cortez Hills Complex facilities, and the mitigation measures specified in Chapter 3.0 of the Final EIS as the BLM's Preferred Alternative. This is the approved Project (see **Figure 1-1**).

1.3 Status of Cortez Hills Expansion Project

Following BLM approval of the ROD and the Plan of Operations Amendment for the Cortez Hills Expansion Project on November 12, 2008, CGM commenced construction and subsequent operation of the Cortez Hills Expansion Project, as approved in the ROD (approved Project). This section of the SEIS summarizes the status of the approved Project as of March 1, 2010.



Number	Facility
1	Cortez Heap Leach Facility and Process Area
2	Cortez Tailings Facility Expansion ¹²
3	Cortez Waste Rock Facility Expansion
4	Grass Valley Borrow Area
5	Alternate Conveyor Corridor
6	Conveyor Corridor
7	Grass Valley Heap Leach Facility³
8	Grass Valley Heap Leach Process Area
9	Cortez Hills Pit
10	Cortez Pit and Ada 52 Pit
11	Water Storage Reservoir
12	Conveyor Crusher and Ore Stockpile
13	120-kV Substation
14	Canyon Waste Rock Facility
15	North Waste Rock Facility
16	South Waste Rock Facility
17	North Gap Pit Expansion ²⁵
18	Pipeline Waste Rock Facility Expansion
19	120-kV Transmission Line Extension and 60-kV Reroute
20	Gold Acres Haul Road Upgrade
21	Fresh Water Well and Pipeline
22	Freshwater Well and Pipeline
23	Southwest Diversion Ditch

Note: Facilities constructed and/or active as of March 1, 2010, are indicated in bold.

- Legend**
- Project Boundary
 - Ancillary Areas
 - Borrow Area
 - Conveyor Corridor
 - Water Storage Reservoir
 - Heap Leach Facilities
 - Pits
 - Process
 - Tailings Facilities
 - Waste Rock Facilities
 - Original Gold Acres, Pipeline, and Cortez Facilities

- Overlap of Original Gold Acres, Pipeline, or Cortez Facilities with Cortez Hills Expansion Facilities
- Facilities Constructed and/or Active as of March 1, 2010
- CR Reroutes (constructed)**
- Stormwater Diversion
- Water Pipeline
- Fence (constructed)**
- Haul Road Upgrade
- Transmission Line Reroute (constructed)**

Cortez Hills Expansion Project

Figure 1-1
Currently Authorized
Cortez Hills
Expansion Project

The project description, CGM-committed environmental protection measures, and the monitoring and mitigation measures developed by the BLM for the Cortez Hills Expansion Project have been described in the following documents:

- Cortez Hills Expansion Project, Amendment to the Pipeline/South Pipeline Plan of Operations, revised June 2008 (CGM and SRK Consulting [SRK] 2008);
- Cortez Hills Expansion Project Final Environmental Impact Statement (NV063-EIS06-011; BLM 2008a) (inclusive of the Revised Cortez Hills Pit Design Alternative); and
- Cortez Hills Expansion Project Record of Decision and Plan of Operations Amendment Approval (NVN-067575; BLM 2008b).

As described in Section 2.4 of the Final EIS (BLM 2008a), the approved Project entails operations at the Cortez Hills Complex, Pipeline Complex, Cortez Complex, and Gold Acres Complex (Figure 2-1 of the Final EIS). Figure 2-21 of the Final EIS shows the locations of the specific facilities associated with the Revised Cortez Hills Pit Design Alternative, and Table 2-15 of the Final EIS shows the acres of disturbance associated with the facilities (BLM 2008a).

As of March 1, 2010, construction efforts focused on activities at the Cortez Hills Complex. New activities authorized by BLM (2008b) at the other complexes have not commenced. **Figure 1-1** shows the status of the facilities as of March 1, 2010 (CGM 2010).

The construction phase of the Project began at the Cortez Hills Complex in November 2008 and was substantially completed in February 2010. As of March 1, 2010, approximately 70 percent of the ultimate footprint of the mine had been disturbed by construction and mining. The open pit currently is being worked at an elevation of approximately 5,720 feet above mean sea level (i.e., approximately 400 feet deep) and measures approximately 1-mile-long by 0.75-mile-wide. As of March 1, 2010, approximately 80 million tons of waste rock had been placed in the Canyon Waste Rock Facility.

Table 1-1 summarizes the status of the Project facilities as of March 1, 2010.

**Table 1-1
Cortez Hills Expansion Project Status, March 1, 2010**

Cortez Hills Complex Facility	Status on March 1, 2010
Cortez Hills Open Pit	Mining at the 5,720-foot bench; pit approximately 1-mile-long and 0.75-mile-wide
Underground Operations	Facilities in F-Canyon complete except for the office facility and maintenance facility
Underground Mining	Mining at the 4,220-foot level
Dewatering System	Pumping at approximately 1,900 gallons per minute (gpm) with additional wells and drain holes installed as growth of the open pit and underground require

1.0 INTRODUCTION

Table 1-1 (Continued)

Cortez Hills Complex Facility	Status on March 1, 2010
Grass Valley Heap Leach	Phase I leach pad (91 acres) complete with initial heap leach ore placed on pad; process ponds complete; process building substantially complete with commissioning in March 2010
Ore and Growth Media Stockpile Areas	Complete
Waste Rock Facilities	80 million tons of waste rock placed in the Canyon Waste Rock Facility; no waste rock placement in the North or South waste rock facilities
Ancillary Facilities	Complete
Primary Crusher and Conveyor	Complete
Water Supply Wells	Complete
Haul Roads	Complete
County Road Relocation	Complete
Relocation of 60-kilovolt (kV) Transmission line	Complete
Installation of 120-kV Transmission Line and Substation	Complete
Class III Waivered Landfill	Not started
Grass Valley Borrow Source	Complete
Fencing	Complete

Source: CGM 2010.

Mining operations, ore transport, mine dewatering, and equipment usage at the Project follow the plan described in Section 2.4.4 of the Final EIS (BLM 2008a). Consistent with the preliminary injunction entered by the District Court on April 13, 2010, CGM will not transport for off-site processing any refractory ore mined pursuant to the BLM's Cortez Hills Expansion Project ROD (BLM 2008b), nor will CGM pump groundwater under the authorization granted by the BLM's Cortez Hills Expansion Project ROD (BLM 2008b).

Systems for electrical power, water supply, mine support facilities, storm water controls, waste disposal, fencing, hazardous material management, safety, and fire protection have been or are being implemented as described in Sections 2.4.8 through 2.4.10 of the Final EIS (BLM 2008a).

The CGM-committed environmental protection measures described in Section 2.4.11 of the Final EIS (BLM 2008a) have been or are being implemented with scheduled follow-ups for recurring measures (e.g., quarterly groundwater monitoring). The BLM monitoring and mitigation measures described in Chapter 3.0 of the Final EIS (BLM 2008a) and in the ROD (BLM 2008b) also have been implemented.

1.4 Purpose and Need for the Action

The purpose and need are the same as the Purpose and Need for the Action identified in Section 1.1 of the Cortez Hills Expansion Project Final EIS (BLM 2008a).

1.5 Authorized Officer

The Battle Mountain District Manager is the Authorized Officer for the SEIS. The Authorized Officer will evaluate the refined air quality and water resources analyses in the SEIS to assess whether the Cortez Hills Expansion Project ROD and Plan of Operations Amendment Approval of November 2008 (BLM 2008b) should be amended or modified.

1.6 Organization of the SEIS

This SEIS tiers from the Cortez Hills Expansion Project Final EIS (BLM 2008a); as such, the SEIS chapter and section numbers follow the organization of the Final EIS. (Note that table numbers begin with 1 within each section of this SEIS.) This SEIS only includes information that has been added or revised to address the specific water resources and air quality analyses identified above in Chapter 1.0. Chapter 2.0 of this SEIS includes a comparison of impacts (Section 2.7) relative to the refined water resources and air quality analyses in this SEIS and identifies the BLM-preferred Alternative (Section 2.8). Chapter 3.0 presents the revised air quality and water resources analyses. Chapter 4.0 updates the public coordination activities associated with preparation of the SEIS. Chapter 6.0 identifies the reference documents used in preparation of the SEIS. **Appendix A includes Draft SEIS public comments and responses.**

2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION

As discussed in Section 1.6 of this SEIS, this document tiers from the Cortez Hills Expansion Project Final EIS; as such, the SEIS chapter and section numbers follow the organization of the Final EIS (BLM 2008a). This chapter includes information that supplements Sections 2.7 and 2.8 of the Final EIS.

This SEIS addresses the alternatives considered in Chapter 2.0 of the Cortez Hills Expansion Project Final EIS (BLM 2008a), as applicable to the specific analyses in this SEIS. As discussed in Section 1.2 of this SEIS, the BLM selected the Proposed Action (inclusive of the committed environmental protection measures) with the Revised Cortez Hills Pit Design Alternative for the Cortez Hills Complex facilities, and the mitigation measures specified in Chapter 3.0 of the Final EIS as the BLM's Preferred Alternative in the ROD (BLM 2008b). This is the approved Project discussed in this SEIS (see **Figure 1-1**).

2.7 Comparative Analysis of Alternatives

Table 2-1 summarizes and compares the environmental impacts analyzed in this SEIS among the approved Project identified in the ROD (BLM 2008b) and the Proposed Action, other action alternatives, and No Action Alternative identified in the Final EIS (BLM 2008a). Descriptions of the impacts are presented in Chapter 3.0 of this SEIS.

2.8 BLM-preferred Alternative

In accordance with National Environmental Policy Act (NEPA), federal agencies are required by the Council on Environmental Quality (CEQ) (40 Code of Federal Regulations [CFR] 1502.14) to identify their preferred alternative for a project in the Draft EIS if a preference has been identified, and in the Final EIS for the project. The preferred alternative is not a final agency decision; rather, it is an indication of the agency's preliminary preference.

The preferred alternative is the alternative that best fulfills the agency's statutory mission and responsibilities, considering environmental, economic, technical, and other factors.

The BLM has determined that the preferred alternative for the Cortez Hills Expansion Project is the approved Project, which comprises the original Proposed Action with the Revised Cortez Hills Pit Design Alternative for the Cortez Hills Complex facilities, with the mitigation measures specified in Chapter 3.0 of the Final EIS (BLM 2008a). The BLM's selection is based on the refined analysis of water resources mitigation and air quality impacts in this SEIS in addition to the impact analysis in the Cortez Hills Expansion Project Final EIS (BLM 2008a). The BLM has considered the analysis of the effectiveness of the mitigation measures for potential impacts on seeps and springs from groundwater pumping and the potential air quality impacts of the off-site transportation and processing of refractory ore from the Cortez Hills Expansion Project. The BLM also has considered the results of air quality modeling of PM_{2.5} emissions from the Cortez Hills Expansion Project.

**Table 2-1
Impact Summary and Comparison of the Approved Project and Other Alternatives**

Resource Area/Issue	Approved Project (ROD [BLM 2008b])	Proposed Action (Final EIS [BLM 2008a])	Grass Valley Heap Leach Alternative (Final EIS [BLM 2008a])	Crescent Valley Waste Rock Alternative (Final EIS [BLM 2008a])	Cortez Hills Complex Underground Mine Alternative (Final EIS [BLM 2008a])	Revised Cortez Hills Pit Design Alternative (Final EIS [BLM 2008a])	No Action Alternative (Final EIS [BLM 2008a])
Water Resources and Geochemistry							
Water Resources Monitoring and Mitigation Measures	Contingency mitigation measures include: 1) Installation of water supply pump in existing well 2) Installation of new production well 3) Piping water from new or existing source 4) Installation of guzzler 5) Enhanced development of existing seep to promote additional flow Impacts associated with mitigation implementation and effectiveness of mitigation are described in Section 3.2.4 of this SEIS, as applicable to all alternatives.	Same as approved Project.	Same as approved Project.	Same as approved Project.	Same as approved Project.	Same as approved Project.	Same as approved Project, as applicable to Pipeline/South Pipeline Project facilities.
Air Resources							
PM _{2.5} Impacts	PM _{2.5} emissions, with either ore transport option, (i.e., conveyor or trucks) would not cause or contribute to a violation of the National Ambient Air Quality Standards (NAAQS) for PM _{2.5} .	Slightly higher emissions than approved Project, but would not cause or contribute to a violation of the NAAQS for PM _{2.5} .	Higher emissions than approved Project, and potentially would contribute to a violation of the NAAQS for PM _{2.5} .	Higher emissions than approved Project, and potentially would contribute to a violation of the NAAQS for PM _{2.5} .	Lower emissions than approved Project; would not cause or contribute to a violation of the NAAQS for PM _{2.5} .	Same as approved Project.	Lower emissions than approved Project; would not cause or contribute to a violation of the NAAQS for PM _{2.5} .
Transport of Refractory Ore to Goldstrike	Fugitive dust emissions would be unlikely to exceed the NAAQS for PM ₁₀ or PM _{2.5} .	Same as approved Project.	Same as approved Project.	Same as approved Project.	Same as approved Project.	Same as approved Project.	Lower emissions than approved Project; would not cause or contribute to a violation of the NAAQS for PM ₁₀ or PM _{2.5} .
Processing of Refractory Ore at Goldstrike	No exceedance of the NAAQS would be anticipated for criteria pollutants (including PM _{2.5}), and emissions of hazardous air pollutants (HAPs), including mercury, would be anticipated to be below the major source limit of 25 tons per year (tpy).	Same as approved Project.	Same as approved Project.	Same as approved Project.	Same as approved Project.	Same as approved Project.	Same as approved Project except emissions would be lower.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter includes information that supplements Sections 3.2.4, 3.2.5, and 3.10 of the Final EIS (BLM 2008a). The supplemental information and associated analyses presented in this chapter apply to the currently approved Project as well as the other action alternatives analyzed in the Final EIS (BLM 2008a), unless otherwise noted.

3.2.4 Monitoring and Mitigation Measures (Supplemental Information and Analysis)

Introduction

This information applies to the currently approved Project and the other action alternatives. This information supplements Section 3.2.4 of the Cortez Hills Expansion Project Final EIS (BLM 2008a) to refine the evaluation of the effectiveness of mine dewatering mitigation measures.

The CEQ Regulations for Implementing the Procedural Provisions of NEPA (40 CFR 1500-1508) define mitigation as follows.

“Mitigation includes:

- (a) Avoiding the impact altogether by not taking a certain action or parts of an action.*
- (b) Minimizing impacts by limiting the degree of magnitude of the action and its implementation.*
- (c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.*
- (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.*
- (e) Compensating for the impact by replacing or providing substitute resources or environments” (CEQ 1986; 40 CFR 1508.20).*

Mitigation Measures WR1a and WR1b presented in Section 3.2.4 (Monitoring and Mitigation Measures) of the Cortez Hills Expansion Project Final EIS (BLM 2008a) provide a framework for monitoring and mitigating potential impacts to perennial surface water resources from mine-related groundwater drawdown. In summary, Mitigation Measure WR1a requires monitoring and reporting of changes in groundwater levels and surface water flow and evaluation of the monitoring data to determine if observed changes in surface flow are attributable to mine-induced groundwater drawdown. Mitigation Measure WR1a also requires that the monitoring results be used to trigger the implementation of Mitigation Measure WR1b, which outlines a process to develop site-specific procedures to enhance or replace any affected perennial water resource. Mitigation Measure WR1b also requires subsequent monitoring and reporting to measure the effectiveness of the implemented measures and requires additional measures if the initial implementation of the mitigation measures is unsuccessful. As explained in the Final EIS (BLM 2008a), all of the measures outlined in Mitigation Measure WR1b are considered contingent as it is uncertain whether individual surface water resources would be impacted by mine-related groundwater drawdown and, therefore, whether mitigation would be required. Mitigation triggers based on monitoring were developed for each site, as described below.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

The remainder of this section provides supplemental information and analysis to evaluate the effectiveness of Mitigation Measures WR1a and WR1b. The effectiveness evaluation is based on the following site-specific information:

- Summary of the available monitoring data for springs, seeps, and perennial streams located within the predicted mine-related groundwater drawdown area defined in the Final EIS;
- Identification of the current use of each water source;
- Identification of the monitoring thresholds to be used to trigger the implementation of site-specific mitigation;
- Identification of site-specific mitigation for each water source; and
- Evaluation of the effectiveness of the measures to mitigate potential impacts from groundwater pumping.

Surface water resources and associated wetland/riparian vegetation located within the model-simulated groundwater drawdown area under the various alternative pumping scenarios were listed in Table 3.2-12 in the Final EIS (BLM 2008a). The maximum predicted groundwater drawdown occurs under the cumulative pumping scenario, which includes the effects associated with historic dewatering activities initiated at the Pipeline Pit in 1996 and continuing through the present, and additional dewatering required for the Revised Cortez Hills Pit Design Alternative, which the BLM selected as the approved Project in the Cortez Hills Expansion Project ROD (BLM 2008b). As presented in Table 3.2-12 in the Final EIS, under the cumulative pumping scenario, there were 30 springs and seeps and 3 perennial streams identified within ***areas where mine-induced drawdown could impact perennial flows***.

Table 3.2-1 summarizes the general conditions, estimated riparian/wetland vegetation area (as stated in Table 3.2-12 in the Final EIS [BLM 2008a]), identified use, mitigation trigger, and mitigation plan for each of the water source areas identified within the predicted groundwater drawdown area. The table also describes the anticipated effectiveness of the site-specific plan to mitigate the potential impacts associated with the use of each of these surface water resources. This section, including **Table 3.2-1**, describes site-specific mitigation measures for potential water resources impacts attributable to mine-induced groundwater drawdown. The Final EIS (BLM 2008a) and the ROD (BLM 2008b) also included a site-specific mitigation measure to address potential long-term loss of riparian/wetland vegetation as a result of either mine-related disturbance (at site 27-47-35-42) or groundwater drawdown impacts (Table 3.2-12). The plan to mitigate the 0.7 acres of riparian/wetland vegetation from mine-related disturbance has been approved and is being implemented. Mitigation Measure V1 in Section 3.4.4 of the Final EIS (BLM 2008a) also specifies actions to be taken to "... develop new riparian/wetland areas" for impacts to the 3.5 acres of such vegetation that might be impacted by groundwater drawdown. As stated in the Final EIS (page 3.4-25), such measures would be implemented in conjunction with Mitigation Measure WR1b and would effectively mitigate any potential loss of riparian/wetland vegetation.

**Table 3.2-1
Water Resources Mitigation Summary**

Monitoring Program Area	Spring Group	ID	Flow Range (gpm)	Site Characteristics	Associated Riparian/Wetland Vegetation (acres) ¹	Use	Mitigation Trigger	Contingency Mitigation Plan	Effectiveness of Site-specific Mitigation Plan	New Disturbance from Mitigation Implementation ² (acres – approximate)
Cortez Hills	Cortez Spring	26-47-01-41	0.0 - 0.13	Also known as Shoshone Wells; consists of a buried pipe that daylightes out of the hillside and directs water onto the ground. A trickle generally is persistent regardless of seasons (except for 7/15/03 when it was reported dry, and 12/14/09 when site was covered with snow).	0.000	Perennial water supply for livestock and wildlife.	Cessation of flow coincident with a reduction in groundwater levels in this area, as determined from groundwater monitoring.	Pipe water from existing well PD-07 at a sustained rate of approximately 0.5 gpm.	Mitigation plan would be highly effective at maintaining a water supply for livestock and wildlife.	Pipeline from existing well would be placed on existing road; no new disturbance.
	Northeast Toiyabe seeps	26-47-01-43	0.0 - 2.1	Site was reported dry for 16 of 31 quarterly measurements taken from 2002 to 2009. When not dry, it was reported as a damp or wet area (6 measurements), a trickle (3 measurements), or had measurable flow (3 quarters).	0.000 ³	Seasonal water supply for livestock and wildlife.	Reduction of hydrophilic vegetation below established threshold coincident with a reduction in groundwater levels in this area, as determined from groundwater monitoring.	Install guzzler designed for large game.	Mitigation plan would be highly effective at maintaining a water supply for livestock and wildlife.	Approximately 0.7 acre of new disturbance for guzzler installation.
		26-47-12-21	0.0 - 20.0	Site was reported dry for 17 of 31 quarterly measurements from 2002 to 2009. When it was not dry, it was reported as a damp or wet area (6 measurements), or had measurable flow (7 measurements).	0.020 ⁴	Seasonal water supply for livestock and wildlife.	Reduction of hydrophilic vegetation below established threshold coincident with a reduction in groundwater levels in this area, as determined from groundwater monitoring.	Install guzzler designed for large game.	Mitigation plan would be highly effective at maintaining a water supply for livestock and wildlife.	Approximately 0.7 acre of new disturbance for guzzler installation.
	Cortez Canyon seeps and springs	27-47-36-431	0.0 ⁵	Quarterly monitoring for 2002 to 2009 indicates that the site consistently is dry with no surface expression of water. ⁵	0.000	None	NA	NA	NA	None
		27-47-36-433	0.0 ⁵	Quarterly monitoring for 2002 to 2009 indicates that the site was consistently dry with no surface expression of water. ⁵	0.006 ⁴	None	NA	NA	NA	None

Table 3.2-1 (Continued)

Monitoring Program Area	Spring Group	ID	Flow Range (gpm)	Site Characteristics	Associated Riparian/Wetland Vegetation (acres) ¹	Use	Mitigation Trigger	Contingency Mitigation Plan	Effectiveness of Site-specific Mitigation Plan	New Disturbance from Mitigation Implementation ² (acres – approximate)
		26-47-01-212	0.0 ³	Quarterly monitoring for 2002 to 2009 indicates that the site consistently is dry with no surface expression of water. ⁵	0.006 ⁴	None	NA	NA	NA	None
		26-47-01-214	0.0 ³	Quarterly monitoring for 2002 to 2009 indicates that the site consistently is dry with no surface expression of water. ⁵	0.003 ⁴	None	NA	NA	NA	None
	Northeast Survey Area	27-48-30-44	0.0	Persistent seep with a stagnant boggy area reported from quarterly monitoring (2002 to 2009). Flow not measurable; was reported dry for 3 of the 31 measurements.	0.021	Water supply for wildlife and provides for habitat diversity.	Reduction of hydrophilic vegetation below established threshold coincident with a reduction in groundwater levels in this area, as determined from the existing groundwater monitoring.	Pipe water from new well at approximately 0.5 gpm.	Mitigation plan would be highly effective at maintaining a water supply for wildlife and habitat diversity.	Approximately 0.2 acre for water supply well and 0.01 acre for pipeline.
	Northeast Corner seeps and springs	27-48-30-421	0.0	Seep supporting willows. No surface water ponding or observable flow has been reported during quarterly monitoring (2002 to 2009), except for March 2006 when a wet area was observed.	0.028	Habitat for wildlife.	Reduction of hydrophilic vegetation below established threshold coincident with a reduction in groundwater levels in this area, as determined from groundwater monitoring.	Enhancement consisting of installing a spring box to aid in collection and discharging to support willows and associated vegetation.	Mitigation plan would be highly effective at collecting existing flow and distributing it to the isolated willow area. This mitigation would not be effective at mitigating a complete drying out of the area caused by lowering the water table to below the depth required to sustain the willows. ⁴	Less than 0.1 acre.
		27-48-30-412	0.0	Seep supporting willows. No surface water ponding or observable flow reported for 25 of 31 quarterly measurements (2002 to 2009). Wet area or trickle observed occasionally.	0.005	Habitat for wildlife.	Reduction of hydrophilic vegetation below established threshold coincident with a reduction in groundwater levels in this area, as determined from groundwater monitoring.	Enhancement consisting of installing a spring box to aid in collection and discharging to support willows and associated vegetation.	Mitigation plan would be highly effective at collecting existing flow and distributing it to the isolated willow area. This mitigation would not be effective at mitigating a complete drying out of the area caused by lowering the water table to below the depth required to sustain the willows. ⁴	Less than 0.1 acre.

Table 3.2-1 (Continued)

Monitoring Program Area	Spring Group	ID	Flow Range (gpm)	Site Characteristics	Associated Riparian/Wetland Vegetation (acres) ¹	Use	Mitigation Trigger	Contingency Mitigation Plan	Effectiveness of Site-specific Mitigation Plan	New Disturbance from Mitigation Implementation ² (acres – approximate)
		27-48-30-423	0.0	Seep supporting willows. No surface water ponding or observable flow has been reported during quarterly monitoring (2002-2009).	0.010	Habitat for wildlife.	Reduction of hydrophilic vegetation below established threshold coincident with a reduction in groundwater levels in this area, as determined from groundwater monitoring.	Enhancement consisting of installing a spring box to aid in collection and discharging to support willows and associated vegetation.	Mitigation plan would be highly effective at collecting existing flow and distributing it to the isolated willow area. This mitigation would not be effective at mitigating a complete drying out of the area caused by lowering the water table to below the depth required to sustain the willows. ⁴	Less than 0.1 acre.
Pipeline	Rocky Pass	27-46-28-224	0.0 - 86.89 ⁶	Perennial spring. Flows in the winter and spring are influenced by runoff.	1.180 ⁷	Water supply for livestock and wildlife and used for pasture irrigation. ⁷	Reduction of flow to less than 3 gpm in summer and fall monitoring events for 2 consecutive years coincident with a reduction in groundwater levels in this area, as determined from the existing groundwater monitoring wells.	Pipe water from new well at an initial rate of approximately 1.0 gpm. Increase flows as necessary up to 3 gpm to sustain habitat diversity based on quarterly vegetation monitoring.	Mitigation plan would be highly effective at maintaining a water supply for livestock, wildlife, and habitat diversity.	Approximately 0.2 acre for water supply well and 0.02 acre for pipeline.
	Toiyabe Catchment	26-47-04-24	0.0 - 18.0	Quarterly monitoring indicates the spring typically flows in the winter and spring and is either flowing or dry by late summer to fall. Third quarter measurements indicate that spring was reported dry 7 of 14 years.	0.070	Seasonal water supply for livestock, wildlife, and habitat diversity.	Reduction of flow to less than 0.7 gpm for 2 consecutive years in summer and fall monitoring events coincident with a reduction in groundwater levels in this area, as determined from the existing groundwater monitoring wells.	Pipe water from new well at approximately 0.5 gpm.	Mitigation plan would be highly effective at maintaining a water supply for livestock, wildlife, and habitat diversity.	Approximately 0.2 acre for water supply well and 0.02 acre for pipeline.
		27-47-27-43	0.0 - 0.0 ⁸	Quarterly monitoring from 1996 to 2009 indicates the site has been dry since August 1998.	0.000	None	None	None	Not applicable.	None

Table 3.2-1 (Continued)

Monitoring Program Area	Spring Group	ID	Flow Range (gpm)	Site Characteristics	Associated Riparian/Wetland Vegetation (acres) ¹	Use	Mitigation Trigger	Contingency Mitigation Plan	Effectiveness of Site-specific Mitigation Plan	New Disturbance from Mitigation Implementation ² (acres – approximate)
		27-47-33-42	Trickle - 3.3	Spring with a pipe that delivers water to a trough. Trough overflow flows for approximately 300 feet until it infiltrates into alluvium.	0.030	Perennial water source for livestock and wildlife.	Reduction of flow to less than 0.25 gpm for 2 consecutive years in summer and fall monitoring events coincident with a reduction in groundwater levels in this area, as determined from groundwater monitoring.	Pipe water from new well at approximately 0.5 gpm.	Mitigation plan would be highly effective at maintaining a water supply for livestock and wildlife.	Approximately 0.2 acre for water supply well and 0.02 acre for pipeline.
		27-48-16-31	1.6 - 15.0	Perennial spring that discharges into drainage and infiltrates in alluvium.	1.150	Perennial water source for livestock, wildlife, and habitat diversity.	Reduction of flow to less than 2.0 gpm observed in summer and fall quarterly monitoring events for 2 consecutive years coincident with a reduction in groundwater levels in this area, as determined from the existing alluvial groundwater monitoring wells.	Pipe water from new well at approximately 1.0 gpm.	Mitigation plan would be highly effective at maintaining a water supply for livestock, wildlife, and habitat diversity.	Approximately 0.2 acre for water supply well and 0.02 acre for pipeline.
		27-48-19-24	3.3 - 20.19 ⁹	Perennial spring that flows into a pond that discharges to a drainage.	0.040	Perennial water source for livestock, wildlife, and habitat diversity.	Reduction of flow to less than 5.0 gpm observed during summer and fall monitoring events for 2 consecutive years coincident with a reduction in groundwater levels in this area, as determined from groundwater monitoring wells.	Pipe water from new well at an initial rate of approximately 1.0 gpm. Increase flow up to 5 gpm, if necessary, to sustain wetland vegetation based on quarterly vegetation monitoring.	Mitigation plan would be highly effective at maintaining a water supply for livestock, wildlife, and habitat diversity.	Approximately 0.2 acre for water supply well and 0.02 acre for pipeline.

Table 3.2-1 (Continued)

Monitoring Program Area	Spring Group	ID	Flow Range (gpm)	Site Characteristics	Associated Riparian/Wetland Vegetation (acres) ¹	Use	Mitigation Trigger	Contingency Mitigation Plan	Effectiveness of Site-specific Mitigation Plan	New Disturbance from Mitigation Implementation ² (acres – approximate)
	Shoshone Range	28-46-02-34	0.0 - 20.0	Site consists of two springs that saturate the area and flow into a drainage. Quarterly monitoring indicates site had measureable flow from May 1996 to August 2008. Site was reported dry in November 2008 and as a wet area with insufficient flow to measure in the first 3 quarters of 2009.	0.210	Water supply for livestock, wildlife, and habitat diversity.	Reduction of flow to less than 1.5 gpm during summer and fall monitoring events for 2 consecutive years coincident with a reduction in groundwater levels in this area, as determined from groundwater monitoring wells.	1. Install fencing around source with installation of a trough outside fenced area for livestock and wildlife. 2. If fencing does not restore flow to levels above mitigation trigger, supplemental water would be provided by piping water from a new well at approximately 0.5 gpm.	Fencing would protect the source from trampling by livestock and thereby may enhance flow and maintain water supply for livestock, wildlife, and habitat diversity. Piping water from a water supply well could be highly effective at maintaining a water supply for livestock, wildlife, and habitat diversity.	Less than 0.05 acre of new disturbance for fencing. Approximately 0.2 acre for water supply well and <0.03 acre for pipeline.
		28-46-04-33	0.00 - 0.72	Site typically wet or with only a trickle. Site reported dry in some years during the third quarter (August) measurement.	0.460	Water supply for livestock, wildlife, and habitat diversity.	Reduction of hydrophilic vegetation below established threshold coincident with a reduction in groundwater levels in this area, as determined from groundwater monitoring.	1. Install fencing around source with installation of a trough outside fenced area for livestock and wildlife. 2. If fencing does not restore flow to levels above mitigation trigger, supplemental water would be provided by piping water from a new well at approximately 0.5 gpm.	Fencing would protect the source from trampling by livestock and thereby may enhance flow and maintain water supply for livestock, wildlife, and habitat diversity. Piping water from a water supply well could be highly effective at maintaining a water supply for livestock, wildlife, and habitat diversity.	Less than 0.05 acre.
		28-46-05-42	0.0 - 6.97	Site characterized by seasonally saturated soil with occasional flows reported during wet years. Quarterly monitoring from 1996 to 2009 indicates the site was reported dry 29 of 55 quarters.	0.820	Habitat diversity; water supply for livestock and wildlife in wet years.	Reduction of hydrophilic vegetation below established threshold coincident with a reduction in groundwater levels in this area, as determined from groundwater monitoring.	Pipe water from new well at approximately 0.5 gpm.	Mitigation plan would be highly effective at maintaining habitat diversity and also would provide a perennial water supply for livestock and wildlife that currently does not exist.	Approximately 0.2 acre for water supply well and 0.01 acre for pipeline.

Table 3.2-1 (Continued)

Monitoring Program Area	Spring Group	ID	Flow Range (gpm)	Site Characteristics	Associated Riparian/Wetland Vegetation (acres) ¹	Use	Mitigation Trigger	Contingency Mitigation Plan	Effectiveness of Site-specific Mitigation Plan	New Disturbance from Mitigation Implementation ² (acres – approximate)
		28-46-15-32	0.0 - 2.0	Intermittent ponding with no measurable flow since 1998; quarterly monitoring results (1996 to 2009) report site was dry for 27 of the 54 measurements.	0.040 ⁴	Intermittent water supply for livestock and wildlife.	Reduction of hydrophilic vegetation below established threshold coincident with a reduction in groundwater levels in this area, as determined from groundwater monitoring.	Install guzzler designed for large game.	Mitigation plan would maintain water supply for livestock and wildlife. Guzzler would not effectively mitigate loss of hydrophilic vegetation. ⁴	Approximately 0.7 acre of new disturbance for guzzler installation.
	East Valley	28-48-28-14	0.0 - 5.0	At stock tank.	0.080	Water supply for livestock, wildlife, and habitat diversity.	Reduction of hydrophilic vegetation below established threshold coincident with a reduction in groundwater levels in this area, as determined from groundwater monitoring.	Pipe water from new well at approximately 0.5 gpm.	Mitigation plan would be highly effective at maintaining a water supply for livestock, wildlife, and habitat diversity.	Pipeline and water supply well would be on existing disturbance.
		28-48-28-342	0.0	Seep with water that ponds but does not flow into a drainage. Flow rate is not measurable.	0.090	Perennial water supply for livestock, wildlife, and habitat diversity.	Reduction of hydrophilic vegetation below established threshold coincident with a reduction in groundwater levels in this area, as determined from groundwater monitoring.	Pipe water from new well at approximately 0.5 gpm.	Mitigation plan would be highly effective at maintaining a water supply for livestock, wildlife, and habitat diversity.	Pipeline on existing road; no new disturbance.
		28-48-28-343	0.0	Seep with water that ponds but does not flow into a drainage. Flow rate is not measurable.	0.040	Perennial water supply for livestock, wildlife, and habitat diversity.	Reduction of hydrophilic vegetation below established threshold coincident with a reduction in groundwater levels in this area, as determined from groundwater monitoring.	Pipe water from new well at approximately 0.5 gpm.	Mitigation plan would be highly effective at maintaining a water supply for livestock, wildlife, and habitat diversity.	Pipeline and water supply well would be on existing disturbance.
		28-48-28-43	0.0	Seep with water that ponds but does not flow into a drainage. Flow rate is not measurable.	0.120	Perennial water supply for livestock, wildlife, and habitat diversity.	Reduction of hydrophilic vegetation below established threshold coincident with a reduction in groundwater levels in this area, as determined from groundwater monitoring.	Pipe water from new well at approximately 0.5 gpm.	Mitigation plan would be highly effective at maintaining a water supply for livestock, wildlife, and habitat diversity.	Approximately 0.2 acre of new disturbance for water supply well. Pipeline would be on existing disturbance.
		28-48-32-24	0.0 - 2.0	Observed flow (2.0 gpm) in November 1998; otherwise wet area (seep) with water that ponds but does not flow into a drainage.	0.060	Water supply for livestock, wildlife, and habitat diversity.	Reduction of hydrophilic vegetation below established threshold coincident with a reduction in groundwater levels in this area, as determined from groundwater monitoring.	Pipe water from new well at approximately 0.5 gpm.	Mitigation plan would be highly effective at maintaining a water supply for livestock, wildlife, and habitat diversity.	Approximately 0.2 acre of new disturbance for water supply well. Pipeline would be on existing disturbance.

Table 3.2-1 (Continued)

Monitoring Program Area	Spring Group	ID	Flow Range (gpm)	Site Characteristics	Associated Riparian/Wetland Vegetation (acres) ¹	Use	Mitigation Trigger	Contingency Mitigation Plan	Effectiveness of Site-specific Mitigation Plan	New Disturbance from Mitigation Implementation ² (acres – approximate)
		28-48-32-32	0.0	Seep with water that ponds but does not flow into a drainage. Flow rate is not measurable.	0.060	Perennial water supply for livestock, wildlife, and habitat diversity.	Reduction of hydrophilic vegetation below established threshold coincident with a reduction in groundwater levels in this area, as determined from groundwater monitoring.	Pipe water from new well at approximately 0.5 gpm.	Mitigation plan would be highly effective at maintaining a water supply for livestock, wildlife, and habitat diversity.	Approximately 0.2 acre of new disturbance for water supply well. Pipeline would be on existing disturbance.
		28-48-32-33	0.0 - 1.3	Seep with water that ponds but does not flow into a drainage; no measurable flow after August 1997.	0.080	Perennial water supply for livestock, wildlife, and habitat diversity.	Reduction of hydrophilic vegetation below established threshold coincident with a reduction in groundwater levels in this area, as determined from groundwater monitoring.	Pipe water from new well at approximately 0.5 gpm.	Mitigation plan would be highly effective at maintaining a water supply for livestock, wildlife, and habitat diversity.	Pipeline and water supply well would be on existing disturbance.
		28-48-32-34	0.0	Seep with water that ponds but does not flow into a drainage. Flow rate is not measurable.	<0.010	Water supply for livestock, wildlife, and habitat diversity.	Reduction of hydrophilic vegetation below established threshold coincident with a reduction in groundwater levels in this area, as determined from groundwater monitoring.	Pipe water from new well at approximately 0.5 gpm.	Mitigation plan would be highly effective at maintaining a water supply for livestock, wildlife, and habitat diversity.	Pipeline and water supply well would be on existing disturbance.
	Mill Creek	MIL-01	8.98 - 924.59	Perennial stream with flows that vary seasonally with surface runoff.	0.3 ¹⁰	Perennial water supply for livestock and wildlife and supports riparian corridor that provides habitat diversity.	Reduction of flow to less than 9 gpm during summer and fall monitoring events for 2 consecutive years coincident with a reduction in groundwater levels in this area, as determined from groundwater monitoring wells.	Pipe water from new well at approximately 9 gpm.	Mitigation plan would be highly effective at maintaining a water supply for livestock, wildlife, and habitat diversity.	Approximately 0.2 acre for water supply well and 0.01 acre for pipeline.
	Indian Creek	IND-01U, IND-01D, and IC-1	12.4 - 14,479 ¹¹	Perennial stream with flows that vary seasonally with surface runoff.	11.4 ¹²	Perennial water supply for livestock and wildlife and supports riparian corridor that provides habitat diversity.	Reduction of flow to less than 20 gpm during summer and fall monitoring events for 2 consecutive years coincident with a reduction in groundwater levels in this area as determined from the groundwater monitoring wells.	Pipe water from new well at approximately 20 gpm.	Mitigation plan would be highly effective at maintaining a water supply for livestock, wildlife, and habitat diversity.	Approximately 0.2 acre of new disturbance for water supply well. Pipeline would be on existing disturbance.

Table 3.2-1 (Continued)

Monitoring Program Area	Spring Group	ID	Flow Range (gpm)	Site Characteristics	Associated Riparian/Wetland Vegetation (acres) ¹	Use	Mitigation Trigger	Contingency Mitigation Plan	Effectiveness of Site-specific Mitigation Plan	New Disturbance from Mitigation Implementation ² (acres – approximate)
	Ferris Creek	FER-01	5.0 - 1,486	Perennial stream with flows that vary seasonally with surface runoff.	2.35 ¹²	Perennial water supply for livestock and wildlife and supports riparian corridor that provides habitat diversity.	Reduction of flow to less than 5 gpm during summer and fall monitoring events for 2 consecutive years coincident with a reduction in groundwater levels in this area, as determined from groundwater monitoring wells.	Pipe water from new well at approximately 5 gpm.	Mitigation plan would be highly effective at maintaining a water supply for livestock, wildlife, and habitat diversity.	Approximately 0.2 acre of new disturbance for water supply well. Pipeline would be placed on existing disturbance.

¹ JBR 2007d as referenced in Final EIS (BLM 2008a).

² Disturbance areas would be managed and reclaimed in accordance with BLM and State of Nevada requirements.

³ Site has hydrophilic vegetation but was not classified as a wetland or riparian area because of other factors such as the absence of hydric soils or hydrologic conditions.

⁴ Vegetation loss would be mitigated in accordance with Mitigation Measures V1 (Final EIS [BLM 2008a] p. 3.4-25). See text in Subsection 3.2.4 of this SEIS for additional discussion.

⁵ Excludes flow measurement of drill water runoff at the site June 2002.

⁶ Excludes flow measurements of high runoff recorded in May 2005.

⁷ The primary source of water for pasture irrigation is surface runoff during spring and early summer.

⁸ Excludes drip and trickle flows reported between May 1996 and May 1998.

⁹ Excludes a flow measurement taken during a rainstorm event in February 2000 and trickle flow reported when it was noted to contain ice and snow in November 2000.

¹⁰ Riparian corridor located downstream from mountain front.

¹¹ Flow measured at monitoring station IC-1 1997 to 2010.

¹² Riparian corridor located within the predicted 10-foot mine-related drawdown contour.

Source (unless otherwise noted): CGM and JBR Environmental Consultants, Inc. 2010.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

Water Resources and Associated Mitigation

Hydrology of Springs, Seeps, and Perennial Streams. The characteristics of each of the 33 identified water sources are summarized in **Table 3.2-1**. The water sources include: 1) perennial surface water features that may or may not be influenced by seasonal runoff; 2) seasonal water features characterized by measurable flow or a stagnant pond observed during portions of the year that typically become dry by late summer or fall; and 3) wet soil areas (i.e., seeps) that support hydrophilic vegetation and generally do not have any surface expression of water in most years.

There are three perennial stream reaches located within the model-simulated groundwater drawdown area: Mill Creek in the Cortez Mountains and Indian Creek and its tributary Ferris Creek in the Shoshone Mountains. All three stream reaches typically experience high flows associated with runoff in the spring to early summer period and low flows sustained by baseflow through the late summer and fall period.

Identified Use. The identified uses of the water resources include: 1) livestock and/or wildlife water source; 2) hydrophilic vegetation area or riparian corridor that provides habitat diversity; and/or 3) pasture irrigation. An individual spring or seep is considered a perennial water source if there is observable or measurable year-round flow (for springs or streams) or a stagnant pond or wet soil area (for seeps) in most years; or a seasonal water source if the surface water expression typically dries up for one or more quarters in most years. The identified use(s) of each surface water feature is listed in **Table 3.2-1**.

Mitigation Triggers. The mitigation trigger depends on the observable flow and site characteristics of each individual surface water feature. For perennial springs, the mitigation trigger would be based on a reduction of baseflow below an established flow threshold. The baseflow threshold was determined by reviewing the flow variations from the quarterly monitoring results over the period of record. Mitigation triggers based on reductions in baseflow would be determined using flow measurements from the low-flow period that typically occurs in summer and early fall (July to October) and the results of the groundwater monitoring. Site-specific mitigation triggers for each of the surface water features are listed in **Table 3.2-1**.

For springs and seeps that typically have intermittent flow or are characterized as wet soil areas that support vegetation with no measurable flow, the mitigation trigger would be based on a reduction in hydrophilic vegetation below an established threshold coincident with a reduction in groundwater levels in the area as determined by groundwater monitoring. Additional information regarding the site-specific mitigation triggers is provided in the Technical Memorandum – Contingency Mitigation Plans for Surface Waters, Cortez Hills Expansion Project, Lander and Eureka counties, Nevada (CGM and JBR 2010).

Contingency Mitigation Measures. Mitigation Measure WR-1b presented in the Final EIS (p. 3.2-111 [BLM 2008a]) included a bulleted list described as “*Methods for providing a new water source or improving an existing water source may include, but are not limited to:*”

- *Installation of a water supply pump in an existing well (e.g., monitoring well);*
- *Installation of a new water production well;*
- *Piping from a new or existing source;*
- *Installation of a guzzler;*

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- *Enhanced development of an existing seep to promote additional flow; or*
- *Fencing or other protection measures for an existing seep to maintain flow.”*

The proposed site-specific mitigation measures for the identified surface water resources within the mine-related groundwater drawdown area are summarized in **Table 3.2-1**. The site-specific mitigation plans would implement one or more of the six mitigation methods identified in Mitigation Measure WR-1b, as appropriate. Details regarding the proposed measures for specific sites are provided in the Technical Memorandum – Contingency Mitigation Plans for Surface Waters, Cortez Hills Expansion Project, Lander and Eureka counties, Nevada (CGM and JBR 2010). Final locations of specific facilities, including wells, pipelines, or guzzlers, would be determined prior to construction in compliance with appropriate NEPA and other environmental and cultural resources requirements, to be determined by the BLM.

This following discussion supplements the information regarding the six methods that was provided in Mitigation Measure WR-1b in the Final EIS (BLM 2008a).

1) Installation of a Water Supply Pump in an Existing Well. This mitigation measure consists of supplying water to the original surface water source area by pumping and piping water from an existing well. The amount of water conveyed to the affected spring would be based on the quantity of water required to sustain the identified use(s). As no new wells would need to be constructed, new surface impacts would be minimized. In addition, use of an existing well would minimize the time-frame required to implement the mitigation measure.

2) Installation of a New Production Well. This mitigation measure consists of constructing a new water well to replace water from one or more springs or seeps. Installing a new well would include drilling to obtain sufficient water, installing appropriate casing, installing a pump with a power supply (windmill or electric), installing a tank to supply consistent flow, and installing piping to the affected spring or seep area.

3) Piping Water from a New or Existing Source. This mitigation measure consists of piping water from a new or existing water source to a spring or seep that has experienced a reduction in flow. This mitigation would include identifying a nearby, upgradient source that discharges sufficient water, or creating a new source such as a small reservoir, and installing a piping system to convey water to the affected surface water source to maintain flow and sustain the identified use(s).

4) Installation of a Guzzler. This mitigation measure consists of installing a guzzler. Guzzlers are systems used to collect precipitation and runoff and store the water in a surface or buried container. The container then feeds an open trough for use by livestock and/or wildlife. Installation of a guzzler would be completed at seeps and springs where the primary use of the water is for wildlife consumption. Guzzlers are used throughout Nevada, Utah, and other arid areas of the west to supply water for wildlife, especially during the dry summer months. The size of the system can vary depending on the species targeted for the system. Larger guzzlers are needed for big game, while smaller systems can be used for small game and birds.

5) Enhanced Development of an Existing Seep to Promote Additional Flow. This mitigation measure consists of enhancing flow by developing the existing seep or spring. The development typically would include the installation of a spring box and piping to direct water to a specific discharge point. This mitigation

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likely would be used in circumstances where there has been a decrease in flow but not a complete loss of flow at the source. These types of spring and seep enhancements (or improvements) are not expected to be effective at mitigating seeps or springs that have experienced a complete loss of flow due to mine-induced groundwater drawdown.

6) Fencing or Other Protection Measures for an Existing Seep to Maintain Flow. This mitigation measure consists of fencing or other protection measures for existing seeps. Many seeps and springs are substantially impacted by livestock and wild horses. These effects can result in reduced flow as a result of overgrazing of vegetation, thus increasing surface evaporation and damage to the seep or spring source.

Mitigation Effectiveness. The following supplemental information describes the anticipated effectiveness of the methods identified in Mitigation Measure WR-1b. Site-specific evaluation of the effectiveness of the contingency mitigation plan for each of the identified surface water resources within the mine-related groundwater drawdown area is presented in **Table 3.2-1**. The site-specific measures include one or more methods described under the Contingency Mitigation Measures section above. Quarterly monitoring of the surface water resources required under Mitigation Measure WR-1a (Section 3.2.4 of the Final EIS [BLM 2008a]) would be used to document the effectiveness of the implemented measures. In addition, as stated in Mitigation Measure WR-1b (Section 3.2.4 of the Final EIS [BLM 2008a]), the BLM has the ability to require the implementation of additional mitigation measures if the initial implementation is unsuccessful.

Use of an existing well (method #1 above) or construction of a new well (method #2 above) to supplement or replace baseflow affected by mine-induced groundwater drawdown are anticipated to be a highly effective methods to maintain the identified use(s) over the period of impact that may occur, including providing a water supply for livestock and/or wildlife and maintaining hydrophilic vegetation for habitat diversity. Well pumping is expected to provide a long-term sustainable source of water to supplement or replace the loss of baseflow. There is some potential for the flow to be disrupted at times due to mechanical problems (including freezing pipes) or maintenance of the system. However, with appropriate maintenance and system monitoring, potential disruptions in flow likely would be of short duration (i.e., several days to several weeks).

Piping water from a new or existing source (method #3 above) also is anticipated to be an effective method to provide flow to supplement or replace baseflow to springs or seeps affected by mine dewatering. A sufficient upgradient source could provide a long-term sustainable water supply to provide water for livestock and/or wildlife and maintain hydrophilic vegetation for habitat diversity. This measure is considered to be moderately effective since the upgradient water source created by collecting water in a surface reservoir or pond could be depleted during drought conditions. If the water resource and site conditions are favorable, this type of flow augmentation could be installed within a short timeframe after mitigation is triggered. This type of system would require long-term maintenance, and flow disruptions could occur due to freezing pipes.

Installation of a guzzler (method #4 above) would be an effective method to replace a source of water for livestock and/or wildlife. If the original spring or seep only provided a seasonal or intermittent source of water, the guzzler would provide an improved sustainable perennial source of water for livestock and/or wildlife use. However, installation of a guzzler without other spring enhancements would not be effective at

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providing water to sustain a diversity of habitat (such as hydrophilic vegetation) that a spring or seep may have originally supported. Guzzlers would require periodic maintenance for the life of the system.

Enhanced development of an existing spring or seep to promote additional flow (method #5 above) may or may not be effective at increasing the flow available at the surface. This mitigation likely would be used in circumstances where there has been a decrease in the flow but not a complete loss of flow at the source. For this situation, the spring enhancement measures likely would be moderately effective at increasing flow and partially or completely effective at mitigating reductions in flow associated with mine-induced drawdown. However, for seeps or springs that have experienced a complete loss of flow due to mine-induced groundwater drawdown, these enhancement measures are not expected to be effective at mitigating reduction in flows.

Eliminating grazing through installation of exclusionary fencing (method #6 above) to keep livestock and wild horses out but allow access for wildlife is an effective method of enhancing seep and spring flow along with hydrophilic vegetation if there has not been a complete loss of flow. However, if the flow of the spring or seep is completely lost due to a reduction in groundwater levels, then fencing alone is not expected to be an effective measure to mitigate impacts associated with mine-induced groundwater drawdown. If flow from a seep or spring is reduced but not completely lost, enhancement of the area through eliminating grazing likely would increase output of the spring.

Environmental Impacts Associated with Implementation of Mitigation Measures. The estimated acreage of new disturbance associated with the implementation of the site-specific mitigation plans is identified in **Table 3.2-1**. Any ground disturbance would be managed and reclaimed in accordance with BLM and State of Nevada requirements. Therefore, surface disturbance impacts associated with implementation of site-specific mitigation are expected to be reclaimed within 2 to 3 years after disturbance. Potential impacts that would result from implementation of the site-specific mitigation measures are discussed in the following paragraphs.

Well Development. If the East Valley springs are affected by mine-related groundwater drawdown, the contingency plan calls for installing one or more wells and associated piping to provide water to mitigate impacts to this group of springs. All other new wells would be located outside of, but in close proximity to, each individual mapped water resource area (i.e., no more than 200 feet from the water resource).

Ground disturbance impacts associated with piping water from an existing well would include new ground disturbance associated with installing a passive (windmill) or active (electric powered) pumping system, a storage tank for maintaining consistent flow, and surface or buried piping from the well to the desired location. The most likely power source for pumping from an existing or new well would be solar-power cells (CGM and JBR 2010). A new pipeline from an existing well would be placed in existing roadways; therefore, no new disturbance would be required for pipeline installation.

Ground disturbance activities associated with new well construction would include surface disturbance associated with the drill pad and sump, tank installation, and piping. A drill pad can range from several hundred square feet to several thousand square feet, depending on the size of the drill rig and ancillary facilities. Typical disturbance from the installation of a new production well would be approximately 0.2 acre.

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The pipelines would be placed in existing roadways to the extent practical. Pipelines installed along existing roadways are not expected to result in new ground disturbance; pipelines placed outside of existing roadways would result in new ground disturbance. For these locations, the distance between the proposed new wells and the spring and seep source areas would be less than 200 feet. Assuming a pipeline length of 200 feet and disturbance width of 6 feet, the total maximum new disturbance associated with pipeline installation would be approximately 0.03 acre. The estimated new disturbance associated with well construction and pipeline installation for each site is summarized in **Table 3.2-1**.

The estimated pumping rates that could be required to augment flows to sustain the identified uses are identified in **Table 3.2-1**. These pumping rates range from 0.5 to 3.0 gpm for springs, and 5 to 20 gpm for perennial streams. ***In the unlikely event that all of the wells were installed and pumped at the maximum rate to supplement a total loss of baseflow at all of the identified locations, the total combined pumping rate would be 50.5 gpm. In comparison, dewatering associated with the Cortez Hills Expansion Project would result in a total estimated annual average mine dewatering rate for the Cortez Gold Mines Operations Area (inclusive of the Cortez Hills, Pipeline, and South Pipeline deposits) of 8,400 to 36,100 gpm (Cortez Hills Expansion Project Final EIS [BLM 2008a], Table 3.2-9 and Figure 3.2-10). The maximum mitigation pumping rate of 50.5 gpm would represent an increase of 0.1 to 0.6 percent in the annual groundwater withdrawal rate required for mine dewatering. These low pumping rates would represent a negligible increase in the total amount of groundwater withdrawal required for the Cortez Gold Mines Operations Area.***

The calibrated numerical groundwater flow model developed for the Cortez Hills Expansion Project EIS was used to evaluate the cumulative drawdown effects that would occur assuming that all of the mitigation wells described in the Contingency Mitigation Plans for Surface Waters (CGM and JBR 2010) were installed and pumped at the maximum pumping rate (Geomega 2010). This is a conservative assumption as many of the springs, seeps, and streams may not require mitigation. Comparison of the model results for cumulative drawdown effects provided in the groundwater flow model report used to support the EIS (Geomega 2007c) with the model results for cumulative drawdown effects that include the maximum pumping required for the contingent mitigation outlined in the Draft SEIS (Geomega 2010) indicates that the projected area encompassed within the 10-foot drawdown contour does not change substantially from the original drawdown prediction. At 100 years, the simulated 10-foot drawdown contour expands slightly (less than 0.5 mile) in a localized area in the Shoshone Range in response to pumping from simulated mitigation wells to supplement water to Ferris Creek and Indian Creek. However, this slight variation in model results does not encompass any additional surface water resources (i.e., seeps, springs, or streams) or water rights than previously identified and evaluated as part of the Cortez Hills Expansion Project Final EIS (BLM 2008a). Therefore, additional pumping that could be required to supplement baseflow reductions is not expected to substantially increase cumulative drawdown (or impact additional surface water resources) over the cumulative groundwater drawdown previously evaluated as part of the impact analysis provided in the Final EIS (BLM 2008a).

As stated previously, new wells used to supplement or replace baseflow impacted by mine-induced drawdown would be located in close proximity to the original water source (i.e., no more than 200 feet from the water source). Considering the close proximity of the well to the source, it is likely

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that the well would intercept the same geologic formation that controlled discharge to the original spring. In this case, the water quality would be expected to have the same or similar geochemical characteristics as the original spring discharge.

Cortez Spring (also known as Shoshone Wells) consists of a buried pipe that daylights out of the ground with a trickle of flow (0 to 0.13 gpm). The pipe reportedly carries flow from an adit near an outcrop of Tertiary volcanics (Geomega 2006). Existing monitoring well PD-07, completed in Tertiary volcanic rock, would be used to supplement flow, if necessary. Considering that both the pipe that is the source of water for Cortez Spring and the monitoring well are completed in the same geologic unit, the water quality of the supplemental water is expected to be geochemically similar to the existing spring source.

If all of the contingency mitigation measures that require groundwater pumping to augment surface flows were triggered, the total maximum groundwater production would require approximately **81** acre-feet per year (AFY). CGM currently holds water rights that include 6,452 AFY for mining and milling, and 9,679 AFY for irrigation and stock watering within the Crescent Valley Hydrographic Basin (CGM and JBR 2010). It is anticipated that water rights for any new well production required for implementation of the mitigation plans would be addressed by transferring a portion of the existing water rights to the new points of diversion as required by the State Engineer. Other impacts to water rights associated with implementation of the site-specific measures are not anticipated.

Piping Water from a New or Existing Source. Disturbance associated with this measure would be limited to construction of a surface or buried pipeline from the source to the affected spring or seep. Assuming 0.5 mile of piping (a disturbance width of 6 feet along 2,640 feet of pipe), approximate disturbance associated with this mitigation measure would be 0.4 acre. ***It is anticipated that any water rights to capture and convey water to augment flows would be addressed by transferring a portion of the existing water rights to the new point of diversion, as discussed previously for well development.***

Installation of a Guzzler. Construction activities include vegetation removal at the collection apron and tank locations; excavation for the tank (assuming below ground installation); installation of the apron, tank, piping, and trough; and installation of an exclusionary fence to prevent horses and other livestock from damaging the guzzler apron. The actual design (size, location, etc.) is dependent on many variables including, but not limited to, annual precipitation, slope, and targeted wildlife (small game versus big game). Disturbance from a large game guzzler in this area would be up to 0.7 acre (assuming a disturbance area of approximately 150 feet by 200 feet).

Enhanced Development of an Existing Seep to Promote Additional Flow. The measures identified to enhance flow (i.e., installation of a spring box) at an existing spring would have minimal (less than 0.1 acre) of disturbance.

Fencing or Other Protection Measures for an Existing Seep to Maintain Flow. Installation of fencing around the water source would result in minimal (less than 0.05 acre) temporary disturbance for the duration of the mitigation.

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3.2.5 Residual Adverse Impacts

Residual adverse impacts to baseline surface water uses are not anticipated with the successful implementation of Mitigation Measures WR-1a and 1b in accordance with the site-specific mitigation triggers and contingency mitigation measures described in Section 3.2.4 above. The potential for residual adverse impacts to occur would be further reduced by the provision in WR-1b (Section 3.2.4 of the Final EIS [BLM 2008a]) that indicates that the BLM has the ability to require the implementation of additional mitigation measures if the initial implementation was unsuccessful.

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3.10 Air Quality

This information applies to the currently approved Project and other action alternatives, unless otherwise noted. This information supplements Section 3.10 of the Cortez Hills Expansion Project Final EIS (BLM 2008a) to refine the analysis of potential air quality impacts of transporting and processing Cortez Hills refractory ore at the Goldstrike Mine, located on private land approximately 70 miles north of the Cortez Hills Expansion Project. This SEIS also includes the results of PM_{2.5} modeling for on-site activities associated with the approved Project and other action alternatives.

3.10.1 Affected Environment

The climate and existing air quality of the region and the Cortez Hills Expansion Project study area and cumulative effects study area are described in Section 3.10.1 of the Final EIS (BLM 2008a).

Relative to PM_{2.5}, the study area and cumulative effects study areas have been designated as in attainment or unclassified for all pollutants that have an Ambient Air Quality Standard (AAQS), including PM_{2.5}.

3.10.2 Environmental Consequences

Regulatory Framework and Associated Impacts

Ambient air quality and air pollutant emissions are regulated under both federal and State of Nevada laws and regulations, as discussed in detail in Section 3.10.2.1 of the Cortez Hills Expansion Project Final EIS (BLM 2008a). The regulatory framework relative to the following discussion of potential air quality impacts is discussed below, including recent changes to the National Ambient Air Quality Standards (NAAQS) and associated regulations.

PM_{2.5} Emissions. Prior to issuance in March 2010 of the U.S. Environmental Protection Agency (USEPA) guidance for modeling PM_{2.5} (USEPA 2010a), emissions of PM_{2.5} for mining sources were considered a fraction of particulate matter with an aerodynamic diameter of 10 microns or less (PM₁₀) emissions, and PM_{2.5} impacts to local air quality were not modeled due to technological challenges related to modeling secondary formation of PM_{2.5}. Subsequent to publication of the Cortez Hills Expansion Project Final EIS (BLM 2008a), the USEPA guidance memorandum "Modeling Procedures for Demonstrating Compliance with PM_{2.5} NAAQS" was issued (USEPA 2010a). Taking into account this guidance, Enviroscientists, Inc. (Enviroscientists) (2010a) conducted dispersion modeling of PM_{2.5} for the Cortez Hills Expansion Project; the BLM has reviewed the PM_{2.5} model methodology and results.

Mercury Emissions. Mercury is not considered a criteria pollutant, and no NAAQS have been established under the Clean Air Act Amendments (CAA) for mercury. Mercury is included on the federal list of hazardous air pollutants (HAPs), which has been adopted by reference in the Nevada air quality regulations. Nevada air quality regulations (Nevada Administrative Code [NAC] 445B.349) prohibit the "discharge into the atmosphere from any stationary source of any hazardous air pollutant or toxic regulated air pollutant that threatens the health and safety of the general public, as determined by the director." The USEPA has proposed but has not finalized a National Emission Standard for HAPs or mercury emissions from gold ore

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processing facilities. HAPs are controlled through emissions limits at the source rather than ambient air concentrations. Mercury emissions associated with precious metals operations are regulated and controlled pursuant to the Nevada Mercury Control Program (NAC 445B.3611-3689).

PM_{2.5} Model Selection and Options

According to the Guideline on Air Quality Models (as revised) (40 CFR 51, Appendix W), the American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) is the preferred model for use in estimating ambient air pollutant concentrations resulting from emissions of sources such as those associated with the approved Project and with terrain similar to the terrain within and adjacent to the project area (USEPA 2003). The AERMOD model used by Enviroscientists (2010a) (version 09292) for modeling PM_{2.5} emissions at the Cortez Hills Expansion Project included the Plume Rise Model Enhancement downwash algorithms that are used to calculate plume downwash from stack emissions caused by wind flowing over and around nearby buildings.

According to the USEPA's User Guide for AERMOD, the PM_{2.5} standard is based on a 3-year average of the 98th percentile 24-hour average and a 3-year average of the annual mean at each ambient monitor (USEPA 2010a, 2004a). For purposes of modeling demonstrations of compliance with the NAAQS, the USEPA states that the eighth highest value is an unbiased surrogate for the 98th percentile 24-hour average concentration at a particular receptor over a 1-year period. For this analysis, the 24-hour design value was based on the highest of the eighth highest (H8H) concentrations at each receptor for the year of meteorological input data used in the model. The annual design value was based on the highest annual average across the receptor domain.

Emission Factors Used to Model PM_{2.5} Emissions. Dispersion modeling programs require inputs of the calculated emissions for each air pollutant to be modeled. The emission factors used by Enviroscientists (2010a) for the Cortez Hills Expansion Project were based on AP-42 (USEPA 2009), Chapter 11, which contains the emission factors for metallic mineral processing operations. In those cases where a factor for PM_{2.5} was provided in AP-42, it was used. Where a factor for PM_{2.5} was not expressly stated, PM_{2.5} emissions were estimated using engineering judgment based on specific facilities and activities associated with the project. Additional details on PM_{2.5} emission factors used in the model are available in the *PM_{2.5} Air Quality Impact Assessment Report* (Enviroscientists 2010a).

Receptors. Two classes of receptors were used in the modeling analysis. The first receptor class comprised individual receptors spaced at 30-meter (m) intervals along the model boundary of the project area. The second receptor class comprised three receptor grids: 1) a coarse Cartesian 1,000-m receptor grid extending approximately 5 kilometers (km) from the stationary source; 2) a 200-m Cartesian receptor grid extending at least 1,000 m from the stationary source; and 3) in areas with higher modeled impacts, a staggered second 200-m grid overlain on the initial 200-m grid, creating an approximate 140-m grid. The 140-m grid was applied near the Pipeline Mill, along County Road 222 near the Cortez Hills open pit, and near the South Pipeline waste disposal area.

Meteorological Data. One year of surface meteorological data collected in September 2003 through August 2004 in Boulder Valley, Air Quality Management Area 61, was used in the model. Boulder Valley is

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across the Humboldt River from Crescent Valley and is similar to Crescent Valley in vegetation, elevation, and size; therefore, the data are considered representative of the project area. The data previously were subject to review by the USEPA and Nevada Department of Environmental Protection – Bureau of Air Pollution Control (NDEP-BAPC) for a major source power plant application, and NDEP-BAPC previously approved the use of these data for modeling air quality impacts associated with the Pipeline Project (NDEP 2006).

Model Scenarios. Dispersion modeling of the Proposed Action identified in the Final EIS (BLM 2008a) and the approved Project identified in the ROD (BLM 2008b) was conducted for PM_{2.5} for the two proposed operating scenarios for delivering ore from the Cortez Hills open pit to the Pipeline Mill (conveyor transport and trucking). Single model runs were conducted for the other action alternatives identified in the Final EIS (BLM 2008a), with the exception of the Cortez Hills Complex Underground Mine Alternative, which would result in 4,843 fewer acres of disturbance than the approved Project. Dispersion modeling was performed for PM_{2.5}, for the 24-hour and annual time periods.

Background Concentrations. The NDEP-BAPC indicated it did not have a recommendation for PM_{2.5} background concentrations (NDEP 2009a). The NDEP-BAPC's practice for particulate analyses is to use measured concentrations from the Interagency Monitoring of Protected Visual Environments (IMPROVE) monitoring stations as the representative background concentration for rural Nevada sites. The Great Basin National Park IMPROVE site located in White Pine County, Nevada, was selected as the closest site for this analysis. The Cortez Hills Expansion Project and the Great Basin National Park monitoring station (GRBA1) monitoring station are located in similar topography and have similar climate. The two locations are situated in relatively similar terrain at similar elevation and each location receives approximately 9.5 inches of precipitation per year. Data measured at the GRBA1 for 2005 to 2007 were used to establish the PM_{2.5} background concentrations; these data are summarized in **Table 3.10-1**. The 3-year average annual weighted mean based on the data set is 2.38 micrograms per cubic meter (µg/m³). This value was used as the background PM_{2.5} concentration for this analysis.

Table 3.10-1
GRBA1 PM_{2.5} Measured Data Summary for Determination of a Background Concentration

Data Year	Number of Observations	Annual Average (µg/m ³)	Rolling 3-year Average, Annual Weighted Mean (µg/m ³)
2004	116	2.14	-
2005	121	2.30	-
2006	117	2.36	2.27
2007	104	2.51	2.38

Source: Enviroscientists 2010a.

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Air Pollution Emission Sources and Emission Inventory. Air emission estimates for the approved Project and the action alternatives (BLM 2008a) were made based on the following factors:

- Maximum material throughput;
- USEPA-approved emission factors from AP-42;
- Existing air quality permits and past air quality permit applications for both the Pipeline Project and the Cortez Mill; and
- Facility descriptions (CGM and SRK 2008).

Air Quality Dispersion Modeling Analysis. The majority of the project area is located within the Crescent Valley Planning Area, which currently is unclassified or designated as attainment for PM_{2.5}. The southern portion of the project area extends into the Grass Valley Planning Area, which also currently is unclassified or designated as attainment for PM_{2.5}. The assessment of the potential PM_{2.5} impacts for the approved Project and the action alternatives was conducted taking into account the March 2010 USEPA guidance memorandum “Modeling Procedures for Demonstrating Compliance with PM_{2.5} NAAQS” (USEPA 2010a).

The dispersion model calculates ambient concentrations for each hour of the modeled time period, and appropriate hourly emission rates must be calculated for each modeled source for each modeled time period. The dispersion modeling assumed an operational and facility configuration that simulated a realistic maximum operational scenario. Assumptions made for the analysis of the approved Project and the action alternatives included:

- Cortez Hills open pit was in full production at 400,000 tons of material mined per day;
- Heap leach pads and waste rock facilities were assumed to be built to one half of their full heights; and
- Open pits were assumed to be at their full depth, resulting in maximum potential emissions from the haul trucks.

Specific information regarding the treatment of project facilities and activities in the air quality dispersion model and associated analyses are presented in the *PM_{2.5} Air Quality Impact Assessment Report* (Enviroscientists 2010a).

Assessment of Off-site Transport and Processing Impacts. Specific information relative to the assessment of off-site transport and processing of refractory ore from the Cortez Hills Expansion Project is presented in the following technical memoranda:

- *Cortez Gold Mines – Emission Inventory to Quantify Truck Emissions* (Enviroscientists 2010b).
- *Technical Memorandum: Impact of PM_{2.5} Emissions from Processing Ore from the Cortez Hills Expansion Project and Cortez Gold Mines Operations Area at the Barrick Goldstrike Mine* (Air Sciences Inc. 2010a).

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- *Technical Memorandum: Impact of PM₁₀, SO₂, NO_x, CO and HAP Emissions from Processing Ore from the Cortez Hills Expansion Project and Cortez Gold Mines Operations Area at the Barrick Goldstrike Mine* (Air Sciences Inc. 2010b).
- *Technical Memorandum: Impact of Mercury Emissions from Processing Ore from the Cortez Hills Expansion Project and Cortez Gold Mines Operations Area at the Barrick Goldstrike Mine* (Air Sciences Inc. 2010c).

3.10.2.1 Approved Project

PM_{2.5} Impacts from On-site Activities

The results of the dispersion modeling of PM_{2.5} for the approved Project are presented in **Table 3.10-2**. The table shows the highest modeled results for PM_{2.5} for 24-hour and annual averaging times, the location of the highest modeled receptor, the highest modeled result with and without background concentration, and the standards for PM_{2.5} averaging time combinations. These results indicate that PM_{2.5} emissions for the approved Project, with either ore transport option, would not cause or contribute to a violation of the NAAQS for PM_{2.5}.

**Table 3.10-2
Highest Modeled PM_{2.5} Air Pollutant Concentrations from the Approved Project**

Averaging Time	Highest Modeled Receptor Location ¹		Dispersion Modeling Results (µg/m ³)	Dispersion Modeling Results with Background (µg/m ³)	NAAQS (µg/m ³)
	UTM East (m)	UTM North (m)			
Truck Hauling Option					
24-hour	532,089	4,444,944	18.82	21.20	35
Annual	530,495	4,449,132	9.57	11.95	15
Overland Conveyor Option					
24-hour	532,139	4,444,943	18.55	20.93	35
Annual	530,488	4,444,919	9.15	11.53	15

¹ All coordinates in universal transverse Mercator (UTM) projection, North American Datum 1983.

Source: Enviroscientists 2010a.

In addition to direct PM_{2.5} emissions, the USEPA has recognized that PM_{2.5} also may include a “secondary” component that is formed as a result of complex atmospheric reactions involving precursor pollutant emissions. There are four potential pollutant precursors: sulfur dioxide (SO₂), nitrogen oxide (NO_x), volatile organic compounds (VOCs), and ammonia (NH₃). The USEPA presumes that emissions of SO₂ and NO_x will have some secondary contribution to PM_{2.5} ambient concentrations and that emissions of VOCs and NH₃ will not contribute to PM_{2.5} impacts based on its current level of understanding (73 Federal Register 28321-28350).

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The USEPA recently has confirmed that while “air quality modeling of direct PM_{2.5} emissions can be accomplished using a USEPA-approved model to predict ambient PM_{2.5} impacts caused by new and modeled sources of PM_{2.5} emissions,” it “has not approved any models that can reliably predict the localized ambient PM_{2.5} impacts of precursors (e.g., SO₂ and NO_x) emitted from individual stationary sources.” Accordingly, USEPA instructs that an evaluation of PM_{2.5} ambient impacts associated with a single source focus on direct PM_{2.5} emissions (75 Federal Register 6827-6836).

In the absence of any approved air dispersion models for predicting ambient PM_{2.5} impacts of precursors for this analysis, an estimate of PM_{2.5} impacts associated with NO_x and SO₂ precursors was undertaken by Enviroscientists (2010a). The methodology was based on the conversion rates of NO_x and SO₂ that are estimated from the transformation rate expressions used in the CALPUFF air dispersion model. CALPUFF is a USEPA-approved model for predicting long-range air pollutant impacts (USEPA 2010b) and is not directly applicable to predicting the localized or near-field impacts associated with the Cortez Hills Expansion Project. It is important to note that the USEPA has not approved this, or any other, approach for predicting localized ambient PM_{2.5} impacts of precursors. In fact, this approach may result in overestimation of secondary PM_{2.5} impacts.

The analysis of secondary PM_{2.5} impacts combined the AERMOD modeling output data and the empirical chemical transformation relationships from the CALPUFF modeling results. The total estimated secondary PM_{2.5} impacts are 5.6 µg/m³ for the 24-hour averaging period and 0.61 µg/m³ for the annual averaging period. These estimates are based on the CALPUFF conversion rates and the predicted NO_x and SO₂ impacts at the receptor having the highest direct PM_{2.5} emissions. Addition of these secondary PM_{2.5} impact concentrations to the modeled and background PM_{2.5} concentrations for the approved Project as shown in **Table 3.10-2** indicate that the PM_{2.5} emissions for both transport options would comply with the PM_{2.5} NAAQS.

Estimated Impacts Based on USEPA’s PM_{2.5} Screening-level Guidance. The USEPA guidance for PM_{2.5} modeling provides information on modeling procedures to demonstrate compliance with PM_{2.5} NAAQS by creating a conservative “screening level analysis” for evaluating compliance with the PM_{2.5} NAAQS. The USEPA guidance explains that the rationale for the coarse screening-level analysis is based primarily on the assumption that a modeling analysis will be performed for only direct PM_{2.5} emissions and will not include air quality impacts associated with PM_{2.5} precursors (NO_x and SO₂), which may result in secondary PM_{2.5} impacts. Certain assumptions were made in the screening-level analysis, presumably to offset the lack of an explicit calculation or modeling of secondary PM_{2.5} emissions. The analysis discussed above accounts for and presents modeling results for both direct and secondary generation of PM_{2.5}; thus, it is more explicit and detailed than the screening-level analysis described in the USEPA guidance.

The screening-level analysis conforming to the USEPA guidance also was conducted by Enviroscientists (2010a). As discussed below, the screening-level analysis also concluded that the approved Project would not exceed the PM_{2.5} NAAQS. The differences between the screening-level analysis and the explicit air quality modeling analysis are described below.

Annual PM_{2.5} NAAQS Analysis. The screening-level analysis described in the USEPA guidance for evaluating compliance with the annual PM_{2.5} NAAQS recommends that where modeling is based on 1 year

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of meteorological data, which is the case for the Cortez Hills Expansion Project PM_{2.5} air dispersion modeling, that the “annual design value” accounting for the background concentration should be added to the highest modeled annual average concentration. The “annual design value” is determined from a 3-year average of the annual average PM_{2.5} concentrations based on monitored data. The screening-level analysis was conducted using the annual background value of 2.38 µg/m³.

24-hour PM_{2.5} NAAQS Analysis. The screening-level analysis described in the USEPA guidance for compliance with the 24-hour PM_{2.5} NAAQS recommends that where modeling is based on 1 year of meteorological data, the monitored 24-hour design value should be added to the maximum modeled 24-hour average concentration. In other words, the USEPA guidance recommends that the modeler select the highest modeled value or first high, rather than the eighth highest value that normally is selected for compliance modeling when AERMOD is used.

The USEPA guidance also suggests a different method to calculate a background concentration when it recommends that the modeled concentration be added to the monitored “design value.” The 24-hour design value is defined as the 3-year average of the 98th percentile 24-hour average PM_{2.5} concentration. This approach yields a higher background concentration than was used in the comprehensive air quality modeling analysis. The recommendation in the USEPA’s guidance is not considered realistic for assessing impacts of the Cortez Hills Expansion Project because the conditions that would lead to the highest background concentrations (low wind, stagnant conditions) are different from those that are expected to yield the higher project emissions (high wind conditions). Nevertheless, a screening-level analysis was conducted using the higher background value of 6.79 µg/m³ shown in **Table 3.10-3**.

Table 3.10-3
GRBA1 PM_{2.5} Annual Measurement Data Summary for Determination of a 24-hour Design Value

Data Year	Number of Observations	98 th Percentile (µg/m ³)	Rolling 3-Year Average, 98 th Percentile (µg/m ³)
2004	116	5.92	--
2005	121	6.49	--
2006	117	6.61	6.34
2007	104	7.27	6.79

Source: Enviroscientists 2010a.

Impacts Based on USEPA’s Screening-level Guidance. Following the recommendations in the USEPA guidance, the screening-level analysis results indicate that the approved Project would not be expected to cause or contribute to a violation of the 24-hour or annual averaging period PM_{2.5} NAAQS. **Tables 3.10-4** and **3.10-5** show the screening-level results using the first high modeled PM_{2.5} air pollutant concentrations for the 24-hour and annual averaging periods, respectively.

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**Table 3.10-4
First High Modeled PM_{2.5} Air Pollutant Concentrations for the 24-hour Averaging Period**

Action	First High Modeled Receptor Location ¹		Dispersion Modeling Results (µg/m ³)	Dispersion Modeling Results with Background (µg/m ³)	Ambient Standard (µg/m ³)
	UTM East (m)	UTM North (m)			
Approved Project- Truck Hauling Option	530,533	4,449,278	27.55	34.34	35
Approved Project- Conveyor Option	530,533	4,449,278	26.28	33.07	35

¹ All coordinates in UTM projection, North American Datum 1983.

Source: Enviroscientists 2010a.

**Table 3.10-5
First High Modeled PM_{2.5} Air Pollutant Concentrations for the Annual Averaging Period**

Action	First High Modeled Receptor Location ¹		Dispersion Modeling Results (µg/m ³)	Dispersion Modeling Results with Background (µg/m ³)	Ambient Standard (µg/m ³)
	UTM East (m)	UTM North (m)			
Approved Project- Truck Hauling Option	530,495	4,449,132	9.57	11.95	15
Approved Project- Conveyor Option	530,488	4,444,919	9.15	11.53	15

¹ All coordinates in UTM projection, North American Datum 1983.

Source: Enviroscientists 2010a.

Ore Transport to and Processing at Goldstrike

As described in Section 2.4.6 of the Cortez Hills Expansion Project Final EIS (BLM 2008a), CGM estimates a continued annual projected shipping rate of refractory ore from the Cortez Gold Mines Operations Area (Cortez) to the Barrick Goldstrike Mine (Goldstrike) of approximately 400,000 tons per year (tpy). The Goldstrike mill is located on private land approximately 70 miles north of the Cortez Hills Expansion Project. The refractory ore sent to Goldstrike for processing would be processed through either the existing roasters or the autoclaves.

Ore Transport to Goldstrike. Emissions of criteria pollutants regulated under NAAQS for the truck traffic associated with transporting refractory ore from Cortez to Goldstrike were evaluated on a round-trip basis. The total potential emissions as a result of tailpipe emissions and fugitive dust from paved and unpaved road surfaces were analyzed. The emissions along the truck route were evaluated in six separate sections to reflect the change in road surface and truck speed. The six road sections include the dirt road that exits the Cortez property, Cortez access road, State Route 306, Interstate 80, State Route 766, and the Goldstrike dirt road that enters the Goldstrike Mine property.

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The haul trucks are expected to average 23 tons per load. In the analysis, the hauling of 400,000 tpy of material assumes an average of 94 trucks per day for 45 weeks per year. The hauling is assumed to occur over a 12-year period, with varying amounts of ore coming from the Cortez Complex and Pipeline Complex annually. The emissions inventory uses an annual percentage from each site based on a 10-year average.

Combustion emission factors for PM₁₀, PM_{2.5}, NO_x, carbon monoxide (CO), and SO₂, were derived from the USEPA Mobile 6 model (USEPA 2004b). The potential fugitive dust emissions, PM₁₀ and PM_{2.5}, for paved and unpaved roads were calculated using USEPA AP-42 factors (Enviroscientists 2010b).

Fugitive dust emissions from hauling refractory ore from Cortez to Goldstrike are estimated to be approximately 18.5 tpy of PM₁₀ and 3.9 tpy of PM_{2.5}. Emissions of other criteria pollutants are estimated to include 9.1 tpy of CO, 25 tpy of NO_x, and 0.44 tpy of SO₂ (Enviroscientists 2010b). Due to the travel distance involved, concentrations of fugitive dust from paved and unpaved roads and tail pipe emissions from haul trucks would be unlikely to cause a violation of NAAQS for PM₁₀, PM_{2.5}, CO, NO_x, or SO₂.

Ore Processing at Goldstrike.

PM_{2.5}. PM_{2.5} emission inventories were developed by Air Sciences Inc. (2010a) for analyzing the impacts of the processing of Cortez refractory ore at Goldstrike using USEPA AP-42 emission factors and site-specific operational data. Similarly, PM_{2.5} emission inventories were developed for the total ore (Cortez and Goldstrike) processed at Goldstrike in order to assess PM_{2.5} emissions associated with processing Cortez refractory ore relative to total PM_{2.5} emissions associated with Goldstrike operations.

The PM_{2.5} emissions, including fugitive and process emissions, from processing Cortez refractory ore at Goldstrike for 2010 through 2021 are shown in **Table 3.10-6**. The projected process emissions were split into emissions from sources that process autoclave ore only (autoclave sources), sources that process roaster ore only (roaster sources), and downstream sources that process a combined ore stream (downstream combined sources). It is estimated that from 2010 to 2021 the PM_{2.5} emissions from processing Cortez refractory ore at Goldstrike would range from 8.01 to 8.53 tpy.

Table 3.10-7 shows the projected PM_{2.5} emissions from the total ore processed at Goldstrike relative to the projected PM_{2.5} emissions from processing Cortez refractory ore at Goldstrike for 2010 through 2021. Based on this assessment, the projected total PM_{2.5} emissions from Goldstrike would range from 108.61 to 155.25 tpy, with Cortez refractory ore contributing between 5.3 and 7.7 percent of the total PM_{2.5} emissions. Therefore, the emissions associated with Cortez refractory ore processing at Goldstrike would be a relatively small portion of the total emissions and would not cause or contribute to a violation of PM_{2.5} NAAQS.

**Table 3.10-6
Estimated PM_{2.5} Emissions from Processing Cortez Refractory Ore at Goldstrike for 2010 through 2021**

Year	Cortez Refractory Ore Throughput (tpy)			Cortez Refractory Ore PM _{2.5} Emissions (tpy)				
	Autoclave Sources	Roaster Sources	Downstream Combined Sources	Autoclave Sources	Roaster Sources	Downstream Combined Sources	Fugitive Sources	Total
2010	40,000	360,000	400,000	0.75	5.44	1.06	0.91	8.16
2011	140,000	260,000	400,000	2.64	3.93	1.06	0.91	8.53
2012	100,000	300,000	400,000	1.89	4.53	1.06	0.91	8.38
2013	100,000	300,000	400,000	1.89	4.53	1.06	0.91	8.38
2014	100,000	300,000	400,000	1.89	4.53	1.06	0.91	8.38
2015	0	400,000	400,000	0.00	6.04	1.06	0.91	8.01
2016	0	400,000	400,000	0.00	6.04	1.06	0.91	8.01
2017	0	400,000	400,000	0.00	6.04	1.06	0.91	8.01
2018	0	400,000	400,000	0.00	6.04	1.06	0.91	8.01
2019	0	400,000	400,000	0.00	6.04	1.06	0.91	8.01
2020	0	400,000	400,000	0.00	6.04	1.06	0.91	8.01
2021	0	400,000	400,000	0.00	6.04	1.06	0.91	8.01

Source: Air Sciences Inc. 2010a.

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Table 3.10-7
Estimated PM_{2.5} Emissions from Processing Refractory Ore at Goldstrike for 2010 through 2021

Year	Total Throughput (tpy)	Total PM _{2.5} Emissions (tpy)	Cortez PM _{2.5} Emissions (tpy)	Cortez Percent (percent)
2010	6,859,212	155.25	8.16	5.3
2011	6,727,067	152.26	8.53	5.6
2012	4,798,774	108.61	8.38	7.7
2013	4,981,560	112.75	8.38	7.4
2014	5,045,295	114.19	8.38	7.3
2015	5,123,179	115.96	8.01	6.9
2016	5,123,996	115.98	8.01	6.9
2017	5,098,703	115.40	8.01	6.9
2018	5,050,342	114.31	8.01	7.0
2019	5,047,101	114.23	8.01	7.0
2020	5,055,431	114.42	8.01	7.0
2021	5,013,669	113.48	8.01	7.1

Source: Air Sciences Inc. 2010a.

Criteria Pollutants. The Betze Pit Expansion Project Draft EIS (BLM 2008c) addressed the potential impacts from PM₁₀, SO₂, NO_x, and CO emissions from Goldstrike. These impacts are shown in **Table 3.10-8** along with the NAAQS. Based on the EIS analysis, the total impacts from Goldstrike would be below the NAAQS for all pollutants.

Table 3.10-8
Modeled Criteria Pollutant Concentrations from Goldstrike

Pollutant	Total Modeled Concentrations (µg/m ³)	NAAQS (µg/m ³)
24-hour PM ₁₀	16.65	150
Annual PM ₁₀	10.62	50
3-hour SO ₂	13.03	1,300
24-hour SO ₂	2.94	365
Annual SO ₂	0.4	80
Annual NO ₂	0.83	100
1-hour CO	216.49	40,000
8-hour CO	38.25	10,000

Source: Air Sciences Inc. 2010b.

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The emission of criteria pollutants from the processing of Cortez ore at Goldstrike was estimated by Air Sciences Inc. (2010b) based on the amount of Cortez refractory ore that would be processed relative to the total ore processed at Goldstrike. For example, Goldstrike is projected to process a total of approximately 6,859,000 tons of ore in 2010. Cortez would send Goldstrike 400,000 tons of refractory ore annually, which would account for approximately 5.8 percent of the total ore processed at Goldstrike in 2010. Therefore, it is anticipated that the emissions attributable to Cortez refractory ore processing would be approximately 5.8 percent of the total emissions of criteria pollutants as shown in **Table 3.10-9**.

Table 3.10-9
Cortez Refractory Ore as a Percent of Total Goldstrike Throughput for 2010 through 2021

Year	Ore Throughput (tpy)		Cortez Refractory Ore as Percent of Total
	Total	Cortez	
2010	6,859,212	400,000	5.8
2011	6,727,067	400,000	5.9
2012	4,798,774	400,000	8.3
2013	4,981,560	400,000	8.0
2014	5,045,295	400,000	7.9
2015	5,123,179	400,000	7.8
2016	5,123,996	400,000	7.8
2017	5,098,703	400,000	7.8
2018	5,050,342	400,000	7.9
2019	5,047,101	400,000	7.9
2020	5,055,431	400,000	7.9
2021	5,013,669	400,000	8.0

Source: Air Sciences Inc. 2010b.

The percent attributable to Cortez refractory ore would vary annually based on the total amount of ore processed at Goldstrike. **Table 3.10-9** shows the estimated percent of the total ore processed at Goldstrike that would be attributed to processing Cortez ore for 2010 through 2021. Based on this evaluation, the processing of 400,000 tons of Cortez ore annually is anticipated to contribute between 5.8 and 8.3 percent of the total ore processed and a corresponding percent of the total emissions from Goldstrike shown in **Table 3.10-8**. Based on this analysis, emissions of criteria pollutants at Goldstrike due to Cortez refractory ore processing would not cause or contribute to a violation of NAAQS.

Hazardous Air Pollutant Emissions. The Betze Pit Expansion Project Draft EIS (BLM 2008c) provided the 2006 HAP emissions inventory for Goldstrike. The inventory showed a total of 7.96 tpy of HAP emissions from Goldstrike. Based on 400,000 tpy of Cortez refractory ore compared to the total tpy of ore processed at Goldstrike, it is estimated that the Cortez refractory ore would contribute between 5.8 and 8.3 percent of the total ore processed (**Table 3.10-9**) and a corresponding percent of the total HAP emissions (0.46 to 0.66 tpy) (Air Sciences Inc. 2010b).

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This analysis provides a conservatively high estimate of HAP emissions from Cortez refractory ore, because it assumes that the total HAP emissions would remain constant each year. However, as shown in **Table 3.10-9**, the total ore processed at Goldstrike generally would be reduced from current levels, with a corresponding decline in total HAP emissions.

The Air Sciences Inc. (2010b) analysis also assumed that processing 1 ton of Cortez refractory ore would result in the same emissions as processing 1 ton of Goldstrike ore. This is a conservative approach because the 2006 HAP emissions inventory for Goldstrike reflects both the mining and processing of ore at the site, whereas the Cortez ore only would contribute to the processing-related HAP emissions at Goldstrike.

Based on this conservative analysis, HAP emissions at Goldstrike would not be anticipated to increase as a result of the processing of 400,000 tpy of Cortez refractory ore. Therefore, the combined HAP emissions at Goldstrike would remain well below the major source limit of 25 tpy.

Mercury Emissions. The projected mercury emissions from processing ore at Goldstrike was estimated by Air Sciences Inc. (2010c) based on Goldstrike's most recent mercury stack test results and the most recent hours of operational data. An estimate of mercury emissions associated with processing Cortez refractory ore at Goldstrike was made by Air Sciences Inc. (2010c) based on the amount of Cortez refractory ore and its mercury concentration relative to the total volume of ore processed at Goldstrike and its mercury concentration.

The Betze Pit Expansion Project Draft EIS (BLM 2008c) included an analysis of mercury deposition impacts associated with ore processing at Goldstrike based on an estimate of Goldstrike's mercury emissions. An allocation of mercury deposition impacts associated with processing Cortez refractory ore at Goldstrike was made by Air Sciences Inc. (2010c) based on the estimated mercury emissions associated with processing Cortez refractory ore at Goldstrike relative to the estimate of Goldstrike's mercury emissions used in the Betze EIS analysis of mercury deposition impacts.

Mercury Emissions Apportioned by Throughput. Based on the most recent stack test results representative of future operations at Goldstrike and the hours of operation data for 2009 (which provide a conservatively high estimate of future utilization) for operation of the Goldstrike roasters and autoclaves, the total annual mercury emissions for 2009 from ore processing at Goldstrike are projected to be 378 pounds per year (lb/yr). This estimate was based on the processing of a total of 6,859,000 tons of ore at Goldstrike in 2009. The mercury emissions from processing Cortez refractory ore at Goldstrike was estimated by Air Sciences Inc. (2010c) based on the amount of Cortez ore processed relative to the total ore processed at Goldstrike.

Goldstrike is projected to process a total of approximately 6,859,000 tons of ore in 2010, which is the current maximum projected annual production through the end of the mine life. In 2010, of the total ore processed, Goldstrike plans to process approximately 4,914,000 tons through the roasters and approximately 1,945,000 tons through the autoclaves. CGM plans to continue to send 400,000 tons of refractory ore to Goldstrike annually for processing through either the roasters or autoclaves, depending on the type of refractory ore. In 2010, 40,000 tons of the Cortez refractory ore is planned to be processed in the autoclaves and 360,000 tons is planned to be processed in the roasters at Goldstrike.

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The 2010 annual mercury emissions associated with processing Goldstrike ore and Cortez refractory ore are apportioned by annual throughput. For example, 400,000 tons of Cortez refractory ore is 5.8 percent of the total (6,859,000 tons) ore processed at Goldstrike. The retorts are estimated to have a total of 12.6 lb/yr of mercury emissions, with 5.8 percent (0.7 lb/yr) attributed to the Cortez ore; 94.2 percent (11.9 lb/yr) are attributed to the Goldstrike ore.

Mercury Emissions Apportioned by Mercury Content. For each emission unit, the mercury emissions attributed to Cortez refractory ore were apportioned based on the average mercury content of the Cortez ore processed by the unit relative to the average mercury content of the Goldstrike ore processed by the unit. Assuming a linear increase in emissions with an increase in ore, mercury concentration provides a conservatively high estimate of mercury emissions. The estimated 2010 annual mercury emissions were apportioned by ore mercury concentration from processing Cortez refractory ore at Goldstrike. **A sample calculation follows:**

Based on the total of 1,944,714 tpy of ore processed in the Goldstrike autoclaves, the relative amounts of ore processed are 1,904,714 tpy of Goldstrike ore and 40,000 tpy of Cortez refractory ore. The 40,000 tpy represents 2.06 percent of the total ore processed. The total estimated mercury emissions associated with the processing of this ore are 25.2 lb/yr, of which an estimated 0.52 lb/yr are associated with the Cortez refractory ore (25.2 X 2.06 percent), and 24.68 lb/yr are associated with Goldstrike ore. The mercury content of the Cortez refractory ore processed in the autoclaves is 245.0 ppm, compared with 16.4 ppm for the Goldstrike ore. Therefore, if the emissions from the Cortez refractory ore are scaled by a factor of 245.0/16.4, or 14.94, then the amount of mercury emitted in the Goldstrike autoclaves from the Cortez refractory ore would be 0.52 x 14.94, which is approximately 7.77 lb/yr.

Mercury Emissions Estimate for 2010 through 2021. Estimated mercury emissions from the processing of Cortez refractory ore at Goldstrike for years 2010 through 2021 are shown in **Table 3.10-10**. The emissions from Cortez refractory ore processing for 2011 through 2021 were calculated based on the emission estimation described above and adjusted to account for the differences in the quantity and the mercury concentration of the Cortez ore planned to be processed in the roasters and autoclaves in each of those years. **Table 3.10-10** also shows the projected percentage that the Cortez ore emissions would represent of the total mercury emissions.

Mercury Deposition. Relative contributions of mercury deposition from Nevada gold mining operations and other local, regional, and global sources to watersheds located in Nevada are based on USEPA computer simulation modeling using the Regional Modeling System for Aerosols and Deposition (REMSAD) model. The REMSAD results are used to quantify contributions of specific sources and source categories to mercury deposition within each of the lower 48 states (USEPA 2006).

The REMSAD model is designed to calculate the concentrations of both inert and chemically reactive pollutants by simulating the physical and chemical processes in the atmosphere that affect the pollutants. The model is designed to simulate the chemical transfer of mercury mass from one form (particulate, divalent gaseous, and elemental) to another. REMSAD simulates both wet and dry deposition of mercury.

**Table 3.10-10
Estimated Mercury Emissions from Processing Cortez Refractory Ore at Goldstrike for 2010 through 2021**

Year	Autoclave		Roaster		Total		Cortez Refractory Ore Mercury Emissions (lb/yr)	Percent of REMSAD
	Throughput (tpy)	Mercury Concentration ¹ (ppm)	Throughput (tpy)	Mercury Concentration ¹ (ppm)	Throughput (tpy)	Mercury Concentration ¹ (ppm)		
2010	40,000	245.0	360,000 ²	35.0	400,000	56.0	76.2	13.0
2011	140,000	324.0	260,000 ²	57.4	400,000	150.7	135.0	23.0
2012	100,000	177.0	300,000	177.0	400,000	177.0	290.0	49.3
2013	100,000	80.0	300,000	80.0	400,000	80.0	131.1	22.3
2014	100,000	80.0	300,000	80.0	400,000	80.0	131.1	22.3
2015	0	N/A	400,000	80.0	400,000	80.0	160.6	27.3
2016	0	N/A	400,000	80.0	400,000	80.0	160.6	27.3
2017	0	N/A	400,000	80.0	400,000	80.0	160.6	27.3
2018	0	N/A	400,000	80.0	400,000	80.0	160.6	27.3
2019	0	N/A	400,000	80.0	400,000	80.0	160.6	27.3
2020	0	N/A	400,000	80.0	400,000	80.0	160.6	27.3
2021	0	N/A	400,000	80.0	400,000	80.0	160.6	27.3

¹ Mercury concentrations are an average of the Cortez Hills Complex and Pipeline Complex refractory ore mercury content, weighted by throughput.

² 340,000 of those tons in 2010 and 230,000 of those tons in 2011 would be shipped from CGM's Pipeline Pit as authorized by the 2005 Pipeline/South Pipeline Expansion Project ROD.

Source: Air Sciences 2010c.

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Wet deposition occurs as a result of precipitation scavenging during rain or snow storms. Dry deposition is calculated for each mercury species based on land use characteristics and meteorological parameters. REMSAD also includes re-emission of previously deposited mercury originating from anthropogenic and natural sources into the atmosphere from land and water surfaces.

The USEPA REMSAD modeling domain encompassed the continental U.S. and portions of Canada and Mexico, with a 12-km horizontal grid resolution over the entire U.S. portion of the domain. The model utilized 2001 meteorological data files with a 36-km horizontal resolution. The AggreGATOR program was developed as a tool for overlaying the model output grid from the USEPA REMSAD modeling to any polygon of interest (e.g., a hydrologic boundary or state boundary). The AggreGATOR program allows the results from the USEPA REMSAD modeling to be analyzed in a customized fashion to assess mercury deposition contributions from specific sources and categories of sources at specified areas (e.g., watersheds) within the model domain.

The AggreGATOR program incorporates the REMSAD 12-km grid cell output data and aggregates the data so that it can be viewed for an entire watershed or state. The watersheds defined by the AggreGATOR program for Nevada typically include 30 to 60 REMSAD grid cells. The AggreGATOR program allows the user to specify:

- The target area (watershed, group of watersheds, entire state, etc.);
- The source or group of sources for the denominator (usually all the sources including global background are selected); and
- The source or group of sources for the numerator.

The AggreGATOR program calculates the relative percentage of deposition from the source(s) selected for the numerator to the deposition from the source(s) selected for the denominator within the target area.

In the Betze Pit Expansion Project Draft EIS (BLM 2008c), the analysis of mercury deposition from Goldstrike was based on the 2007 version of the USEPA REMSAD modeling. ***Inputs (and outputs) for the REMSAD modeling are documented in USEPA Office of Water, Model-Based Analysis and Tracking of Airborne Mercury Emissions to Assist in Watershed Planning, November 30, 2006 (USEPA 2006). All inputs and REMSAD analyses were performed by USEPA and its contractors. The inputs for Goldstrike may be found on page 7-7 of the USEPA (2006) report and also are shown in Table 3.10-11.***

**Table 3.10-11
REMSAD Emission Input Parameters for Goldstrike**

Source Name	Mercury Emissions ¹ (tpy)		
	Hg ₀	Hg ₂	Hg _P
Barrick Goldstrike	0.266	0.020	0.008

¹ Hg₀ = elemental mercury.
Hg₂ = methylmercury.
Hg_P = particle bound mercury.

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The total mercury emissions modeled for Goldstrike in the 2007 REMSAD modeling were 588 lb/yr based on an estimate of Goldstrike's 2006 mercury emissions. Air Sciences Inc.'s (2010c) estimated mercury deposition associated with processing Cortez refractory ore at Goldstrike by assuming that those deposition impacts would be in direct proportion to the mercury emissions associated with processing Cortez **refractory** ore at Goldstrike compared to the total emissions modeled.

As shown in **Table 3.10-10**, the highest projected mercury emissions from processing Cortez **refractory** ore at Goldstrike are 290.0 lb/yr. This value was used to provide a maximum estimate of mercury deposition impacts associated with processing Cortez refractory ore at Goldstrike. Since 290.0 lb/yr represents 49.3 percent of the total Goldstrike mercury emissions used in the REMSAD modeling (588 lb/yr), it was estimated that the mercury deposition from processing Cortez ore at Goldstrike would account for approximately 49.3 percent of the total depositional impact attributed to the mercury emissions modeled for Goldstrike.

Figure 3.11-3 in the Betze Pit Expansion Project Draft SEIS (BLM 2008c), shows modeled mercury deposition impacts from the Goldstrike Mine. The maximum deposition occurs northeast of the grid cell containing the Goldstrike Mine. In 2012, Cortez refractory ore processing at Goldstrike would have mercury emissions equal to approximately 49 percent of the modeled REMSAD value; therefore, it is reasonable to expect that the Cortez refractory ore processing in 2012 would represent approximately one-half of the impact shown in Figure 3.11-3 of the Betze Pit Expansion Project Draft SEIS (BLM 2008c).

Figure 3.11-4 in the Betze Pit Expansion Project Draft SEIS (BLM 2008c) shows the modeled mercury deposition for Goldstrike operations as a percentage of total modeled impacts. As shown in the figure, the REMSAD model calculated that Goldstrike's mercury emissions are predicted to contribute approximately 6 percent of the estimated total deposition close to the mine.

Fugitive Mercury Emissions. *Recent University of Nevada Reno (UNR) measurements of fugitive emissions of mercury from facilities at the Pipeline and Cortez mines have been used to estimate potential mercury emissions from processing Cortez refractory ore at the Goldstrike facilities (Eckley et al. 2010). As part of their field work, UNR collected field data and developed an estimate of 42.15 lb/yr for the existing facilities at Cortez (e.g., Pipeline and Cortez mines). UNR also measured the fugitive mercury flux for the Pipeline and Cortez mine facilities, with a flux of 165 $\mu\text{g}/\text{m}^2/\text{year}$ reported for the open pits (Eckley et al. 2010).*

The mercury emission rates developed from measurements at the Pipeline and Cortez mines are applicable to the materials mined at Cortez Hills because those materials originate in similar lithologies with similar mercury concentrations (Geomega 2007a,b).

UNR measured fugitive mercury fluxes from Pipeline ores containing between 1.6 and 70 mg/kg mercury, with their reported flux based on an average ore mercury content of 16 mg/kg. The projected average mercury concentration in the refractory ore scheduled for shipment from Cortez to Goldstrike is approximately 80 mg/kg. This value is higher than the upper end of the range analyzed in the UNR study; however, UNR recognized a weak positive correlation between mercury concentration and fugitive emissions flux in their study, finding that measured fluxes were

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substantially more dependent on other factors such as material grain size, material moisture, and solar radiation.

Cortez refractory ore shipped to and processed at Goldstrike would be found at two Goldstrike locations:

- 1. An ore stockpile awaiting processing, and*
- 2. The tailings impoundment following processing.*

Assuming a 1-acre stockpile area for Cortez refractory ore at Goldstrike, the annual fugitive emissions based on a flux of 165 $\mu\text{g}/\text{m}^2/\text{year}$ would be 0.003 lb/yr. Adjusting the flux rate proportionately (i.e., 5 times) based on the higher mercury concentration of the Cortez refractory ore relative to the flux number reported in the UNR study results in projected annual emissions from the Cortez refractory ore stockpile at Goldstrike of approximately 0.015 pounds.

The rate of emissions from tailings is approximately the same for ores from Goldstrike and Cortez Hills since the thermal processes (roasting and autoclaving) reduce the mercury content in milled tailings compared to the feed ore. Mercury concentrations in Goldstrike tailings are approximately 3 mg/kg. In the UNR study of Pipeline tailings, the range of mercury concentrations reported was 1 to 5 mg/kg with an average value of approximately 3 mg/kg, which indicates that the tailings evaluated by UNR at Cortez have mercury concentrations comparable to the Goldstrike tailings. (Mercury concentrations in tailings are monitored and reported through Goldstrike's Water Pollution Control Permit [NEV91029].) The tailings flux rate of 12,866 $\mu\text{g}/\text{m}^2/\text{year}$ applied to the 600-acre Goldstrike tailings impoundment results in annual emissions of 31.26 kg, or 68.76 pounds. The Cortez fraction of the ore to be processed at the Goldstrike facility is approximately 8 percent; therefore, the mercury emissions attributable to Cortez tailings would be less than 6 lb/yr.

3.10.2.2 Proposed Action (in Cortez Hills Expansion Project Final EIS [BLM 2008a])

The Proposed Action is described in Section 2.4 of the Cortez Hills Expansion Project Final EIS (BLM 2008a). Based on the modeling and analysis conducted by Enviroscientists (2010a) for this alternative, potential $\text{PM}_{2.5}$ emissions from on-site activities would be slightly higher than those described for the approved Project; however, the emissions would be unlikely to cause a violation of the $\text{PM}_{2.5}$ NAAQS.

Under this alternative, the annual maximum tpy of Cortez refractory ore shipped to Goldstrike for off-site processing would be the same as under the approved Project. Therefore, air emissions of criteria pollutants (including $\text{PM}_{2.5}$), mercury, and other HAPs would be similar to those described for the approved Project. As a result, no exceedence of the NAAQS would be anticipated, and HAPs emissions, including mercury, would be anticipated to be below the major source limit of 25 tpy.

3.10.2.3 Grass Valley Heap Leach Alternative

The Grass Valley Heap Leach Alternative is described in Section 2.5.1.1 of the Cortez Hills Expansion Project Final EIS (BLM 2008a). The location of the Grass Valley Heap Leach Facility south of the Cortez

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

townsite under this alternative would result in different haulage distances and fence lines relative to the approved Project. Based on the modeling and analysis conducted by Enviroscientists (2010a) for the action alternatives, including the Grass Valley Heap Leach Alternative, potential PM_{2.5} emissions for on-site activities would be higher than those described for the approved Project and potentially would cause a violation of the PM_{2.5} NAAQS.

Under this alternative, the annual maximum tpy of Cortez refractory ore shipped to Goldstrike for off-site processing would be the same as under the approved Project. Therefore, air emissions of criteria pollutants (including PM_{2.5}), mercury, and other HAPs would be similar to those described for the approved Project. As a result, no exceedence of the NAAQS would be anticipated, and HAPs emissions, including mercury, would be anticipated to be below the major source limit of 25 tpy.

3.10.2.4 Crescent Valley Waste Rock Alternative

The Crescent Valley Waste Rock Alternative is described in Section 2.5.1.2 of the Cortez Hills Expansion Project Final EIS (BLM 2008a). The location of a waste rock facility in Crescent Valley, rather than in Cortez Canyon as per the approved Project, would result in different haulage distances, fence lines, and county road reconfiguration. Based on the modeling and analysis conducted by Enviroscientists (2010a) for the action alternatives, including the Crescent Valley Waste Rock Alternative, potential PM_{2.5} emissions for on-site activities would be higher than those described for the approved Project and potentially would cause a violation of the PM_{2.5} NAAQS.

Under this alternative, the annual maximum tpy of Cortez refractory ore shipped to Goldstrike for off-site processing would be the same as under the approved Project. Therefore, air emissions of criteria pollutants (including PM_{2.5}), mercury, and other HAPs would be similar to those described for the approved Project. As a result, no exceedence of the NAAQS would be anticipated, and HAPs emissions, including mercury, would be anticipated to be below the major source limit of 25 tpy.

3.10.2.5 Cortez Hills Complex Underground Mine Alternative

The Cortez Hills Complex Underground Mine Alternative is described in Section 2.5.1.3 of the Cortez Hills Expansion Project Final EIS (BLM 2008a). Under this alternative, surface facilities at the Cortez Hills Complex would not be developed, resulting in 4,843 fewer acres of surface disturbance than the approved Project, and only mill-grade ore would be mined. Although modeling was not conducted for this alternative, it is anticipated that potential PM_{2.5} emissions from on-site activities would be lower than those described for the approved Project based on the reduced surface disturbance and associated elimination of surface facilities (e.g., Cortez Hills Pit, three waste rock facilities, and heap leach facilities). Therefore, mining under this alternative would be unlikely to cause a violation of the PM_{2.5} NAAQS.

Under this alternative, the annual maximum tpy of Cortez refractory ore shipped to Goldstrike for off-site processing would be the same as under the approved Project. Therefore, air emissions of criteria pollutants (including PM_{2.5}), mercury, and other HAPs would be similar to those described for the approved Project. As a result, no exceedence of the NAAQS would be anticipated, and HAPs emissions, including mercury, would be anticipated to be below the major source limit of 25 tpy.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.10.2.6 No Action Alternative

The No Action Alternative is described in Section 2.5.1.5 of the Cortez Hills Expansion Project Final EIS (BLM 2008a). Under this alternative, previously approved operations at CGM’s Pipeline/South Pipeline Project would continue; none of the operations proposed in the Cortez and Cortez Hills complexes would be conducted. Based on the modeling and analysis conducted by Enviroscientists (2010a) for the No Action Alternative, potential PM_{2.5} emissions from on-site activities would be lower than those described for the approved Project and would be unlikely to cause a violation of the PM_{2.5} NAAQS.

Under this alternative, the annual maximum tpy of refractory ore shipped to Goldstrike for off-site processing would be the same as under the approved Project. Therefore, air emissions of criteria pollutants (including PM_{2.5}), mercury, and other HAPs would be similar to those described for the approved Project. As a result, no exceedence of the NAAQS would be anticipated, and HAPs emissions, including mercury, would be anticipated to be below the major source limit of 25 tpy.

3.10.3 Cumulative Impacts

Cumulative air quality impacts for PM₁₀ and mercury are described in Section 3.10.3 of the Cortez Hills Expansion Project Final EIS (BLM 2008a). The cumulative PM_{2.5} impacts for the approved Project were evaluated based on model-predicted maximum 24-hour and annual concentrations of PM_{2.5} that were added to background concentrations of 24-hour and annual monitored values.

The cumulative analysis for PM_{2.5} utilized the conservative screening-level analysis described in the USEPA guidance for compliance with the 24-hour PM_{2.5} NAAQS (USEPA 2010a). This guidance recommends that the monitored 24-hour design value be added to the maximum modeled 24-hour average concentration. The monitored design value is defined as the 3-year average of the 98th percentile 24-hour average PM_{2.5} concentration. The cumulative analysis assumed that the monitored background design values account for other air quality sources in the region; the analysis used the 24-hour background value of 6.79 µg/m³. Adding the maximum 24-hour modeled value to the background yields a conservative value of 34.34 µg/m³, as shown in **Table 3.10-12**.

**Table 3.10-12
Cumulative PM_{2.5} Air Pollutant Concentrations with the Approved Project**

Averaging Time	Highest Modeled Receptor Location ¹		Dispersion Modeling Results (µg/m ³)	Dispersion Modeling Results with Background (µg/m ³)	NAAQS (µg/m ³)
	UTM East (m)	UTM North (m)			
24-hour	530,533	4,449,278	27.55	34.34	35
Annual	530,495	4,449,132	9.57	11.95	15

¹ All coordinates in UTM projection, North American Datum 1983.

Source: Enviroscientists 2010a.

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The screening-level analysis described in the USEPA guidance (USEPA 2010a) for compliance with the annual PM_{2.5} NAAQS recommends that the monitored annual design value be added to the maximum modeled annual average concentration. The “annual design value” is determined from a 3-year average of the annual average PM_{2.5} concentrations based on monitored data. The cumulative analysis assumes that the monitored background design values account for other air quality sources in the region; the analysis used the annual background value of 2.38 µg/m³. Adding the maximum annual modeled value to the annual design value background yields a conservative cumulative PM_{2.5} level of 11.95 µg/m³ as shown in

Table 3.10-10.

Cumulative PM_{2.5} impacts under the No Action Alternative are anticipated to be lower than under the approved Project. Cumulative PM_{2.5} impacts under the other action alternatives would be higher or lower (depending on the alternative) than under the approved Project. The Grass Valley Heap Leach Alternative and Crescent Valley Waste Rock Alternative would have higher PM_{2.5} emissions than the approved Project; these alternatives potentially would result in cumulative impacts that contribute to a violation of the NAAQS for PM_{2.5}.

Off-site processing of Cortez refractory ore would vary each year but would contribute between 5.8 and 8.3 percent of the total annual PM_{2.5} emissions from ore processing at Goldstrike. A conservative screening-level analysis of PM_{2.5} impacts is made by assuming modeled impacts of PM₁₀ are all PM_{2.5} and adding background levels to compare the total to NAAQS. This conservative approach indicates that annual cumulative PM_{2.5} impacts would be less than 13.0 µg/m³, and 24-hour cumulative PM_{2.5} impacts would be 23.44 µg/m³. Therefore, no violation of the PM_{2.5} NAAQS would be anticipated.

A conservative estimate of cumulative impacts due to processing Cortez refractory ore at Goldstrike is shown in the concentrations of the other modeled criteria pollutants in **Table 3.10-8**. The impact attributed to Cortez refractory ore processing at Goldstrike is a small percentage, less than 5 percent, of these total impacts.

The 2006 HAP emission inventory for Goldstrike, addressed in the Betze Pit Expansion Project EIS (BLM 2008c), shows a total of 7.96 tons per year of HAP emissions and represents cumulative impacts of processing refractory ore at Goldstrike. Cortez refractory ore would contribute between 5.8 and 8.3 percent of these total HAP emissions (0.46 to 0.66 tons per year) at Goldstrike. Mercury emissions from ore processing and the associated cumulative impacts were discussed in Section 3.10.3 of the Cortez Hills Expansion Project Final EIS (BLM 2008a).

BLM also has evaluated potential cumulative impacts to include consideration of fugitive mercury emissions. The USEPA’s REMSAD model used for evaluating cumulative impacts assumed an annual emission of 266 lb/yr of mercury from the Cortez Mine and 588 lb/yr from the Goldstrike Mine. The Cortez Hills Expansion Project Final EIS (BLM 2008a) included an estimate of 167 pounds of mercury from thermal sources of mercury in 2006 and noted that with the addition of anticipated controls, annual mercury emissions were expected to decrease. Reported thermal unit emissions for 2008 and 2009 were less than 76 lb/yr (NDEP 2010, 2009b). Therefore, addition of the estimated 69.37 pounds of fugitive emissions from Cortez to the point source emissions of 76 pounds in 2008

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and 2009 results in total emissions of 146 pounds of mercury, which is less than the 266 pounds used in the USEPA model.

For Goldstrike, annual mercury emissions from thermal units are estimated at 378 lb/yr (Air Sciences Inc. 2010c). Based on more recent testing conducted in 2010, emissions from Goldstrike thermal units are estimated to be 319 lb/yr (Air Sciences Inc. 2010d). As calculated above, fugitive emissions from the Goldstrike tailings facility are estimated to be approximately 68.86 pounds. Applying the UNR emission rates derived from the Cortez facility to other non-tailings facilities at Goldstrike as authorized by the Betze Pit Expansion Project Draft EIS (BLM 2008c) (Table 2-10) results in estimated annual emissions from those facilities of approximately 12.54 pounds. That estimate includes 2.73 pounds from ancillary/reclaimed area, 6.46 pounds from waste rock facilities, 0.60 from the reclaimed leach pad, 0.68 pounds from the stockpile areas, and 2.08 pounds from the open pit. The total of reported and estimated emissions remains well below the 588 pounds used in the USEPA model. Therefore, the emission sources utilized in the USEPA REMSAD modeling remain conservative representations of total emissions from the Cortez and Goldstrike facilities. As a result of the installation of controls and continued implementation of the Nevada Mercury Control Program, it is anticipated that point source mercury emissions would continue to decrease over time for both the Cortez and Goldstrike mines.

All criteria pollutant levels are expected to meet NAAQS, resulting in very low cumulative impacts as a result of the approved Project. Mercury impacts and other HAP emissions are expected to be the same as discussed in the Cortez Hill Expansion Project Final EIS (BLM 2008b).

Off-site transport of refractory ore would increase PM_{2.5} levels along the transport route; however, the level of emissions spread over these distances likely would not cause or contribute to a violation of NAAQS. Off-site transport of refractory ore also would cause a slight increase in PM_{2.5} impacts in the vicinity of the Goldstrike ore processing facility but would not cause a violation of NAAQS.

3.10.4 Monitoring and Mitigation Measures

Monitoring and mitigation measures are discussed in Section 3.10.4 of the Cortez Hills Expansion Project Final EIS (BLM 2008a).

3.10.5 Residual Adverse Impacts

Residual adverse impacts are discussed in Section 3.10.5 of the Cortez Hills Expansion Project Final EIS (BLM 2008a).

4.0 PUBLIC COORDINATION

4.1 Public Participation and Scope of the SEIS

The public participation program for the Cortez Hills Expansion Project EIS includes an open forum for determining the scope of issues to be addressed in the assessment.

The BLM published a NOI to prepare a EIS in the Federal Register on July 16, 2010 (Federal Register Volume 75, Number 136).

As described in Chapter 1.0, the BLM elected to prepare this SEIS after the U.S. Court of Appeals for the Ninth Circuit issued a decision on December 3, 2009, which found that plaintiffs South Fork Band Council of Western Shoshone of Nevada, Timbisha Shoshone Tribe, Great Basin Resource Watch, and Western Shoshone Defense Project were likely to succeed on the merits of their challenge with respect to two specific analyses in the Final EIS for this project. The scope of this SEIS includes refined analyses of the potential air quality impacts of the off-site transportation to and processing of Cortez refractory ore at the existing Goldstrike Mine and the effectiveness of mitigation measures for potential impacts to surface water resources from mine-related groundwater drawdown. The results of modeling of PM_{2.5} emissions from the Cortez Hills Expansion Project also are included in this SEIS.

4.2 Native American Consultation

Native American consultation for the original Cortez Hills Expansion Project EIS has been ongoing. The BLM sent a letter to Native American groups on August 4, 2010, advising them of the preparation of this SEIS. **Table 4-1** lists Native American groups contacted throughout the consultation process and the dates on which the BLM has exchanged dialogue from February 2009 through early July 2010. Additional details of ongoing consultation with area tribes, tribal groups, and their representatives are maintained in the BLM consultation records for this project; this information is considered confidential.

Table 4-1
Native American Contact List
(February 13, 2009 through July 7, 2010)

Name of Tribe or Other Group	Date of Contact
Yomba Shoshone Tribe	March 1, 2010 September 21, 2009 September 15, 2009 September 1, 2009 July 15, 2009 June 9 and 11, 2009 June 8, 2009 February 13, 2009

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Table 4-1 (Continued)

Name of Tribe or Other Group	Date of Contact
Battle Mountain Band of the Te-Moak Tribe of Western Shoshone	March 1, 2010 September 23, 2009 September 3, 2009 September 2009 (Newsletter) August 2009 (Newsletter) July 30, 2009 July 15, 2009 June 9 and 11, 2009 April 27, 2009
Big Smoky Valley Shoshone	March 1, 2010 July 15, 2009 June 9 and 11, 2009
South Fork Band of the Te-Moak Tribe of Western Shoshone	September 22, 2009 September 8, 2009 July 15, 2009 June 9 and 11, 2009
Wells Band of the Te-Moak Tribe of Western Shoshone	July 15, 2009 June 9 and 11, 2009
Elko Band of the Te-Moak Tribe of Western Shoshone	September 9, 2009 July 15, 2009 June 9 and 11, 2009 March 16, 2009 March 11, 2009
Te-Moak Tribe of the Western Shoshone	July 7, 2010 September 9, 2009 June 24, 2010 August 19, 2009 August 5, 2009 July 15, 2009 June 9 and 11, 2009 June 8, 2009 May 12, 2009 April 27, 2009 April 23, 2009 April 21 and 22, 2009 April 20, 2009 April 15 and 16, 2009 April 14, 2009 April 13, 2009 April 6, 7, and 8, 2009 March 19, 2009 March 18, 2009 March 16, 2009 March 9, 2009
Duckwater Shoshone Tribe	March 1, 2010 September 23, 2009 September 2, 2009 July 15, 2009 June 9 and 11, 2009
Duck Valley Shoshone-Paiute Tribes of Idaho and Nevada	September 14, 2009 August 31, 2009 July 15, 2009 June 9 and 11, 2009 March 18, 2009

Table 4-1 (Continued)

Name of Tribe or Other Group	Date of Contact
Ely Shoshone Tribe	September 8, 2009 July 15, 2009 June 9 and 11, 2009
Timbisha Shoshone Tribe	July 15, 2009 June 9 and 11, 2009
Western Shoshone Defense Project	July 15, 2009 June 9 and 11, 2009 April 14, 2009 April 6, 2009
Western Shoshone Committee of Duck Valley	July 15, 2009 June 9 and 11, 2009 April 18, 2009 April 6, 7, and 8, 2009 March 25, 2009 March 20, 2009 March 19, 2009 March 18, 2009 March 9, 2009 March 4, 2009

Source: BLM 2010.

4.3 List of Contacts

While preparing the SEIS for the Cortez Hills Expansion Project, the BLM communicated with, and received input from, various federal and state agencies and tribal and private organizations. The following sections list these contacts.

4.3.1 Federal Agencies

U.S. Environmental Protection Agency

4.3.2 State Agencies

Nevada Department of Wildlife
Nevada Division of Environmental Protection

4.3.3 Tribal and Other Organizations

Recent contacts with these organizations are listed in **Table 4-1**.

4.0 PUBLIC COORDINATION

4.4 List of Agencies, Organizations, and Persons to Whom Copies of this Statement are Sent

4.4.1 Federal Agencies

Bureau of Land Management, Carson City District
Bureau of Land Management, Elko District
Bureau of Land Management, Ely District
Bureau of Land Management, Las Vegas District
Bureau of Land Management, Pocatello District
Bureau of Land Management, Tonopah Field Office
Bureau of Land Management, Winnemucca District
U.S. Army Corp of Engineers, Reno, Nevada
U.S. Army Corps of Engineers, Sacramento, California
U.S. Department of Energy, Office of Environmental Compliance, Washington, DC
U.S. Department of the Interior, BLM, Office of Public Affairs, Washington, DC
U.S. Department of the Interior, OEPC, Washington, DC
U.S. Environmental Protection Agency, Washington, DC
U.S. Environmental Protection Agency, San Francisco, California
U.S. Fish and Wildlife Service, Reno, Nevada
U.S. Forest Service, Austin Ranger District
U.S. Forest Service, Tonopah Ranger District

4.4.2 State Agencies/Universities

Nevada State Clearinghouse/SPOC, Dept of Administration
Nevada Department of Agriculture
Nevada Department of Conservation and Natural Resources, Division of State Lands
Nevada Department of Minerals
Nevada Department of Transportation
Nevada Department of Wildlife, Elko, Nevada
Nevada Department of Wildlife, Las Vegas, Nevada
Nevada Department of Wildlife, Reno, Nevada
Nevada Division of Environmental Protection
Nevada Division of Environmental Protection, Bureau of Mining Regulation and Reclamation
Nevada Division of Forestry
Nevada State Historic Preservation Office, Carson City, Nevada
University of Nevada – Gund Ranch, Beowawe, Nevada
University of Nevada – Reno, Reno, Nevada

4.4.3 Elected Officials

John Carpenter, Assemblyman
John Ensign, U.S. Senator
Pete Goicoechea, Assemblyman
Jim Gibbons, Governor

John Marvel, Assemblyman
Harry Reid, U.S. Senator
Dean A. Rhoads, State Senator
Dina Titus, U.S. Representative

4.4.4 County and Local Agencies

Crescent Valley Town Board
Eureka County Commissioners
Elko Chamber of Commerce
Elko County Commissioners
Esmeralda County Commission
Eureka County Natural Resources Department
Greater Austin Chamber of Commerce
Humboldt County Commissioners
Humboldt River Basin Water Authority
Lander County Commissioners, Battle Mountain
Lander County Public Land Use Advisory Commission
Lander Economic Development Authority

4.4.5 Tribal Organizations

Battle Mountain Band Te-Moak Tribe of the Western Shoshone
Bureau of Indian Affairs, Eastern Nevada Agency
Duckwater Shoshone Tribe
Elko Band Te-Moak Tribe of the Western Shoshone
Ely Shoshone Tribe
Shoshone-Paiute Tribes of Duck Valley
South Fork Band Te-Moak Tribe of the Western Shoshone
Te-Moak Tribe of the Western Shoshone
Timbisha Shoshone Tribe
Wells Band Te-Moak Tribe of the Western Shoshone
Western Shoshone Committee of Duck Valley
Yomba Shoshone Tribe

4.4.6 Newspapers and Libraries

Battle Mountain Bugle
Colorado State University Libraries
Elko Daily Free Press
Eureka Sentinel
Humboldt Sun

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4.4.7 Organizations

Beatty Historical Museum Society
Commission for Preservation of Wild Horses
Committee for the High Desert
Earth Knowledge
EarthWorks
Eureka Sentinel Museum
Eureka Nuclear Waste Committee
Great Basin Resource Watch
MOSO RAC
Natural Resources Defense Council
Nevada Cattlemen's Association
Nevada Trappers Association
Railroad Symposium
Sierra Club, Toiyabe Chapter
The Fund for Animals
Western Mining Action Project
Western Shoshone Defense Project
Western Watersheds Project
WHOA
Wild Horse Preservation League
Wild Horse Wildness and Wildlife

4.4.8 Industry/Business

American Asphalt
AngloGold North America
Barrick Gold Corporation
Beatty Cattle Company LLC
Becker Realty
Broadbent & Associates, Inc.
C Ranches Inc.
Carter Cattle Company
Chiara Ranch
Coral Gold Resources
Cortez Gold Mines
Cortez Joint Venture DBA Dean Ranch
Crowell & Moring
Denver Mining Finance Co.
Doubek Hydrologic
ECM
EIP Associates
Florida Canyon Mine
Flying T Ranch

Geological & Environmental Consulting
Geothermal Associates
GIS Land Services
Glamis Gold Ltd.
Hecla Ventures Corporation
International Mining Services
JBR Environmental Consultants
Julian Tomera Ranches, Inc.
Kuipers and Associates
Lang Exploratory Drilling
Nevada Land and Resources Company
Nevada Mining Association
Newmont Exploration
Newmont Mining Corporation
Parsons, Behle & Latimer
Permits West Inc.
Plumb Line Mechanical
Railroad Symposium
Redi Services LLC
Resource Concepts Inc.
Romarco Minerals Inc.
Round Mountain Gold Corporation
Sage Engineering
Sansinena Ranch
Sierra Pacific Power Company
Summa Minerals
Summit Enviroolutions
Toiyabe Exploration Inc.
Truckee River Ranch
Twin Springs Ranch
Vogue Linen Supply
Weyerhaeuser Company

4.4.9 Individuals

Leon Abrams
Gary Adams
Donna Bailey
Marriah Banghart
Clay Baty
Mark Blair
Jack Broughton
Madaya and Shayne Burdine

Paul Burkett
Ann Carpenter
Joseph Carruthers
C. Joel Cashburn
Christopher Christie
Rex Cleary
Roy Clifford
Thomas Cope

4.0 PUBLIC COORDINATION

Joe Dahl	J. Locke
Ronald Damele	Sara Locke
Bruce Delaney	Robert Long
Brent Downey	Pat Lore
Al Drayton	Nancy Louden
Vickie Drenon	Corey Lucero
Barbara and Ken Dugan	Dave Mason
Dave Early	Rex Massey
Eden	Dorene McClure
Fred Etchegaray	Suzy McCoy
John Etchegaray	Robert McCracken
Leroy Etchegaray	Norman McKitrick
John and Ginger Fareio	Peter McKone
Julie Fishel	Richard Medley
Mary Fischer	Gale Mehrer
Malloy Foster	Diane Mihal
Aaron Foxworthy	John Minoletti
Theresa Gaiato	Robert Moran
Dawn Gann	Ken Moss
Joe Giraudo	Mike Musey
Donna Grill	Bob McCusker
Carl and Carole Hanks	Gary McGill
Ritonda Harding	Sheldon Morrison
Cynthia Harris	Marion Murphy
Rich Harrison	Jason New
Colleen Henderson	Henry Nye
Tuesday Henderson	Eric Oakes
Jerry Hepworth	Royal Orser
Felix and Merlene Ike	Adell and Norman Panning
Kevin Jackson	Durk Pearson
Bud Johns	Mark Pearson
Tara Johnson	Elaine Peterson
Walter Johnson	Earl Phillips
L.A. Jones	David Plummer
Bill and Peggy Kirkpatrick	Kenneth Reim
Lee Koch	Trish Rippie
Bill Kohlmoos	Dan Richards
David Knopp	Joe Rodriquez
Joseph Laravie	Bret Rosecrans
John Lemke	Brian Rowley
Frank Lewis	Paul Sadler
Ruby Lingelbach	Sam Sandoval
John Livermore	Andy Rainwater Sandvile

Mike Sansinena
Fritz Sawyer
Thom Seal
Jay Scott
Robert Shaw
Sandy Shaw
Diane Shelley
Wanda Shufiin
Marjorie Sill
Mark Simpson
Carl Slagowski
Gordon Sobering
Randy Spevak
Kevin Stills
Jason Sutherland
Beth Swartz
Edward Syrjala

Bill Templeton
Keith Testerman
Vernon Thompson
Ken Toulson
Wally Trapnell
Duane Tyree
Jose Vasquez
Ronie Waddell
Carol Wagner
Randy Walund
Fay Ward
Joan Whitney
Lois Whitney
Doug Wilson
Holly Wilson
Ed and Miriam Ylst

4.5 Public Comments and Responses

4.5.1 Draft SEIS Public Review

A 45-day public comment period for the Cortez Hills Expansion Project Draft SEIS commenced on August 20, 2010, with the publication of the Draft SEIS NOA in the Federal Register.

Two public meetings were held for the Draft SEIS; a meeting was held in Crescent Valley on September 14, 2010, and a meeting was held in Battle Mountain on September 15, 2010. A total of 18 people signed the sign-in sheets at the public meetings.

4.5.2 Draft SEIS Public Comments

The BLM received the following comments during the public comment period:

- **Agency comments**
 - **Federal agencies – 2**
 - **State agencies – 4**
- **Organizations – 2**
- **Businesses – 1**
- **Individuals – 26**
- **Form letters – 2,005**

Unique written comments are reproduced in Appendix A of this Final SEIS. Table A-1 in Appendix A lists each of the comment letters and the assigned comment letter number. Each comment is

4.0 PUBLIC COORDINATION

identified by a bracket and a letter prefix and comment reference number in the left margin. Unique individual letters are included. Individual letters were received from federal agencies (F), state agencies (S), organizations (O), a business (B), and individuals (I). The response to each comment accompanies the letter in the right margin and is identified by the reference number of the respective comment.

The BLM has addressed the form letters in the following manner:

- *Form letters with no substantive comments or written opinions added to the original form letter text have been treated as generic form letters. A copy of the original form letter and associated responses has been printed as letter E-001 in Appendix A; the names of the individuals who submitted this letter are listed in Table A-2 in Appendix A. Note that minor wording modifications are not considered substantive comments.*
- *Form letters with substantive comments or written opinions added to the original form letter text have been treated as individual letters, with response(s) provided for the additional comment(s). These letters have an “E” prefix in Appendix A.*

Each letter has been reviewed in its entirety and considered by the BLM in determining the BLM-preferred Alternative (Section 2.8) for the project.

6.0 REFERENCES

Air Sciences Inc. 2010a. Technical Memorandum: Impact of PM_{2.5} Emissions from Processing Ore from the Cortez Hills Expansion Project and Cortez Gold Mines Operations Area at the Barrick Goldstrike Mine. Prepared for K. Wolf, Barrick Cortez Mines and S. Schoen, Barrick Gold of North America. March 8, 2010.

_____. 2010b. Technical Memorandum: Impact of PM₁₀, SO₂, NO_x, CO and HAP Emissions from Processing Ore from the Cortez Hills Expansion Project and Cortez Gold Mines Operations Area at the Barrick Goldstrike Mine. Prepared for K. Wolf, Barrick Cortez Mines and S. Schoen, Barrick Gold of North America. March 5, 2010.

_____. 2010c. Technical Memorandum: Impact of Mercury Emissions from Processing Ore from the Cortez Hills Expansion Project and Cortez Gold Mines Operations Area at the Barrick Goldstrike Mine. Prepared for K. Wolf, Barrick Cortez Mines and S. Schoen, Barrick Gold of North America. March 9, 2010; **revised November 22, 2010.**

_____. **2010d. Technical Memorandum: Annual Mercury Deposition Summary for Nevada. Prepared for K. Wolf, Barrick Cortez Mines and S. Schoen, Barrick Gold of North America. October 26, 2010.**

_____. **2010e. Technical Memorandum: Estimated Annual Mercury Emissions from Goldstrike Thermal Sources. Prepared for S. Schoen, Barrick Gold of North America. November 22, 2010.**

American Conference of Governmental Industrial Hygienists (ACGIH). 2009. 2009 TLVs and BEIs Based on the Documentation of the Threshold Limit Values for Chemical Substances and Physical Agents of Biological Exposure Indices.

Barrick Cortez Inc. (BCI). 2010. Personal communication from G. Fennemore, BCI, to C. Worthington, Bureau of Land Management. December 16, 2010.

Bureau of Land Management (BLM). 2010. Email from C. Worthington to V. Randall, AECOM, Re: Cortez Hills Consultation/Communication/Coordination.

_____. 2008a. Cortez Hills Expansion Project Final EIS. BLM Battle Mountain Field Office, Battle Mountain, Nevada. September 2008.

_____. 2008b. Cortez Hills Expansion Project Record of Decision and Plan of Operations Amendment Approval. BLM Battle Mountain District, Battle Mountain, Nevada. November 2008.

_____. 2008c. BLM. 2008c. Betze Pit Expansion Project Draft Supplemental EIS. BLM Elko District Office, Elko, Nevada. August 2008.

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APPENDIX A
DRAFT SEIS PUBLIC COMMENTS AND RESPONSES

**Table A-1
Public Comment Letters**

Letter Number	Commenter
Federal Agencies	
F-001	USEPA
F-002	National Park Service, PWR
Nevada State Agencies	
S-001	State Historic Preservation Office
S-002	State Land Use Planning Agency
S-003	Nevada Division of Water Resources
S-004	Nevada Department of Transportation
Organizations	
O-001	Great Basin Resource Watch and Western Shoshone Defense Project
O-002	Progressive Leadership Alliance of Nevada
Businesses	
B-001	Moana Investments LLC
Individuals	
I-001	James and Deborah Baratta
I-002	J. Capozzelli
I-003	Barbara and Ken Dugan
I-004	Mack and Susan L. Herzog
I-005	Katrina Maczen-Cantrell
I-006	Kimbrough Mauney
I-007	Jean Public
I-008	Delaine Spiisbury
I-009	Wendy Stott
I-010	Caron Tayloe
I-011	Timothy Wilson
I-012	W. L. Wilson
I-013	George and Frances Alderson
I-014	Dave Arbonies
I-015	Robert Binnie
I-016	Charles Brumleve
I-017	Jeff Carlton
I-018	Ned Coates
I-019	Gay Garrison
I-020	Lee Greenawalt
I-021	Alecia Keen
I-022	Stanley Jones-Umberger
I-023	Liz Sheppard
I-024	Christopher Sewall
I-025	Charlotte Smith
I-026	Susan Wallace-Babb
Form Letters (with individual substantive comments)	
E-001	A Form Letter
E-002	Michael Ballin
E-003	Tracy Basile
E-004	Daniel Brower
E-005	Judith Castiano
E-006	Patricia Dair
E-007	Diadra Decker
E-008	Kari Gunter
E-009	Mary Hicklin
E-010	Gayle Janzen
E-011	Michael McLaughlin

Table A-1 (Continued)

<i>Letter Number</i>	<i>Commenter</i>
E-012	Susan Michetti
E-013	Carlene Petty
E-014	Paul Richards
E-015	John Mark Robertson
E-016	Lars Jorgen Sorfonn
E-017	Edwin Stein
E-018	Dana Thompson
E-019	Jerri Treppard
E-020	Nell Walton
E-021	Henrietta Wise
E-022	Michael Mauer
E-023	Donna McKee
E-024	Anita Pozsgay

Responses



RECEIVED-MAILROOM
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

2010 OCT -4 AM 11:59
BUREAU OF LAND MANAGEMENT
BATTLE MOUNTAIN
DISTRICT OFFICE

OCT 1 2010

Mr. Gerald Smith
Bureau of Land Management
50 Bastian Road
Battle Mountain, NV 89820

Subject: Cortez Hills Expansion Project Draft Supplemental Environmental Impact Statement (SEIS), Lander County, Nevada [CEQ # 20100323]

Dear Mr. Smith:

The U.S. Environmental Protection Agency (EPA) has reviewed the above referenced document. Our review and comments are provided pursuant to the National Environmental Policy Act (NEPA), the Council on Environmental Quality (CEQ) Regulations at 40 CFR Parts 1500-1508, and our NEPA review authority under Section 309 of the Clean Air Act.

EPA has rated this Draft SEIS as EC-2 – Environmental Concerns-Insufficient Information (see enclosed “Summary of Rating Definitions and Follow-Up Action”). Our rating of this document is based on our concerns regarding how mitigation for losses of surface water flows and riparian/wetland vegetation will be accomplished, as well as the need for additional information in the Final EIS on financial assurance and air emissions modeling. Our detailed comments are enclosed.

We appreciate the opportunity to review this Draft SEIS. We request a copy of the Final SEIS when it is filed with our Washington, D.C. office. If you have any questions, please call me at (415) 972-3521, or have your staff call Jeanne Geselbracht at (415) 972-3853.

Sincerely,

A handwritten signature in black ink, appearing to read "Kathleen M. Goforth".

Kathleen M. Goforth, Manager
Environmental Review Office

Enclosures: EPA Summary of Rating Definitions and Follow-Up Action
EPA Detailed Comments

Cc: David Gaskin, Nevada Division of Environmental Protection
Katie Miller, Nevada Division of Wildlife

Responses

SUMMARY OF EPA RATING DEFINITIONS

This rating system was developed as a means to summarize EPA's level of concern with a proposed action. The ratings are a combination of alphabetical categories for evaluation of the environmental impacts of the proposal and numerical categories for evaluation of the adequacy of the EIS.

ENVIRONMENTAL IMPACT OF THE ACTION

"LO" (Lack of Objections)

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

"EC" (Environmental Concerns)

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

"EO" (Environmental Objections)

The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

"EU" (Environmentally Unsatisfactory)

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potentially unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the CEQ.

ADEQUACY OF THE IMPACT STATEMENT

Category 1" (Adequate)

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

"Category 2" (Insufficient Information)

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analysed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

"Category 3" (Inadequate)

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analysed in the draft EIS, which should be analysed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From EPA Manual 1640, "Policy and Procedures for the Review of Federal Actions Impacting the Environment."

Responses

- F-001-1 **Water Resources Mitigation**
The Water Resources Mitigation Summary (Table 3.2-1) and Draft SEIS discussion provide useful information on each of the resources potentially affected by the project, as well as action thresholds, mitigation measures, follow up contingency measures, and effectiveness of the measures. For several water resources, loss of flow would be mitigated by piping water from another source at a specific flow rate based on the historical flows measured for those resources. It is unclear whether or how flows from alternate piped water sources would be adjusted throughout the year to mimic historic average seasonal flows for each individual water resource. We believe it is important that the natural functions and values of each resource, whether they are perennial, intermittent, or ephemeral, be preserved by adjusting flows to mimic their natural flow regimes. For example, supplying a steady flow rate to an ephemeral stream all year would not be appropriate, as it could significantly change the character of the aquatic resource, species composition, etc. We recommend that the Final SEIS clearly describe how natural flow regimes would be preserved through the mitigation process.
- F-001-2 **Wetland/Riparian Vegetation Mitigation**
The Water Resources Mitigation Summary applies to those resources that could be affected by groundwater drawdown. However, neither the Water Resources Mitigation Summary (Table 3.2-1) nor the description of Mitigation Measure V1 in the Final EIS provide sufficient detail on the proposed new or enhanced mitigation sites that would compensate for wetland/riparian vegetation that would be affected by fill or groundwater drawdown. We recommended in our October 31, 2008 comments on the Final EIS that the mitigation plan describe the proposed new or enhanced mitigation sites, including their locations, existing values and functions, and the goals for future values and functions; and provide a timeline for compensation activities, with the goal of no temporal losses of this habitat in the project area. Compensation areas should be selected to avoid any direct, indirect, or cumulative impacts of the project that could reduce the success of the mitigation plan. The plan should describe contingency measures that would be implemented should the initial plan fail to meet specified goals, and specify who will be responsible for implementing the contingency measures. These details should be included in the Final SEIS.
- F-001-3 **Financial Assurance**
The Final SEIS should include a cost estimate for implementing the mitigation and monitoring plan if all mitigation measures would need to be implemented, including construction, maintenance and replacement of guzzlers; purchasing compensation property; drilling new wells; construction of fences and pipelines; etc. The Final SEIS should also describe the financial assurances, such as a long-term trust fund, which will be required to ensure that sufficient funds will be available for as long as they may be needed for this purpose.
- F-001-4 **Air Emissions**
It appears that, overall, the PM2.5 (particulate matter smaller than 2.5 microns) air modeling for the proposed project was conducted well. However, we do have questions about the inputs or assumptions in a couple of areas. For example, the modeling receptor grid is based on 200-meter spacing, rather than spacing of 50 meters or less, which we would normally recommend. It is unclear whether or how a tighter grid spacing would affect the results. This should be discussed
- F-001-1 Potential groundwater drawdown effects on perennial water sources only would impact the baseflow; seasonal contributions to stream flow from precipitation and runoff events would continue. For perennial springs and streams, the baseflow is the increment of flow that is sustained by discharge from the groundwater aquifer system. The mitigation measures that include flow augmentation are designed to replace the baseflow (if impacts are detected) to sustain the identified use of the affected surface water resource. Other flow contributions associated with seasonal precipitation patterns would not be impacted. Therefore, natural variations in flow and their resultant flow regimes resulting from seasonal runoff events would continue to exist in any affected perennial spring or stream after implementation of baseflow augmentation.
- The BLM agrees that supplying a steady flow rate to an ephemeral stream throughout the year would not be appropriate since it would change the character of the aquatic resource. However, the three stream reaches within the projected groundwater drawdown area that potentially could be affected (as identified in Table 3.2-1) are perennial rather than ephemeral. Since mine-related groundwater drawdown would not impact ephemeral flows, the site-specific mitigation measures summarized in Table 3.2-1 of the Draft SEIS do not include flow augmentation for ephemeral stream reaches.
- F-001-2 In accordance with Mitigation Measure V1, as described in Section 3.4.4 of the Cortez Hills Expansion Project Final EIS (BLM 2008a) and adopted in the ROD (BLM 2008b), CGM submitted a mitigation plan for development of new riparian/wetland areas in July 2008 to BLM to compensate for the loss of up to 0.7 acres of riparian/wetland vegetation affected by mine-related surface disturbance (JBR 2008). In accordance with this plan, the affected riparian/wetland vegetation is to be compensated at a 2:1 ratio, resulting in the development of 1.4 acres of new riparian/wetland vegetation. The riparian/wetland mitigation plan was reviewed and approved by BLM and currently is being implemented by CGM.
- The riparian/wetland replacement areas are located in a side canyon adjacent to the main Copper Canyon drainage, downstream of a perennial stream segment. The replacement areas are designed to retain stream flow and surface runoff to facilitate revegetation with riparian/wetland plants, seeds, and soils from existing riparian/wetland areas.
- The riparian/wetland mitigation plan also includes provisions for monitoring, requiring that CGM “monitor the sites that are enhanced or created for mitigation purposes on an annual basis for approximately

Responses

F-001-2 (cont'd) three years after the mitigation measures have become effective to ensure that the site or sites are self-sustaining and provide functions similar to those of existing riparian/wetland areas. CGM would be responsible for developing an annual riparian/wetland vegetation monitoring report that would be provided to the BLM for review and approval" (JBR 2008). In accordance with this provision, CGM will submit annual riparian/wetland vegetation monitoring reports to BLM.

The criteria for monitoring success are incorporated into the riparian/wetland mitigation plan (JBR 2008). Briefly, the success of the mitigation will be evaluated through comparison to a local reference riparian/wetland area, examining the viability and coverage of obligate and facultative wetland plant species. In the event that the success criteria are not met, CGM will work with the BLM to take appropriate management actions (JBR 2008), such as establishing a riparian area at an alternative location and/or enhancing an existing wetland.

F-001-3 Costs for implementing the monitoring plan and contingency mitigation plan (as described in Section 3.2.4 of the Draft SEIS) have been included in CGM's financial assurance for the Cortez Hills Expansion Project that has been approved by BLM and NDEP. The Long-term Contingency Fund (LTCF), which is in place and is being funded by CGM, provides financial assurance for post-closure implementation of the Contingency Mitigation Plans for Surface Waters (JBR 2010), including the factors listed in the comment. All financial assurance estimates are subject to periodic review by BLM and NDEP to ensure they remain adequate. In addition, the BLM has the authority to review and require cost estimate updates at any time to ensure the adequacy of financial assurance. As explained in the response to comment F-002-002 in Appendix F1 of the Final EIS (BLM 2008a), it is not BLM's policy to include the reclamation cost estimate in NEPA documents. The LTCF is discussed in more detail in the response to comment F 002-003 in the Final EIS (BLM 2008a).

F-001-4 Financial assurances are in place for the Cortez Hills Expansion Project, including a Barrick Cortez Inc. (BCI) LTCF for the Cortez Gold Mines Operations Area. This LTCF meets the requirements of 43 CFR 3809.555(e), as it is an insured trust account maintained by a licensed securities brokerage for the benefit of the Secretary of the Interior.

The LTCF is designed to ensure the continuation of long-term monitoring of the project (after reclamation and bond release) and mitigation of future environmental issues. Mitigation of potential impacts to seeps and springs is one of the primary activities covered under the LTCF. The

F-001-6

in the analysis and in the Final SEIS. In addition, the report contains very little information regarding: (1) the AERMOD surface characteristics inputs, and (2) the representativeness of the meteorological data from Boulder Valley, which is used as a surrogate for Crescent Valley in the analysis. Discussion of these issues should be added to the Final SEIS.

Responses

F-001-4 LTCF is discussed in more detail in the response to comment F-002-003 in (cont'd) Appendix F1 of the Final EIS (BLM 2008a).

F-001-5 The modeling methodology and receptor grid used in the PM_{2.5} analysis are consistent with previous modeling conducted for the Cortez Hills Expansion Project and follow NDEP-Bureau of Air Pollution Control (BAPC) modeling guidelines. As clarification, the main operations areas were modeled using a receptor grid spacing of 30 meters; a 200-meter grid spacing was used for the surrounding areas.

The highest modeled PM_{2.5} concentrations are found in two specific locations: at the property boundary and near the gravel pit. The impacts at the property boundary are well defined by the 30-meter spacing in the receptors. The gravel pit is modeled as an area source and is located within the 200-meter spaced receptor grid surrounding the main operations. Given the intermittent nature of the gravel pit operations, it is unlikely that any potential locations of high concentrations of PM_{2.5} were missed with this receptor grid. The highest modeled PM_{2.5} concentration, when combined with background levels, indicated an impact of approximately 60 percent of the ambient standard.

F-001-6 The values for the surface characteristics for the AERMET processing were taken from the AERMET manual for desert shrubland for average moisture conditions. The meteorological data set used for this analysis was indicated by the NDEP-BAPC as the appropriate data set to utilize.



Debbie_Allen@nps.gov
09/29/2010 06:12 PM

To cortezhills_dseis@blm.gov
cc Alan_Schmierer@nps.gov, waso_eqd_extrev@nps.gov,
oepecsf@aol.com
bcc
Subject Re: DES-10/0041:Cortez Hills Expansion Project (Open-Pit
Gold Mining; Supplement EIS: Air Quality/Water Resources)

F-002-1

Subject document has no comment from PWR.

Debbie Allen
National Park Service
Partnerships Programs, PWR
1111 Jackson Street #700
Oakland, CA 94607
510/817-1446
510/817-1505 Fax

"Don't dwell on what went wrong. Instead, focus on what to do next. Spend
your energies on moving forward toward finding the answer." -- Denis
Waitley

Dale_Morlock@nps.
gov

08/30/2010 11:22
AM

Debbie_Allen@nps.gov

To

cc

Subject
DES-10/0041:Cortez Hills Expansion
Project (Open-Pit Gold Mining;
Supplement EIS: Air Quality/Water
Resources)

Responses

F-002-1 The BLM notes that the National Park Service, Partnerships Program,
had no comments on the Cortez Hills Expansion Project Draft SEIS.

Rebecca Palmer

From: Nevada State Clearinghouse
Sent: Tuesday, August 24, 2010 9:06 AM
To: Rebecca Palmer
Subject: E2011-037 Cortez Hills expansion draft supplemental EIS, Lander and Eureka Counties - Bureau of Land Management



NEVADA STATE CLEARINGHOUSE
Department of Administration, Budget and Planning Division
209 East Musser Street, Room 200, Carson City, Nevada 89701-4298
(775) 684-0213 Fax (775) 684-0260

TRANSMISSION DATE: 8/24/2010

State Historic Preservation Office
Nevada SAI # E2011-037
Project: Cortez Hills expansion draft supplemental EIS, Lander and Eureka Counties

Follow the link below to download an Adobe PDF document concerning the above-mentioned project for your review and comment.

[E2011-037](#)

Please evaluate it with respect to its effect on your plans and programs; the importance of its contribution to state and/or local areawide goals and objectives; and its accord with any applicable laws, orders or regulations with which you are familiar.

Please submit your comments no later than Thursday, September 30, 2010.

Use the space below for short comments. If significant comments are provided, please use agency letterhead and include the Nevada SAI number and comment due date for our reference.

[Clearinghouse project archive](#)

Questions? Reese Tietje, (775) 684-0213 or clearinghouse@state.nv.us

S-001-1

No comment on this project Proposal supported as written

AGENCY COMMENTS:

Rebecca Palmer

9/24/10

Responses

S-001-1 The BLM notes that the Nevada State Historic Preservation Office had no comments on the Cortez Hills Expansion Project Draft SEIS.

Nevada State Clearinghouse

From: Skip Canfield
Sent: Tuesday, August 24, 2010 11:22 AM
To: Nevada State Clearinghouse
Subject: RE: E2011-037 Cortez Hills expansion draft supplemental EIS, Lander and Eureka Counties - Bureau of Land Management
Attachments: Signed Dark Sky letter.pdf

S-002-1 Reese, the State Land Use Planning Agency provided the comments below previously regarding this project. In review of the Draft SEIS that Clearinghouse forwarded to me, I can't find any discussion whatsoever that would indicate that the comments were even considered.

S-002-2 It seems like the SEIS only discusses air quality and water issues, maybe that is the intent of the SEIS, but I would think there are issues beyond just those two categories????

Thank you for sending these comments on again.

This is what was submitted:

The Nevada Division of State Lands and the State Land Use Planning Agency offer the following comments regarding the Cortez Hills mining expansion:

Multiple use activities on Nevada's public lands are supported, however, there is a concern about the cumulative visual impacts to public lands users' experiences from these activities (temporary and permanent). Major intrusions include proliferation of new roads, poorly-sited and designed structures, lack of co-location of infrastructure and improper lighting, to name a few.

- **Drill rigs, other exploration activities and all structures should have shields placed on all lights.**

S-002-3 Dark sky attributes are a finite resource and subject to increasing deterioration as inappropriately-lighted development covers the landscape. This is even more evident in remote stretches of Nevada where dark skies prevail yet are seriously impacted by even one new lighting source. There is a concern about the cumulative visual impacts to public lands users' experiences. **Please see attached Mojave Southern Great Basin RAC policy letter on dark sky lighting.**

- **A comprehensive look at visual impacts should be considered when a federal agency reviews any development plans on public lands in Nevada, and nationally.**

The Nevada Division of State Lands encourages federal agencies to develop a consistent policy and "condition of approval" that can be required of applicants and included in NEPA decisions. It is hoped that all Federal agencies would include dark sky lighting and other visual resource protection and mitigation as a condition of approval for permanent and temporary applications.

Responses

S-002-1 The BLM notes that the Nevada Division of State Lands provided comments on the Cortez Hills Expansion Project Draft EIS (BLM 2007); these comments, and the associated BLM responses, were addressed in comment letter S-003 in Appendix F1 of the Cortez Hills Expansion Project Final EIS (BLM 2008a).

S-002-2 The commenter is correct that the SEIS addresses specific air quality issues and the effects of implementation of water resources mitigation, as explained in the Draft SEIS. As discussed in Sections 1.0 and 2.0 of the Draft SEIS, the SEIS tiers from the Cortez Hills Expansion Project Final EIS (BLM 2008a); other environmental issues were addressed in the Cortez Hills Expansion Project Final EIS.

S-002-3 As explained in Section 1.0 of the SEIS, BLM has prepared this SEIS to: 1) analyze the air quality impacts of the off-site transportation and processing of a total of 5 million tons of Cortez Hills refractory ore at the existing Goldstrike Mine; 2) refine the analysis of the effectiveness of measures adopted to mitigate potential impacts to surface water resources from mine-related groundwater pumping; and 3) present an air quality analysis of particulate matter with an aerodynamic diameter of 2.5 microns or less (PM_{2.5}). The BLM defined the SEIS scope based on three court decisions that considered challenges to the Cortez Hills Expansion Project Final EIS (BLM 2008a) (see the response to comment O-001-3). After considering all of this information, as well as the comments received on the Draft SEIS, BLM has determined that the scope of the SEIS is appropriate. This comment raises issues similar to the comments raised by this agency in comments on the Cortez Hills Expansion Project Draft EIS (BLM 2007); please refer to the responses to comment letter S-003 in Appendix F1 of the Cortez Hills Expansion Project Final EIS (BLM 2008a).

Responses

The following language is suggested that should be provided up front to applicants who propose development on public lands that includes lighting:

Utilize appropriate lighting:

- Utilize consistent lighting mitigation measures that follow "Dark Sky" lighting practices.
- Effective lighting should have screens that do not allow the bulb to shine up or out. All proposed lighting shall be located to avoid light pollution onto any adjacent lands as viewed from a distance. All lighting fixtures shall be hooded and shielded, face downward, located within soffits and directed on to the pertinent site only, and away from adjacent parcels or areas.
- A lighting plan shall be submitted as part of the review document indicating the types of lighting and fixtures, the locations of fixtures, lumens of lighting, and the areas illuminated by the lighting plan.

Utilize building materials, colors and site placement that are compatible with the natural environment:

- Utilize consistent mitigation measures that address logical placement of improvements and use of appropriate screening and structure colors. Existing utility corridors, roads and areas of disturbed land should be utilized wherever possible. Proliferation of new roads should be avoided.
- For example, the use of compatible paint colors such as "sudan brown" for water tanks and other vertical structures reduces the visual impacts of the built environment. Using screening, careful site placement, and cognitive use of earth-tone colors/materials that match the environment improve the user experience for others who might have different values than what is fostered by built environment activities.
- Federal agencies should require these mitigation measures as conditions of approval for all permanent and temporary applications.

S-002-3
(cont'd)

Skip Canfield
State Land Use Planning Agency

From: Nevada State Clearinghouse
Sent: Tuesday, August 24, 2010 9:06 AM
To: Skip Canfield
Subject: E2011-037 Cortez Hills expansion draft supplemental EIS, Lander and Eureka Counties - Bureau of Land Management

Responses

February 5, 2009

Ron Wenker, State Director
Bureau of Land Management
1340 Financial Blvd
Reno, NV 89502

RE: Mojave-Southern Great Basin RAC Dark Sky Lighting Comments

Dear Ron:

At previous Mojave-Southern Great Basin Resource Advisory Council (RAC) meetings, we have discussed the fact that our dark sky attributes are a finite resource and subject to increasing deterioration as inappropriately-lighted development covers the landscape. This is even more evident in remote stretches of Nevada where dark skies prevail yet are seriously impacted by even one new lighting source. There is a concern about the cumulative visual impacts to public lands users' experiences.

Multiple use development on our public lands is the accepted rule. However, the effects of these uses are broad-ranging. Resources that are very important to some user groups are typically affected by the development of other resources. Some effects can be mitigated in a relatively simple manner if measures are taken proactively and consistently. One very prominent example is lighting. Proper lighting can play a large role in the compatibility of the built and natural environment.

Impacts of improper lighting can be mitigated inexpensively and dark sky measures are simple to implement and very mainstream. In fact, lighting that is installed using dark sky fixtures (light is only aimed at the subject property) is more efficient, safer, and results in reduced electricity costs. The end product is a less obtrusive impact to other users of adjacent public lands.

A common misnomer is that facility lighting needs to stream well beyond the property and facility to be effective. The opposite is actually the case. Many southwestern cities have enacted strict dark sky ordinances to protect the night sky, including prison facilities. Lighting seen from a distance is actually wasted light that has spilled beyond the intended location of the site. Outdoor lighting that is properly directed and shielded, of adequate lumens and lighting types, and strategically placed is more cost effective and functional to monitor a site. There is a national organization, www.darksky.org, whose fundamental purpose is to educate the public and governments on ways to preserve our valuable night skies for us and future generations.



Responses

The Mojave Southern Great Basin RAC believes that a comprehensive look at visual impacts should be considered when BLM reviews any development plan on public lands in Nevada, and nationally. The RAC encourages BLM to develop a consistent policy and “condition of approval” that can be required of applicants and included in NEPA decisions. It is hoped that all Federal agencies would include dark sky lighting as a condition of approval for permanent and and temporary applications.

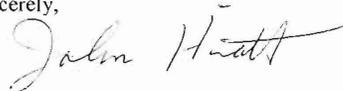
The following language is suggested that should be provided up front to applicants who propose development on BLM public lands that includes lighting:

Utilize appropriate lighting:

- Utilize consistent lighting mitigation measures that follow “Dark Sky” lighting practices.
- Effective lighting should have screens that do not allow the bulb to shine up or out. All proposed lighting shall be located to avoid light pollution onto any adjacent lands as viewed from a distance. All lighting fixtures shall be hooded and shielded, face downward, located within soffits and directed on to the pertinent site only, and away from adjacent parcels or areas.
- A lighting plan shall be submitted with the site plan review and/or architectural drawings indicating the types of lighting and fixtures, the locations of fixtures, lumens of lighting, and the areas illuminated by the lighting plan.
- Any required FAA lighting is exempt from this condition.

Thank you for the opportunity to provide comments to you on this important issue.

Sincerely,



John Hiatt, Chair
Mojave-Southern Great Basin Resource Advisory Council

cc: Northeastern Great Basin RAC
Sierra Front-Northwestern Great Basin RAC
Skip Canfield

Responses

Nevada State Clearinghouse

From: Sue Gilbert
Sent: Wednesday, September 15, 2010 3:40 PM
To: Nevada State Clearinghouse
Subject: - Bureau of Land Management

Hi there,
Please call me at 684-2861 if there are any questions.
Michele

From: Nevada State Clearinghouse
Sent: Tuesday, August 24, 2010 9:06 AM
To: Robert K. Martinez
Subject: E2011-037 Cortez Hills expansion draft supplemental EIS, Lander and Eureka Counties - Bureau of Land Management



NEVADA STATE CLEARINGHOUSE
Department of Administration, Budget and Planning Division
209 East Musser Street, Room 200, Carson City, Nevada 89701-4298
(775) 684-0213 Fax (775) 684-0260

TRANSMISSION DATE: 8/24/2010

Division of Water Resources

Nevada SAI # E2011-037

Project: Cortez Hills expansion draft supplemental EIS, Lander and Eureka Counties

Follow the link below to download an Adobe PDF document concerning the above-mentioned project for your review and comment.

[E2011-037](#)

Please evaluate it with respect to its effect on your plans and programs; the importance of its contribution to state and/or local areawide goals and objectives; and its accord with any applicable laws, orders or regulations with which you are familiar.

Please submit your comments no later than Thursday, September 30, 2010.

Use the space below for short comments. If significant comments are provided, please use agency letterhead and include the Nevada SAI number and comment due date for our reference.

[Clearinghouse project archive](#)

Questions? Reese Tietje, (775) 684-0213 or clearinghouse@state.nv.us

___ No comment on this project ___ Proposal supported as written

AGENCY COMMENTS:

S-003-1

All waters of the State belong to the public and may be appropriated for beneficial use pursuant to the provisions under Chapters 533 and 534 of the Nevada Revised Statutes (NRS), and not otherwise. Any water developments, constructed and utilized for a beneficial use, whether from surface or underground sources, must be done so in compliance with the referenced chapters of the NRS. Currently the applicant has applications and permits on file with the Division of Water Resources. The project proponent will be required to have adequate water rights for all proposed uses, including the contingency mitigation measures as outlined in the draft supplemental EIS, pursuant to the above referenced statutes.

Signature: Diana Lefler

Date: September 10, 2010

Distribution: Sandy Quilici, Department of Conservation & Natural Resources
Jeff Hardcastle, State Demographer
David Mouat, Desert Research Institute
Kevin Kirkeby, Senator Ensign's Office
Nancy Boland, Esmeralda County
Karen Beckley, State Health Division
Kirk Bausman, Hawthorne Army Depot
Sherry Rupert, Indian Commission
Skip Canfield, AICP, Division of State Lands
Michael J. Stewart, Legislative Counsel Bureau
Susan Scholley, Legislative Counsel Bureau
Clint Wertz, Lincoln County
Zip Upham, NAS Fallon
Ed Rybold, NAS Fallon
Alan Coyner, Commission on Minerals
D. Driesner, Commission on Minerals
Lowell Price, Commission on Minerals
John Walker, Nevada Division of Environmental Protection
Pete Anderson, Division of Forestry
Mike Dondero, Division of Forestry
Rich Harvey, Division of Forestry
Terri Compton, Department of Transportation
Steve Siegel, Department of Wildlife, Director's Office
Katie Miller, Department of Wildlife, Elko
Robert Martinez, Division of Water Resources

Responses

S-003-1 As described in Section 5.0 of the Technical Memorandum – Contingency Mitigation Plans for Surface Waters (JBR 2010), BCI holds 6,452 acre-feet annually (AFA) in water rights associated with mining and milling (i.e., ore processing and dust suppression) and 9,679 AFA in water rights associated with agricultural usage (i.e., irrigation and stock water) within the Crescent Valley basin. A portion of these water rights would be reallocated to any groundwater production well installed as a mitigation measure. In the event that all of the identified contingency mitigation measures were triggered, the maximum proposed groundwater production for contingency wells would be approximately 80 AFA. These water rights would be transferred to the mitigation measure locations in accordance with Nevada law.

Responses

Nevada State Clearinghouse

From: Compton, Terri [tcompton@dot.state.nv.us]
Sent:
To: Nevada State Clearinghouse
Subject: Bureau of Land Management
Attachments: ~WRD000.jpg

Please see NDOT's remarks below in the COMMENTS section. Thanks, Terri

From: Nevada State Clearinghouse [mailto:Clearinghouse@budget.state.nv.us]
Sent: Tuesday, August 24, 2010 9:06 AM
To: Compton, Terri
Subject: E2011-037 Cortez Hills expansion draft supplemental EIS, Lander and Eureka Counties - Bureau of Land Management



NEVADA STATE CLEARINGHOUSE
Department of Administration, Budget and Planning Division
209 East Musser Street, Room 200, Carson City, Nevada 89701-4298
(775) 684-0213 Fax (775) 684-0260

TRANSMISSION DATE: 8/24/2010

Department of Transportation

Nevada SAI # E2011-037

Project: Cortez Hills expansion draft supplemental EIS, Lander and Eureka Counties

Follow the link below to download an Adobe PDF document concerning the above-mentioned project for your review and comment.

[E2011-037](#)

Please evaluate it with respect to its effect on your plans and programs; the importance of its contribution to state and/or local areawide goals and objectives; and its accord with any applicable laws, orders or regulations with which you are familiar.

Please submit your comments no later than Thursday, September 30, 2010.

Use the space below for short comments. If significant comments are provided, please use agency letterhead and include the Nevada SAI number and comment due date for our reference.

[Clearinghouse project archive](#)

Responses

S-004-1 The BLM notes NDOT's comment regarding BCI's good coordination with the Nevada Department of Transportation relative to the Cortez Hills Expansion Project and associated mitigation.

Questions? Reese Tietje, (775) 684-0213 or clearinghouse@state.nv.us

___ No comment on this project ___ Proposal supported as written

AGENCY COMMENTS:

Terri,

The Elko Sub-district's only comment is that Cortez has contacted the local NDOT office and is coordinating with us for the affected operations if the proposed expansion is approved. Barrick-Cortez has done very good job working with NDOT to mitigate impact of their operational changes with us.

Michael Murphy, P.E.
Assistant District Engineer
Nevada Department of Transportation
District III - Elko
(775) 777-2700 Office
(775) 777-2705 Fax
(775) 934-5814 Cell

Signature:

Date:

Distribution: Sandy Quilici, Department of Conservation & Natural Resources
Jeff Hardeastle, State Demographer
David Mouat, Desert Research Institute
Kevin Kirkeby, Senator Ensign's Office
Nancy Boland, Esmeralda County
Karen Beckley, State Health Division
Kirk Bausman, Hawthorne Army Depot
Sherry Rupert, Indian Commission
Skip Canfield, AICP, Division of State Lands
Michael J. Stewart, Legislative Counsel Bureau
Susan Scholley, Legislative Counsel Bureau
Clint Wertz, Lincoln County
Zip Upham, NAS Fallon
Ed Rybold, NAS Fallon
Alan Coyner, Commission on Minerals
D. Driesner, Commission on Minerals
Lowell Price, Commission on Minerals
John Walker, Nevada Division of Environmental Protection
Pete Anderson, Division of Forestry
Mike Dondero, Division of Forestry
Rich Harvey, Division of Forestry
Terri Compton, Department of Transportation
Steve Siegel, Department of Wildlife, Director's Office
Katie Miller, Department of Wildlife, Elko
Robert Martinez, Division of Water Resources



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*Working with
Communities to Protect
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O-001-3 Susan Juetten
Publications/Outreach
Coordinator

O-001-4

October 4, 2010

Attention: Christopher Worthington
Bureau of Land Management
Battle Mountain Field Office
50 Bastian Road
Battle Mountain, NV 89820

Re: *Cortez Hills Expansion Project Draft Supplemental Environmental Impact Statement*

Dear Mr. Worthington,

Great Basin Resource Watch (GBRW) appreciates the opportunity to comment on the Cortez Hills Expansion Project Draft Supplemental Environmental Impact Statement (DSEIS). These comments are submitted by GBRW and the Western Shoshone Defense Project (WSDP). These comments adopt and incorporate all previous comments regarding the Cortez Hills Project submitted to BLM by the plaintiffs in the ongoing litigation (*South Fork Band Council, et al. v. U.S. Department of Interior*, CV-08-0616 LRH (D. Nevada)). These comments also adopt and incorporate by reference all documents and legal filings submitted by plaintiffs in that case.

Overall, the BLM's new "mitigation" proposed to protect surface and ground waters impacted or eliminated by the operations of the Cortez Hills Project, especially from the dewatering and related operations, fails to actually protect these waters and fails to meet BLM's strict duty to "prevent undue degradation" to these waters mandated by the Federal Land Policy and Management Act (FLPMA) and its implementing regulations. In addition, the failure to fully analyze these issues violates BLM's duties under the National Environmental Policy Act (NEPA).

Regarding the Project's mercury emissions, the BLM's analysis and proposed mitigation fails to fully analyze the potential releases of mercury as part of ore extraction and processing, in violation of NEPA and FLPMA.

Dewatering Mitigation Plan

The mitigation procedures outlined in the DSEIS do not protect the water resource. Water is a vital resource and particularly in the arid Great Basin extraordinary measures need to be implemented to prevent damaging the water source either in quality or quantity. Analysis from Geomega from 2007 shows significant drawdown where seeps and springs exist, but significantly also indicates that there is not recovery timeline in some cases.¹ The springs of special significance to the Western Shoshone within the deep (100 – 400 feet) drawdown zone in the Cortez Canyon such as "Shoshone Wells" if connected to the regional aquifer are likely to "disappear" permanently. The only way to avoid this serious impact is to prevent the source from

Great Basin Resource Watch is a tax-exempt (501(c)(3) organization

Responses

O-001-1 Comment noted; documents referenced in the comment are included in the project Administrative Record. Responses to previous comments referenced in this comment letter, submitted by GBRW, WSDP, and others (as noted) on previous Cortez mining and related operations in the Crescent Valley area, also are incorporated by reference as responses to this comment letter. In addition to issues addressed in the SEIS, the following comments raise issues that were addressed in the Cortez Hills Expansion Project Final EIS (BLM 2008a); BLM's analysis of those issues was upheld by the District Court.

O-001-2 As clarification, the mitigation measures discussed in the Draft SEIS are not "new;" rather, these measures were described in Section 3.2.4 of the Cortez Hills Expansion Project Final EIS (BLM 2008a) to mitigate potential mine-related groundwater drawdown effects to perennial seeps, springs, and streams. In order to evaluate the effectiveness of the previously identified mitigation measures, BLM directed CGM to prepare a contingency mitigation plan for each potentially affected seep, spring, or stream, describing the specific measures that would be applied at each identified site and addressing the goals of the specific measures proposed for each site. The BLM subsequently reviewed and evaluated the effectiveness of these measures, and the potential impacts associated with implementation of these measures, on a site-by-site basis, as reflected in Section 3.2.4 of the Draft SEIS.

In assessing compliance with the unnecessary or undue degradation standard, BLM looks at the laws, regulations, and agency guidance as discussed in detail in the response to comment O-001-005 in Appendix F1 of the Cortez Hills Expansion Project Final EIS (BLM 2008a). BLM's analysis of CGM's contingency mitigation plan as presented in the SEIS is within the requirements of NEPA and FLPMA. The CEQ definition of "mitigation" for purposes of NEPA includes "rectifying the impact by repairing, rehabilitating, or restoring the affected environment," and "compensating for the impact by replacing or providing substitute resources or environments" (40 CFR 1508.20). BLM's 3809 regulations adopt the same definition (43 CFR 3809.5). The contingent mitigation measures for implementing Mitigation Measure WR1b, as identified in the Cortez Hills Expansion Project Final EIS (BLM 2008a) and adopted in the ROD (BLM 2008b), meet the regulatory definition of mitigation. To prevent "unnecessary or undue degradation," the 3809 regulations require that an operator comply with the performance standards in 43 CFR 3809.420. Those standards include the requirement that an operator "take mitigation measures specified by BLM to protect public lands" (43 CFR 420(a)(4)). Thus, by adopting Mitigation Measure

Responses

O-001-2 (cont'd) WR1b in the ROD (BLM 2008b), and based on BLM's analysis of CGM's contingency mitigation plan in the SEIS, BLM has complied with its obligations under both FLPMA and NEPA. For purposes of clarification, the definition of "mitigation" has been added to the text of Section 3.2.4 of the Final SEIS.

The BLM has complied, and will continue to comply, with all applicable laws in considering the potential impacts of the Cortez Hills Expansion Project, including FLPMA and the associated 3809 regulations and NEPA. As described in the response to comment O-001-005 in the Cortez Hills Expansion Project Final EIS (BLM 2008a), the BLM will ensure that the project includes adequate provisions to prevent unnecessary or undue degradation of federal lands and to protect non-mineral resources of federal lands, including groundwater and surface water. Also see the response to comment O-001-8 regarding mitigation of potential effects to groundwater and surface water resources.

O-001-3 Please see the following responses to specific comments regarding the analysis of mercury emissions.

As explained in Section 1.0 of the SEIS regarding the scope of the SEIS, BLM has prepared this SEIS to: 1) analyze the air quality impacts of the off site transportation and processing of a total of 5 million tons of Cortez Hills refractory ore at the existing Goldstrike Mine; 2) refine the analysis of the effectiveness of measures adopted to mitigate potential impacts to surface water resources from mine-related groundwater pumping; and 3) present an air quality analysis of particulate matter with an aerodynamic diameter of 2.5 microns or less (PM_{2.5}). The BLM defined the SEIS scope based on three court decisions that considered challenges to the Cortez Hills Expansion Project Final EIS (BLM 2008a): 1) the December 3, 2009, Decision of the U.S. Court of Appeals for the Ninth Circuit reviewing an appeal from denial of a preliminary injunction; 2) the April 13, 2010, Order from the U.S. District Court for the District of Nevada directing BLM to prepare the SEIS and specifying the scope of the SEIS; and 3) the District Court's August 25, 2010, Order granting and denying in part motions for summary judgment. After considering all of this information, as well as the comments received on the Draft SEIS, BLM has determined that the SEIS adequately addresses the issues raised in the three court decisions as well as any issues raised by commenters regarding the content or analysis of the Cortez Hills Expansion Project Final EIS (BLM 2008a). To the extent that new information has been provided or generated that was not considered in the Final EIS, BLM has determined that the SEIS also adequately addresses that information as warranted or required under NEPA.

Responses

O-001-3 (cont'd) Information on fugitive mercury emissions from mine facilities has become available since publication of the Cortez Hills Expansion Project Final EIS (BLM 2008a); an analysis of fugitive mercury emissions from the Cortez Hills Expansion Project is presented in the response to comment O-001-16. Mercury emissions associated with on site operations and processing were analyzed and discussed in Section 3.10.2.1 of the Cortez Hills Expansion Project Final EIS (BLM 2008a).

O-001-4 This comment summarizes subsequent comments. For specific responses, please see the responses to specific comments, including comments from Dr. Tom Myers.

Section 3.9 of the Cortez Hills Expansion Project Final EIS (BLM 2008a) addressed potential impacts of the Cortez Hills Expansion Project on Native American traditional values, including water resources. See the response to comment O-001-2 regarding mitigation of potential effects to groundwater and surface water resources.

With regard to specific water sources, the comment includes general references to Shoshone Wells; however, no specific information about use of that site for Native American religious purposes has been provided. Historical evidence in the record and produced at the evidentiary hearing discloses that Shoshone Wells historically has been used as a source of water for settlements or mining. From the mid 1800s until the early 1900s, all of the flow from Shoshone Wells was reported as captured and/or stored and used to provide water for mining or the town of Shoshone Wells. There is no record of competing use by Western Shoshone or disputes over the use of the water from Shoshone Wells during that time period. In the modern era, Bill Wilson, the person responsible for staking most of the modern mining claims, testified that he and his brother worked in the project area on a daily basis during the 1960s and 1970s and into the 1980s (Transcript of Hearing, January 22, 2009 [South Fork Band et al. v. U.S. Department of Interior et al., 3:08cv616 LRH [D. Nev.] [docket nos. 62, 86] at 475-82). Based on their testimony, they lived in a trailer they parked near Shoshone Wells and piped the entire spring-flow from Shoshone Wells into their trailer (Transcript of Hearing at 477). During this time, they reported never having observed any Western Shoshone or any religious activity around Mount Tenabo (Transcript of Hearing at 482-83).

As discussed in Section 3.9 and summarized in the response to comment O-003-004 in Appendix F1 of the Cortez Hills Expansion Project Final EIS (BLM 2008a), the BLM conducted ethnographic studies and has consulted

Responses

O-001-4 (cont'd) with local federally-recognized tribes and Western Shoshone elders regarding tribal concerns about the project since 1992 in compliance with the National Historic Preservation Act (NHPA) and Executive Orders. A summary of ongoing consultation since the issuance of the Final EIS is presented in Section 4.2 of the SEIS.

Based on the ethnographic studies and consultation conducted to date, many of the cultural practices identified by the tribal individuals participating in the consultation and ethnographic studies are historical practices that do not continue in present day. Some practices do continue, largely consisting of traditional plant gathering, hunting, solitary prayer and similar practices, and occasional gatherings of small groups for prayer. The top of Mount Tenabo, the piñon-juniper stands at the base of Mount Tenabo, and an area near the historic Shoshone Wells townsite have been identified as specific locations for these practices in the project vicinity.

BLM is aware of several spring gatherings organized by the Western Shoshone Defense Project in the vicinity of the Shoshone Wells historic site beginning in 2001; these spring gatherings are referenced on page 3.9-48 of the Cortez Hills Expansion Project Final EIS (BLM 2008a). In 2005, this gathering was moved to Horse Canyon, and in 2007 it was held at the Gund Ranch located 16 miles from the Cortez Hills Expansion Project. Two additional gatherings have occurred since the Final EIS was published, one in April 2009 and one in April 2010 (BCI 2010).

Please see the following pictures of Shoshone Wells in May 2009.

F-001-4
(cont'd)



O-001-4
(cont'd)

damage in the first place. We do not see the replacement of water from other sources as protection of the original source. Augmentation procedures are also not adequate to protect the springs and may have a negative impact on the resource.

Perhaps the most glaring omission in BLM's "mitigation" analysis is the complete failure to prevent undue degradation to the spiritual, religious, and cultural values and uses these waters have to many Western Shoshone. BLM does not even recognize these values and uses – and simply focuses the "mitigation" on "replacing" water to purportedly benefit "livestock and wildlife." DSEIS Table 3.2.1. In the discussion of "Identified Use" of these waters, BLM completely fails to even mention these Western Shoshone uses – listing only livestock, wildlife, vegetation, and irrigation. DSEIS at 3-11. It should be noted that BLM cannot simply "fix" this problem by adding Western Shoshone uses to this list when the agency publishes the final SFEIS. BLM must fully analyze these issues. As such, BLM must prepare a revised DSEIS for public comment that provides the public a full opportunity to comment upon BLM's revised document.

O-001-5

BLM is well aware of the importance of these waters to Western Shoshone, as attested to by the numerous declarations submitted to BLM during the previous NEPA process, and during the litigation (all incorporated into these comments). In addition, the attached declarations of Western Shoshone, including tribal government leaders, further evidence these uses and values. BLM's failure to recognize these values and uses in its mitigation analysis fatally flaws the entire analysis. In other words, BLM cannot possibly meet its duties under NEPA to fully analyze the necessary mitigation (including its effectiveness) to protect these values/uses when the DSEIS does not even mention them.

BLM's failure under NEPA is compounded by its failure to protect these values and uses in these waters under its strict duty to "prevent undue degradation" to these recognized values/uses under FLPMA and its implementing regulations. As the federal courts have stated, including the court decisions in this case, the use of these waters for religious, cultural, and spiritual purposes is a recognized public land resource that is protected by FLPMA.

In this case, BLM cannot plausibly argue that it has prevented undue degradation to these uses/values when the DSEIS fails to even recognize that they exist. As noted above, the mitigation analysis focuses solely on mitigating for the impacts to livestock, wildlife, vegetation, and irrigation – with no mention of preventing undue degradation to the cultural/religious/spiritual uses and values of these waters. *See also* DSEIS at 3-12 to 3-14 (discussing mitigation to uses with no mention of religious/cultural/spiritual uses and values of these waters).

O-001-6

Regarding the actual plan to "replace" these waters eliminated or reduced by the dewatering, BLM proposes a variety of potential measures that further ignore these Western Shoshone values/uses. As shown by the attached (and previously submitted) declarations, it is impossible to prevent degradation to these values/uses by importing water from another location, especially water piped directly into the spring location. As attested to by Western Shoshone, Mt. Tenabo's waters are unique and special to that location. The religious and spiritual forces in these waters cannot be "replaced" by water piped from elsewhere.

O-001-7

BLM concludes that "[r]esidual adverse impacts to baseline surface water uses are not anticipated" with the implementation of the proposed mitigation measures. DSEIS at 3-15. As noted above, this statement completely ignores the evidence submitted by Western Shoshone of the spiritual, religious, and cultural uses/values of these waters – and the devastating impacts to such waters, values, and uses. Such an utter failure to recognize,

Responses

O-001-5 Please see the response to comment O-001-3 regarding the scope of the SEIS.

Potential impacts to Western Shoshone spiritual, religious, and cultural values, including potential impacts from mine dewatering, were extensively evaluated and discussed in Section 3.9 and responses to related comments (e.g., response to comment O-003-004) in Appendix F1 of the Cortez Hills Expansion Project Final EIS (BLM 2008a). Also see the response to comment O-001-4 above relative to documented use of the project vicinity based on BLM's previous ethnographic studies and previous and ongoing Native American consultation. See the response to comment O-001-2 above relative to BLM's compliance with NEPA and FLPMA.

In addition, the significance of water in the project vicinity to certain Western Shoshone was analyzed in the Cortez Hills Expansion Project Final EIS (BLM 2008a) on pages 3.9-15 (affected environment), 3.9-22 (direct and indirect impacts), and 3.9-50 to 3.9-62 (cumulative impacts). In each case, BLM acknowledged that water was important to Western Shoshone culture and religion in similar terms as expressed in this comment and in the attached declarations. BLM also acknowledged on page 3.9-25 of the Final EIS (BLM 2008a) that "certain impacts cannot be fully mitigated to the satisfaction of certain Western Shoshone." As discussed in the response to comment O-003-004 in Appendix F1 of the Cortez Hills Expansion Project Final EIS (BLM 2008a), based on the EIS analysis (including consideration of comments received on the Cortez Hills Expansion Project Draft EIS) the BLM knows of no specific Western Shoshone cultural, traditional, or religious uses that would be prevented or destroyed by the Cortez Hills Expansion Project. The BLM acknowledged in the response to comment O-003-004 in Appendix F1 of the Final EIS that impacts to Native American traditional values would occur as a result of the proposed project; however, no information relative to the number of tribal members who use locations in the study area or their frequency of use has been provided to the BLM by tribal individuals and elders participating in tribal consultation and the ethnographic study. Therefore, the level of impact could not be quantified. No information has been provided during ongoing consultation with the participating tribes that would change this conclusion.

Plaintiffs in the litigation (including these commenters) did not challenge the adequacy of the analysis in Section 3.9 of the Cortez Hills Expansion Project Final EIS; however, they did allege that approval of the project would cause unnecessary or undue degradation of "sacred sites," which included land and water. Those claims were rejected by the Federal District Court of Nevada on summary judgment, and the U.S. Court of

Responses

O-001-5 Appeals ruled that the plaintiffs were unlikely to succeed on the merits of that particular claim.
(cont'd)

Noting that the commenter's letter has asked that information and evidence provided subsequent to the Final EIS through the appeal process be incorporated into comments on the Draft SEIS, BLM has reviewed and considered that information and has concluded that the information does not indicate that the BLM's analysis of impacts to Western Shoshone culture, traditional, or religious uses or values is erroneous or inadequate. In particular, commenters have not provided any information related to specific cultural or religious use of particular sites, including seeps and springs. References to religious uses of waters on Mount Tenabo in the SEIS comments generally are consistent with the statements in the Final EIS (see page 3.9-15) regarding the importance of water to Western Shoshone beliefs. In an evidentiary hearing on claims that were raised under the Religious Freedom Restoration Act—but later dropped by the plaintiffs—three individual members of the Western Shoshone Defense Project testified that the Mount Tenabo area was spiritually significant to them and that approved mining activities would deprive the area of its “Puha,” or spirituality. At the same time, other practitioners of Western Shoshone religion testified that the Mount Tenabo area was not particularly significant to their belief system, and that they were unaware of any particular religious practices or uses occurring in the Mount Tenabo area (Transcript of Hearing. January 21, 2009 [South Fork Band et al. v. U.S. Department of the Interior et al., 3:08cv616 LRH [D. Nev.] [docket no. 85] at 248, 263, 279-80, 393). A former tribal chairman of the plaintiff Te-Moak tribe and the then current, now former, chairwoman of the Ely Shoshone tribe both testified that claims of religious activity at Mount Tenabo only were raised after the Western Shoshone Defense Project determined that it was opposed to mining in the Mount Tenabo area (Transcript of Hearing at 245, 248, 252, 257, 264). Another Western Shoshone practitioner, an employee of Cortez, testified that reclamation measures were consistent with Western Shoshone beliefs (Transcript of Hearing at 295-301). In reviewing all of this information, the BLM has not identified any new information that would change the BLM's conclusions.

After considering the comments and the information incorporated by reference into the comments, based on: 1) previous ethnographic studies and ongoing consultation with participating Tribes; 2) previous cultural resource survey results for the project; 3) documented historical information and observation; and 4) information provided in the NEPA and National Historic Preservation Act (NHPA) processes, including appeals and litigation, the commenter has not provided any new information that requires BLM to reassess the impacts to specific cultural or religious Western Shoshone uses and values.

Responses

O-001-5 (cont'd) With regard to the effectiveness of the mitigation measures, BLM has determined based on their review of the Contingency Mitigation Plans for Surface Waters (JBR 2010) and the associated SEIS analysis that the measures would be effective in mitigating potential impacts to the environment associated with mine dewatering by maintaining a functioning source of perennial surface water at potentially affected sites to support their associated environmental values. Replacement of seep or spring flow, (as described in the Draft SEIS and Contingency Mitigation Plans) effectively would mitigate the impacts that are associated with water-dependent traditional uses of the land, including uses related to vegetation and wildlife, as described in Section 3.9 of the Cortez Hills Expansion Project Final EIS (BLM 2008a).

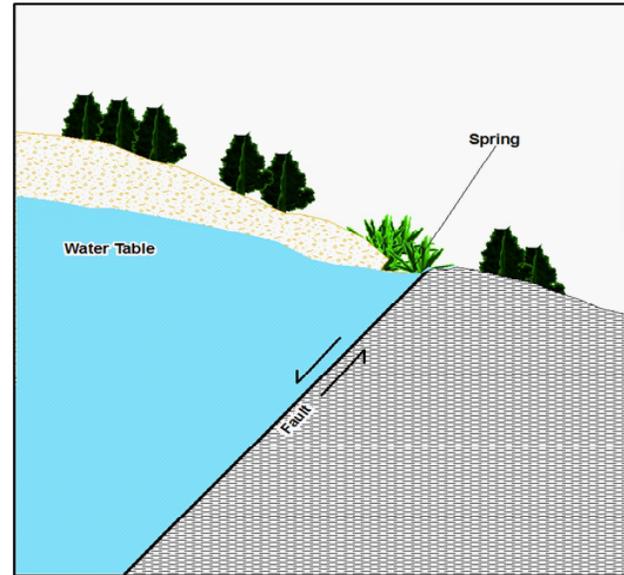
Responses to specific comments provided in the declarations are presented below in responses O-001-44 through O-001-52.

O-001-6 As clarification, the methods identified in the contingency mitigation plan for restoring baseflow to seeps or springs potentially affected by mine-related groundwater drawdown, and as described in Section 3.2.4 of the SEIS, do not include the use of water from a different source. Rather, the proposed source for water replacement is the local aquifer system that currently discharges at the seep or spring. Please refer to the diagrams included below. As such, if seeps or springs are connected to the regional aquifer and are affected by mine dewatering, the contingent mitigation plan proposes enhancements that would preserve baseflows from the same groundwater source (e.g., a well located nearby to provide water from the same local aquifer). Therefore, the mitigating water would be supplied from the original source.

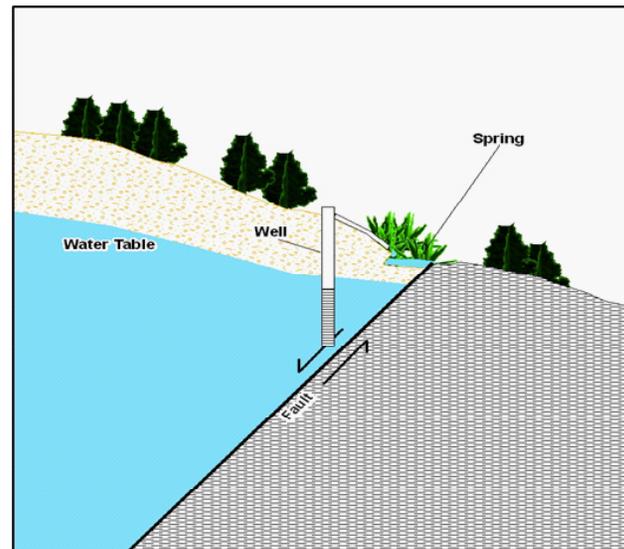
The comment states that “the religious and spiritual forces in these waters cannot be ‘replaced’ by water piped from elsewhere.” It should be noted that spring flow at Shoshone Wells (referred to as Cortez Spring in Table 3.2-1 in the SEIS), which is referenced in some comments and declarations as a “sacred” site, has been piped to its current location for more than a century, as noted in the response to comment O-001-4. For most of that time, the water was used to support mining or mining settlements. Recent photographs of Shoshone Wells (see the response to comment O-001-4) show water discharged at the end of the pipe at the current location to form the “spring.” If the Shoshone Wells spring is affected by mine-related groundwater drawdown, the water would be piped from a nearby well (PD-07, completed in the same aquifer); the outflow would remain in the same location.

Responses

O-001-6 Please see the response to comment O-001-5 regarding the spiritual, religious, and cultural values/uses of waters in the study area. Also, the responses to specific comments provided in the declarations are presented below in responses O-001-44 through O-001-52.



Before Dewatering



After Groundwater Level Decline

O-001-7 (cont'd) | analyze, and protect these values and uses violates BLM's duties under FLPMA, NEPA, and their implementing regulations.

O-001-8 | Lastly, the DSEIS continues to avoid its duties under NEPA regarding the analysis and protection of these critical water resources by saying that it is "uncertain" whether the dewatering operations would impact these waters. DSEIS at 3-1. This ignores the very finding from the Ninth Circuit Court of Appeals in this case that BLM cannot avoid its NEPA duties by labeling an impact "uncertain."

O-001-9 | Regarding the lack of an adequate mitigation analysis, the Ninth Circuit held that a Supplemental EIS was needed that would "adequately consider[] . . . mitigation of the adverse impact on local springs and streams." 588 F.3d at 722. This is not limited to only determining the "effectiveness" of water mitigation. Although the appeals court did find that BLM failed to analyze the effectiveness of BLM's mitigation plan, the court also rejected BLM's contention that it was "impossible to conclusively identify specific springs and seeps that would or would not be impacted." *Id.* at 727.

O-001-10 | That these individual harms are somewhat uncertain due to BLM's limited understanding of the hydrologic features of the area does not relieve BLM of the responsibility to discuss mitigation of reasonably likely impacts at the outset. *See National Parks*, 241 F.3d at 733 ("lack of knowledge does not excuse the preparation of an EIS; rather it requires [the agency] to do the necessary work to obtain it.")

O-001-11 | 588 F.3d at 727. The Ninth Circuit further noted that the injunction was warranted due to BLM's "inadequate study of the serious effects of . . . exhausting water resources." *Id.* at 728. Thus, in addition to requiring a detailed analysis of the effectiveness of BLM's mitigation plan, the Ninth Circuit further required BLM to "do the necessary work to obtain" the necessary underlying information regarding the "hydrologic features" that will be adversely affected by the Project as part of an adequate mitigation plan and EIS, as well as conducting an adequate "study of the serious effects of exhausting water resources." *Id.* at 727-28. That has yet to be done in this case. As the district court held in granting the plaintiffs' motion for summary judgment on this issue: "Although the question before the Ninth Circuit was whether Plaintiffs had shown a likelihood of success on the merits of these NEPA claims, the court's language with regard to these claims was conclusive." District Court Order (August 25, 2010), at 11.

O-001-12 | The attached technical memorandum from Dr. Myers further details the inadequacies of BLM's proposals and analysis. This report is to be included within these comments on the DSEIS and BLM must respond in detail to each of Dr. Myers' issues. Dr. Myers' memorandum also discusses alternative mitigation measures that could protect the resource; however, the best mitigation is to limit the extent of dewatering so sensitive spring sources are not degraded.

Mercury Analysis

O-001-13 | The analysis of the anticipated mercury point source emissions estimate at Goldstike for the roasters and autoclaves is outlined without enough detail to fully evaluate the method. The DSEIS should have reviewed one sample calculation for clarity on how the tabular results on page 3-31, Table 3.10-10, were obtained. Given the data in Table 3.10-10, emissions of mercury are still quite significant, apparently due to the very high in mercury content as of the Cortez Hills deposit.

Responses

O-001-7 The BLM has considered these values; please see the responses to comments O-001-4 and O-001-5 regarding the spiritual, religious, and cultural uses/values of water in the study area and the response to comment O-001-2 relative to the BLM's compliance with FLPMA and NEPA, including their implementing regulations.

O-001-8 The potential environmental impacts of groundwater pumping were fully evaluated and described in Section 3.2 and the responses to comments (Appendix F1) of the Cortez Hills Expansion Project Final EIS (2008a). For water resources, the scope of the SEIS is to provide supplemental information and analysis to refine the evaluation of the effectiveness of mine dewatering mitigation measures provided in Mitigation Measure WR1b in the Final EIS (BLM 2008a) as per the findings of the United States District Judge Larry R. Hicks on April 13, 2010 (Order on Preliminary Injunction, April 2010 [South Fork Band et al. v. U.S. Department of Interior et al. 3:08cv616 LRH [D. Nev.]]). See the response to comment O-001-3 for additional information relative to the scope of the SEIS.

As clarification, the Cortez Hills Expansion Project Final EIS (BLM 2008a) analysis used a calibrated model to predict the dewatering-induced groundwater drawdown area. The Final EIS also identified all inventoried perennial waters within in the modeled drawdown area and evaluated the potential impacts to these resources using the best available information on the geology and hydrogeology of the area. The analysis used environmentally conservative assumptions to identify all known perennial waters that could be impacted, even in cases where the impact is not certain (BLM 2008a, pages 3.2-4 through 3.2-11 and 3.2-54 through 3.2-59). In addition, the Final EIS described the potential impacts that could occur to these perennial waters and then provided monitoring and mitigation measures to address these potential impacts.

As explained in Section 3.1 of the Draft SEIS, the mitigation measures are contingent because it remains uncertain whether flows at specific surface waters identified as "potentially" impacted by groundwater drawdown ultimately would be affected. The monitoring and mitigation measures adopted by BLM include monitoring of both groundwater levels and surface water flows to determine whether and when a specific site might be impacted. If a site is impacted, then the specific measures in the contingency plan would be implemented, and the success of those measures also would be monitored. The SEIS contains an analysis of the effectiveness of each measure proposed for each potentially impacted seep or spring.

Responses

- O-001-8 Please see the response to comment O-001-2 relative to BLM's (cont'd) compliance with FLPMA regarding the potential for undue and unnecessary degradation.
- O-001-9 Please see the response to comment O-001-3 relative to the scope of the SEIS and the response to comment O-001-8 relative to the Final EIS analysis of potential mine dewatering effects on perennial waters. The BLM disagrees with the commenter's apparent reading of the Ninth Circuit's decision; the Ninth Circuit's decision addressed only the question of Mitigation Measure WR1b for surface water resources (South Fork Band Council v. U.S. Department of Interior, 588 F.3d 718,727 [9th Circuit 2009]; South Fork Band Council v. U.S. Department of Interior, No. 09-15230 [9th Circuit March 2009] [Appellants Opening Brief]).
- O-001-10 Potential project-related impacts to surface water and groundwater resources were analyzed in the Cortez Hills Expansion Project Final EIS (BLM 2008a), and monitoring and mitigation measures were identified to address the potential impacts. Please refer to the response to comment O-001-3 for a discussion of the scope of the SEIS and responses to comments O-001-8 and O-001-9 regarding the Ninth Circuit Court ruling. Comments O-001-9 and O-001-10 quote selected language from the Ninth Circuit Court opinion, which the BLM does not believe accurately reflects the ruling of the Court.
- O-001-11 Please see the responses to the individual comments in the technical memorandum referenced in this comment. The individual responses to the technical memorandum begin with the response to comment O-001-20.
- O-001-12 Mercury emissions associated with the processing of Cortez refractory ore at Goldstrike are based on the amount of Cortez refractory ore processed relative to the total amount of ore processed at Goldstrike. Mercury emissions were scaled based on the mercury content of the Cortez refractory ore, as discussed in the section on page 3-29 of the Draft SEIS entitled "Mercury Emissions Apportioned by Throughput."

A sample calculation has been added to the Final SEIS. The Air Sciences technical memorandum, *Impact of Mercury Emissions from Processing Ore from the Cortez Hills Expansion Project and Cortez Gold Mines Operations Area at the Barrick Goldstrike Mine* (referenced in the Draft SEIS as Air Sciences, Inc. 2010c), also has been revised to include a sample calculation.

O-001-13 The impacts of the increased level of mercury emissions at Goldstrike due to Cortez Hills ore processing were evaluated by way of the U.S. EPA mercury deposition REMSAD modeling program. Inputs for the model analysis appear to have been based on the 2008 analysis from the Betze Pit Supplemental Expansion EIS³. The DSEIS should contain a table of the input mercury parameters. The DSEIS states, “The fraction of the maximum annual mercury emissions associated with the processing of Cortez refractory ore at Goldstrike would not contribute significantly to near-field mercury deposition.” (pg. 3-32). However, in reviewing the discussion and tabular data in the Betze SEIS it is not clear how much deposition (in mass per unit area-year) would be attributed to the Cortez ore processing. Furthermore, on page 3.11-18 of the Betze draft SEIS there is a discrepancy or at the very least very confusing data presented. Table 3.11-10 indicates that 92.5% of the Nevada average state-wide mercury deposition is from “global” sources at 11.1 g/km²-y, yet Table 3.11-9 just above shows that measured annual wet deposition from two Northern Nevada locations was 26 and 40 g/km²-y. Without an indication of the uncertainties in these numbers it appears as though local deposition, which includes gold mines, is not the 0.06 to 6.35% of the total deposition, but rather 100 to 200%, based on the differences is about 15 and 29 g/km²-y respectively. In fact, local deposition by this analysis accounts for most of the deposition. The Cortez Hills SEIS needs to clarify the mercury deposition numbers; actual measured and modeled. There should be a table showing the results of the analysis and compared to actual measured, so the public can see how much mercury is “expected” to deposit as a result of the Cortez Hills ore and a sense of the uncertainty in these numbers.

O-001-15 The source of measured wet deposition numbers from the Betze SEIS 26 and 40 g/km²-y is not indicated in the document. However, it appears as though these numbers were obtained from experiments and subsequent analysis carried out from 2003 by a doctoral student of Dr. Mae Gustin (University of Nevada at Reno), which are in tabular form in his doctoral dissertation from 2009.ⁱⁱⁱ The wet deposition data presented in the dissertation are a factor of 10 smaller than those in Table 3.11-9 of the Betze, draft SEIS. The BLM should revisit its analysis on mercury deposition to correct this error.

O-001-16 The DSEIS also fails to at least discuss non-particulate fugitive mercury emissions that result from mercury off-gassing from various mine facilities. Recent work, publicly presented in November 2009, measured these mercury emissions determining that they are not insignificant.^{iv} Two mines were used in the study, Twin Creeks (Newmont) and Cortez-Pipeline (Barrick), where it was estimated that the fugitive emissions accounted for 19% (12 to 21%) and 17% (15 to 31%) of total mercury emissions at Twin Creeks and Cortez-Pipeline respectively. Thus, according to this analysis the increase in emissions due to fugitive (non-particulate) emissions was calculated at 23% (13 to 27%) and 20% (17 to 46%) for the mines respectively. BLM should include an estimate of the potential emissions from the waste rock, heap leach, and tailing mine facilities at Cortez Hills. There could also be an increase in emissions at Goldstrike from similar facilities especially since the Cortez ore has significantly higher mercury content than ore currently processed at Goldstrike.

O-001-17 GBRW does not accept any argument that these fugitive mercury emissions can not be estimated and therefore unknowable. The toxicity of mercury alone demands that every attempt be made to determine the extent of all possible sources and pathways of mercury into the environment. Furthermore, the Mt. Tenabo area is culturally significant, so human visitation can be expected assuming that the mine does not destroy that use. It is now known that “off-gassing” fugitive emission can be significant so the EIS must attempt to address their potential impact. GBRW recommends that BLM work with the researchers of the

Responses

O-001-13 Mercury emissions used to determine the impacts associated with Cortez ore were developed specifically for the Cortez Hills Expansion Project SEIS, as discussed in the Draft SEIS text and as shown in Table 3.10-10 of the Draft SEIS. Mercury deposition impacts were analyzed using the Regional Modeling System for Aerosols and Deposition (REMSAD) model results in a manner similar to the analysis for the Betze Pit Expansion Project Draft SEIS (BLM 2008c). This approach is appropriate because the Goldstrike processing facility is explicitly included in the REMSAD/Aggregator modeling conducted for the Betze Pit Expansion Project Draft SEIS (BLM 2008c).

Inputs (and outputs) for the REMSAD modeling are documented in USEPA Office of Water, *Model-Based Analysis and Tracking of Airborne Mercury Emissions to Assist in Watershed Planning*, November 30, 2006 (USEPA 2006). All inputs and REMSAD analyses were performed by USEPA and its contractors. Reference should be made to that report for further information pertaining to emission inputs. The inputs for Goldstrike may be found on page 7-7 of USEPA (2006) report; a table of these parameters has been added to the Final SEIS as Table 3.10-11.

As explained on pages 3.11-10 to 3.11-14 in the Betze Pit Expansion Project Draft SEIS (BLM 2008c), the AggreGATOR program was used to analyze the REMSAD results for specific sources at specific areas. The text of the Cortez Hills Expansion Project Final SEIS has been revised to expand the discussion of mercury deposition.

O-001-14 The global deposition value of 11.1 g/km² per year is the value that the USEPA REMSAD model uses for an average annual Nevada statewide deposition of mercury. This REMSAD value is the basis for the statement regarding percentage impacts attributable to the project. The measured values from the National Atmospheric Deposition Program Mercury Deposition Network provided in the Betze Pit Expansion Project Draft SEIS (BLM 2008c) are presented as information related to measured levels of atmospheric wet deposition and are not used in calculating the relative percentage of impacts due to the Cortez Hills Expansion Project. The measured wet deposition values at distant sites in northern Nevada are not representative of local deposition due to emissions from Goldstrike sources, as demonstrated in the modeling results presented in the Betze Pit Expansion Project Draft SEIS (BLM 2008c).

The commenter has identified a typographical error in Table 3.11-9 on page 3.11-18 of the Betze Pit Expansion Project Draft SEIS (BLM 2008c). The decimal points in the numbers shown in that table were inadvertently omitted. The correct values are shown below in **Table 1**.

Responses

O-001-14 This revision does not alter the conclusions relative to mercury (cont'd) deposition.

Table 1 Cumulative Mercury Monitoring Data

Sampling Site	Annual Total Mercury Wet Deposition (g/km ²)	
	2003	2005
Lesperance Ranch NV02	3.0	2.6
Gibbs Ranch NV99	4.3	4.0

According to USEPA 2006, Mercury Deposition Network (MDN) wet deposition data may underestimate wet deposition of mercury by 16 percent. Accounting for this underestimation shows that annual wet mercury deposition from the two northern Nevada sampling sites may range from 3.0 g/km² to 5.0 g/km². With this re-estimation, the measured wet deposition rates compare well with those predicted by REMSAD.

Wet deposition is a component of total deposition in an area (i.e., the sum of wet deposition and dry deposition equals total deposition). The MDN mercury deposition data only include the wet deposition component. There is good agreement between MDN wet deposition data and the wet deposition component of the global background estimate provided by REMSAD. For the Nevada grid cell for which REMSAD results were analyzed, the total background deposition is 10.2 g/km², of which 5.0 g/km² is attributable to wet deposition (Air Sciences 2010d). This is consistent with the upper range of the measured deposition.

The monitoring sites are at specific locations and provide deposition results for the specific time period during which monitoring took place. The mercury deposition data presented in the Betze Pit Expansion Project Draft SEIS (BLM 2008c) were from the nearest MDN monitoring sites to the study area. The Lesperance Ranch site is located approximately 68 miles northwest of the Goldstrike Mine, and the Gibbs Ranch site is located approximately 73 miles northeast of the Goldstrike Mine.

The Cortez Hills Expansion Project Draft SEIS statement noted in the comment relative to mercury emissions and subsequent mercury deposition associated with processing of Cortez refractory ore at Goldstrike has been replaced with a more detailed discussion based on the REMSAD results. It should be noted that the REMSAD model takes into account multiple pathways for mercury deposition and re-emission to the atmosphere, and care must be taken to interpret and compare model output values with measurements such as those taken at the Lesperance and Gibbs ranches.

Responses

O-001-15 Pages 3.11-17 to 3.11-18 of the Betze Pit Expansion Project Draft SEIS (BLM 2008c) include a complete discussion of the basis for the wet deposition data presented therein:

“Mercury deposition rate data have been collected from two wet deposition monitoring sites in northern Nevada that are part of a National Mercury Deposition Network. These sites are outside of the study area, but they are the nearest source of cumulative mercury monitoring data. The monitoring data presented here (Table 3.11-9), represent cumulative effects from a wider area of influence than the study area, but the data are believed to be representative of the trend in environmental impacts from atmospheric releases of mercury involving sources in the study area. The Lesperance Ranch site (NV02) is located approximately 85 miles northwest of the study area, and the Gibbs Ranch site (NV99) is located approximately 73 miles northeast of the study area. These sites began collecting mercury wet deposition data in early 2003, and data are available through 2005. Measured wet deposition for the Mercury Deposition Network sites in northeastern Nevada decreased slightly from 2003 to 2005.”

Please see the response to comment O-001-14 relative to the typographical error in the wet deposition data table presented in the Betze Pit Expansion Project Draft SEIS (BLM 2008c).

O-001-16 As the comment states, a methodology for assessing fugitive mercury emissions from mine facilities has been developed by the University of Nevada Reno (UNR) under the direction of the NDEP. NDEP’s advisory committee for this effort included a member of the Board of Directors of Great Basin Resource Watch. As noted in the comment, this information has only recently become available. While mercury emissions were discussed in the Cortez Hills Expansion Project Final EIS (BLM 2008a), the Final EIS did not include a specific estimate of fugitive mercury emissions. Information on fugitive emissions of mercury has become available since the publication of the Final EIS, and it is presented below. (Please see the response to comment O-001-3 for clarification on the scope of the SEIS.)

As part of their field work, UNR collected field data and developed an estimate of 42 pounds per year for the existing facilities at Cortez (e.g., Pipeline and Cortez Mines); see **Table 2**.

O-001-16
(cont'd)

Table 2 Fugitive Mercury Emissions - Pipeline and Cortez Mines

Facility	Fugitive Mercury Flux	Mercury Emissions
	($\mu\text{g}/\text{m}^2/\text{year}$)	(pounds/year)
Reclaimed Areas	186	0.93
Waste Rock Facilities	255	2.03
Leach Pads (under spray)	8,720	12.09
Leach Pads (active)	1,040	5.08
Leach Pads (inactive)	262	0.12
Ore Stockpiles	361	0.37
Tailings	12,866	19.82
Open Pits	165	1.71
Total		42.15

Source: Eckley et al. 2010.

Applying these emission rates to the facilities permitted under the Cortez Hills Expansion Project would add the emissions indicated in **Table 3**.

Table 3 Estimated Fugitive Mercury Emissions – Cortez Hills Expansion Project

Facility	Fugitive Mercury Flux	Mercury Emissions
	($\mu\text{g}/\text{m}^2/\text{year}$)	(pounds/year)
Waste Rock Facilities	255	4.40
Leach Pads (under spray)	8,720	7.46
Leach Pads (active)	1,040	3.26
Ore Stockpiles	361	0.11
Tailings	12,866	10.77
Open Pits	165	1.23
Total		27.22

Source: Eckley et al. 2010.

The emissions rates developed from measurements at the Pipeline and Cortez mines are applicable to the materials mined at Cortez Hills and milled at the Pipeline Mill because those materials originate in similar lithologies with similar mercury concentrations (Geomega 2007, Figure 3-9, part 6).

Responses

O-001-16 (cont'd) UNR measured fugitive mercury fluxes from Pipeline ores containing between 1.6 and 70 mg/kg mercury, with their reported flux based on an average ore mercury content of 16 mg/kg. The projected average mercury concentration in the refractory ore scheduled for shipment from Cortez to Goldstrike is approximately 80 mg/kg, a value higher than the upper end of the range analyzed in the UNR study. However, UNR recognized a weak positive correlation between mercury concentration and fugitive emission flux in their study, finding that measured fluxes were substantially more dependent on other factors such as material grain size, material moisture, and solar radiation.

In response to the comment, UNR measurements of fugitive emissions of mercury from facilities at Cortez also have been used to estimate potential emissions from processing Cortez refractory ore at the Goldstrike facilities. Cortez refractory ore shipped to and processed at Goldstrike would be found at two Goldstrike locations: an ore stockpile and the tailings impoundment. The text of the Final SEIS has been revised to include those estimates. A discussion of potential cumulative impacts associated with fugitive mercury emissions also has been added to the Final SEIS.

O-001-17 An estimate of fugitive mercury emissions associated with “off-gassing” and associated depositional impacts is provided in the response to comment O-001-16. During the UNR fugitive emissions study, mercury air concentration measurements were taken at the same active and inactive facility locations where flux emissions were measured. UNR’s reported air concentrations at Cortez facilities ranged between 0.010 and 0.066 $\mu\text{g}/\text{m}^3$.

The Mine Safety and Health Administration (MSHA) has set the limit for airborne mercury at 50 $\mu\text{g}/\text{m}^3$, finding that a worker may be exposed at this level 8 hours per day, 40 hours per week repeatedly, without adverse effect (MSHA 1997). This standard is a time-weighted average, meaning that there may be times that the levels of airborne mercury are higher, but that they must average no higher than 50 $\mu\text{g}/\text{m}^3$. Another workplace health organization, the American Conference of Governmental Industrial Hygienists (ACGIH) recently set a workplace standard, also for 8 hours per day, for airborne mercury of 25 $\mu\text{g}/\text{m}^3$ (ACGIH 2009).

O-001-17 (cont'd) study to get a handle on an estimate (Dr. Mae Gustin is on faculty at the University of Nevada in Reno, so very accessible).

O-001-18 Overall several aspects of the mercury analysis are deficient. The deposition analysis appears to be in error and the data is not sufficiently presented in the SEIS (or supporting technical memos). It is not clear that dry deposition (which could be from about 10 to 90 % of the total mercury deposition)¹ is being accounted for in that analysis although REMSAD has that capacity. Fugitive non-particulate mercury emissions are not discussed or even acknowledged at all in the analysis

Conclusion

O-001-19 Great Basin Resource Watch and the Western Shoshone Defense Project still view the Cortez Hills Expansion FEIS and this draft Supplementary EIS as incomplete and inadequate. The proposed action will cause unnecessary and undue degradation to the environmental and cultural aspects of the Mt. Tenabo region. The mitigation measures discussed in the FEIS and DSEIS do not sufficiently address the severe impacts of the Cortez Hills mine to protect vital resources.

Thank you for your attention to all comments on the DSEIS, and we are always available for any follow up discussions.

Sincerely,



John Hadder
Director

Carrie Dann

/s/ Carrie Dann

Executive Director, Western Shoshone Defense Project

Responses

O-001-17 (cont'd) The World Health Organization (WHO) has established a guideline for chronic exposure to airborne mercury in a residence. The standard it promulgated is 1 µg/m³ (WHO 2000). The WHO defines “chronic exposure in a residence,” as exposure of a person for more than a year and up to a lifetime continuously in the home. The standard was designed to be protective of the most sensitive segments of the population (i.e., pregnant women and small children). It was developed based on a determination of the lowest level considered safe for sensitive populations, divided by a safety factor of 10. The USEPA (USEPA 2010c) has established a reference concentration for chronic inhalation exposure (RfC) of 0.3 µg/m³. An RfC is an estimate (with uncertainty spanning perhaps an order of magnitude) of a daily inhalation exposure of the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime.

Because reported mercury air concentrations on site are lower than suggested limits or standards for long-term workplace and residential settings, visits to the project area would not result in exposure to mercury air concentrations that would have an adverse health affect.

O-001-18 See responses to comments O-001-15 and O-001-16. The commenter is correct that REMSAD accounts for dry deposition. Since the analyses of mercury deposition in the Cortez Hills Expansion Project Final EIS (BLM 2008b), the Draft SEIS, and these responses are based on REMSAD, dry deposition is accounted for. For a more complete discussion of REMSAD, refer to the USEPA Office of Water, *Model-Based Analysis and Tracking of Airborne Mercury Emissions to Assist in Watershed Planning*, November 30, 2006 (USEPA 2006).

O-001-19 BLM acknowledges the position of Great Basin Resource Watch and Western Shoshone Defense Project. The comment raises issues that were addressed in the Cortez Hills Expansion Project Final EIS (BLM 2008a), and BLM’s analysis of those issues was upheld by the District Court. The specific comments regarding the Cortez Hills Expansion Project Draft SEIS have been addressed in these responses.

¹ Geomega, 2007. Groundwater Flow Modeling Report for the Cortez Hill Expansion Project. Prepared for Cortez Gold Mines. August 15, 2007.

² Bureau of Land Management, *DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT, Betze Pit Expansion Project*, August 2008.

³ Lyman, Seth Neeley, “Investigation of Atmospheric Mercury Concentrations and Dry Deposition Rates Using Established and Novel Methods,” Doctoral Dissertation, August 2009.

⁴ Eckley, CS², Gustin, M², Miller, MB², Marsik, F^b, “Fugitive Mercury Emissions From Nevada, USA Gold Mines,” (a University of Nevada Reno, Department of Natural Resources and Environmental Science), (b -University of Michigan, Department of Atmospheric, Oceanic and Space Sciences), November 20, 2009.

⁵ Lyman, pg. 61.

Technical Memorandum

Review of the Draft Supplemental Environmental Impact State

Cortez Hills Gold Mine

September 22, 2010
Prepared for Great Basin Resource Watch
Reno, NV

Prepared by
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O-001-20

The Bureau of Land Management has recently released the draft supplemental environmental impact statement (DSEIS) for the Cortez Hill Expansion project. This DSEIS reflects the BLM's "refinement" of the "analysis of the effectiveness of measures adopted to mitigate potential impacts to surface water resources (e.g., seeps and springs) from mine-related groundwater pumping" (DSEIS, p. 1-1. Importantly, the DSEIS does not propose new mitigation measures. BLM references a report (CGM and JBR, 2010) which discusses in detail the mitigation proposed in the final environmental impact statement (FEIS). BLM also does not do any additional analysis of the effects that dewatering will have the surface water resources. This review considers the DSEIS, FEIS regarding references from the DSEIS, the groundwater modeling report (Geomega, 2007) regarding discussion about the springs and related analysis results, and the detailed mitigation plan (CGM and JBR, 2010).

Summary

O-001-21

The primary water resources purpose of the DSEIS was to reanalyze the monitoring and mitigation plan. The monitoring is insufficient to the task of protecting the value of spring resources because it depends on monitoring the source rather than the groundwater in between the dewatering and the spring. The plan monitors the degradation as it occurs rather than groundwater levels which would signal when the damage is going to occur. The trigger for implementing mitigation is for the flow to drop below certain levels or for certain amounts of the wetland to vegetation to die. In other words, mitigation does not begin until the dewatering damages the resource. The BLM should implement a groundwater well monitoring scheme to protect these resources.

Responses

O-001-20 Comment noted; responses are provided to specific comments below.

O-001-21 The comment is incorrect in stating that the primary purpose of the SEIS is to "reanalyze the monitoring and mitigation plan." The scope of the water resources analysis in the SEIS is to provide supplemental information and analysis to refine the evaluation of the effectiveness of mine dewatering mitigation provided in Mitigation Measure WR1b in the Cortez Hills Expansion Project Final EIS (BLM 2008a).

The comment does not consider existing groundwater monitoring being conducted at the Cortez Hills Expansion Project and the associated reporting requirements. As described in Section 3.2 of the Cortez Hills Expansion Project Final EIS (BLM 2008a), groundwater levels in the project area are monitored extensively. The Cortez Hills Expansion Project includes an existing network of groundwater monitoring wells for monitoring water levels in various lithologic units within the projected mine-related groundwater drawdown area. As described on page 3.2-20 of the Final EIS (BLM 2008a), the monitoring network includes 80 wells located in Crescent Valley in the vicinity of the Pipeline Pit and infiltration basins in the vicinity of the Cortez window, and 26 wells located in the Cortez Hills Complex area. The groundwater monitoring network is part of the Cortez Integrated Monitoring Plan described in Appendix 7 of the Plan of Operations Amendment (Cortez Gold Mines and SRK 2008) and approved by both the BLM and the Nevada Division of Water Resources (NDWR). The monitoring plan has been in place since the BLM's approval of the initial Pipeline Project in 1996 and has been expanded with subsequent amendments to the Pipeline and Cortez plans of operations, including the amendment for the Cortez Hills Expansion Project. The groundwater monitoring network is designed to delineate the actual drawdown in groundwater levels that results from mine dewatering activities. Mitigation Measure WR1a, included in the Cortez Hills Expansion Project Record of Decision (ROD) (BLM 2008b), specifies that CGM will be responsible for continued monitoring of groundwater levels prior to and during operations and in the post-reclamation period, and providing the results in an annual report to the NDWR and BLM. The groundwater monitoring program is designed to identify changes in groundwater levels and potential associated changes in baseflow between the mine dewatering wells and the perennial surface water resources, respectively, in advance of impacts to those resources. As described in Section 3.2, including Table 3.2-1, of the Draft SEIS, Mitigation Measure WR1b relies on the combined results of the groundwater monitoring and surface water monitoring to trigger the implementation of mitigation measures.

O-001-22 The six potential mitigation strategies do not protect the springs and may even add to the problem. Developing new groundwater resources draws additional water from the very source the dewatering is depleting. Piping water from another surface resource merely transfers the damages to that source. Developing the springs lowers the water table near the spring and dries the resources. Essentially, the BLM treats the springs or seeps as water rather than as functioning features of the environment – they are functioning ecological and geological features that cannot be protected by piping in water from elsewhere.

O-001-23 The only acceptable mitigation is prevention of the damage in the first place. The only way to do this is to reinject some of the dewatering water above the primary spring areas. The geology would be receptive, with fractured carbonate rock above the Toiyabe and Cortez Hills springs, and above the Horse Canyon area. The only way to mitigate this project is to prevent the damage and the only way for that to occur is to inject dewatering water back into the aquifers.

Current Dewatering Rates and the FEIS Groundwater Model Predictions

O-001-24 Cortez Hills has been dewatering at rates to 1900 gpm, as of 3/1/2010. The dewatering occurs under the approval of the 2006 Underground Exploration Project, because dewatering approved for Cortez Hills under the FEIS has been enjoined. The FEIS predicted very little additional dewatering, beyond the amount needed for the Underground Exploration, until 2012. For dewatering years 12-15 (counted from 1996), the Proposed Action dewatering rates are 36,100, 33,900, 32,300, and 33,600 gpm and the No Action rates are 34,800, 33,200, 31,100, and 31,400 gpm, respectively (Geomega, 2007, Table 6-3). No Action includes continuation of mining at Pipeline and the underground exploration while the Proposed Action adds the Cortez Hills pits, additional underground mining (beyond the exploration), and expansion of the Cortez pit.

Pumping at 1900 gpm is less than predicted for the underground exploration, but there is no information on the extent of exploration so a good comparison is not possible.

Water Resource Mitigation

O-001-25 The DSEIS relies on and expands the analysis and description of Mitigation WR-1, which had been originally presented in the FEIS. The FEIS proposed that 10 seeps and springs would be monitored and the DSEIS expands that number to about 30 (DSEIS Table 3.2-1), but this leaves out many additional springs that will be affected by mine dewatering. The protections promised in the FEIS were insufficient, even nonexistent, and they remain so in the DSEIS.

The ten-foot drawdown criteria does not adequately encompass the potentially affected springs.

O-001-26 CGM and JBR (2010) explain that BLM's "standard methodology" is to select "as the area of potential impacts to water resources" is the "ten-foot level" of drawdown. This is not protective of the resource because:

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O-001-22 The effectiveness of the site-specific mitigation measures was evaluated in Table 3.2-1 and under the Mitigation Effectiveness heading on pages 3-13 and 3-14 of the Draft SEIS. It should be noted that the concept of installing a well to supplement flows impacted by mine-induced groundwater drawdown was included as a mitigation measure for the initial mine dewatering operation at the Pipeline Mine in 1996 (BLM 1996); this concept also was included as a mitigation measure for each of the subsequent EISs for Pipeline and Cortez mine expansions (BLM 2008a, 2004, 2000).

As described on page 3-15 of the Draft SEIS, the estimated pumping rates required to supplement flows are low (i.e., 0.5 to 3 gallons per minute [gpm] for springs; 5 to 20 gpm for streams). Additional text has been added to Section 3.2.4 in the Final SEIS under the heading "Environmental Impacts Associated with Implementation of Mitigation Measures" to expand the discussion of potential groundwater drawdown effects associated with this potential additional groundwater withdrawal. In summary, in the unlikely event that all of these contingency wells were installed and pumped at the maximum rate to supplement a total loss of baseflow at all of the identified locations, the total combined pumping rate would be approximately 50.5 gpm. The maximum mitigation pumping of 50.5 gpm represents an increase of 0.1 to 0.6 percent in the annual groundwater withdrawal rate required for mine dewatering operations for the Cortez Gold Mines Operation Area. These low pumping rates would represent a negligible increase in the total amount of groundwater withdrawal required for the Cortez Gold Mines Operation Area.

Groundwater modeling of these low pumping rates (Geomega 2010) indicates that additional pumping that could be required to supplement baseflow reductions is not expected to substantially increase groundwater drawdown over the drawdown previously evaluated in the Cortez Hills Expansion Project Final EIS (BLM 2008a). See the "Mitigation Effectiveness" subsection in Section 3.2.4 of the Final SEIS.

Please see the response to comment O-001-6 relative to the proposed source of mitigation water.

O-001-23 Please refer to the response to comment O-001-2 regarding the Council on Environmental Quality's (CEQ's) definition of "mitigation" under NEPA. The mitigation measures outlined in WR 1b in the Cortez Hills Expansion Project Final EIS (BLM 2008a) and adopted in the ROD (BLM 2008b), and site-specific mitigation measures described in the Draft SEIS, meet the mitigation requirements under NEPA.

Responses

O-001-23 As discussed in the response to comment O-001-21, for water resources, (cont'd) the scope of the Draft SEIS was to provide supplemental information and analysis to refine the evaluation of the effectiveness of mine dewatering mitigation measures provided in Mitigation Measure WR1b in the Final EIS (BLM 2008a). It also is important to note that although Great Basin Resource Watch provided comments (Appendix F1 in BLM 2008a) on the Cortez Hills Expansion Project Draft EIS (BLM 2007), which were responded to in Appendix F1 of the Cortez Hills Expansion Project Final EIS (BLM 2008a), none of the comments raised concerns regarding the proposed water resources mitigation measures outlined in WR1b, or suggested that bedrock reinjection be considered as a mitigation option under WR1b to mitigate potential impacts to perennial water sources.

Reinjection of mine dewatering water into bedrock aquifers as a method to dispose of excess mine water was identified as a possible alternative during scoping for the Pipeline EIS (BLM 1996) and South Pipeline EIS (BLM 2000). Reinjection into bedrock aquifers was considered but eliminated from further consideration for several technical reasons identified in the Pipeline Project Final EIS (BLM 1996; pages 2-43 through 2-45); and in the South Pipeline Project Final EIS (BLM 2000; page 3-32).

The key technical and feasibility issues associated with the concept of reinjecting mine dewatering water into bedrock to prevent impacts to surface water resources in this hydrogeologic setting are identified below. In summary, reinjection of mine dewatering water into bedrock units in this hydrogeologic setting would be difficult to control, could result in unintended consequences, and may not be effective at preventing drawdown impacts to the baseflow of perennial water sources. In addition, reinjection is not a viable mitigation measure to address potential impacts to surface water resources that could result from residual drawdown after the cessation of mining.

The commenter misinterprets the local hydrogeology, concluding that the seeps and springs in the Toiyabe and Cortez Hills areas emanate from carbonate rock. Springs located within the Toiyabe and Cortez Hills areas include six different spring groups (Toiyabe Catchment, Cortez Canyon, Cortez Spring, NE Toiyabe seeps, NE corner seeps and springs, and NE survey area seep) identified in Figure 3.2.3 in the Cortez Hills Expansion Project Final EIS (BLM 2008a). Comparison of these spring locations with the geology of the Cortez Hills area presented in Figure 3.1.3 in the Final EIS BLM 2008a indicates that these springs occur in areas underlain by volcanic (Caetano tuff), intrusive (quartz monzonite), and siliceous (Slaven chert) rock. The hydrogeologic properties of these rock types are summarized in Section 3.2.1.3 in the Cortez Hills Expansion

Responses

O-001-23 (cont'd) Project Final EIS (BLM 2008a) and were evaluated in detail in Geomega 2006. The hydraulic properties of these volcanic, intrusive, and siliceous rock units are considerably less conducive to recharge and reinjection of water than the properties of carbonate rocks. In this hydrogeologic setting, this rock mass generally has very low permeability, and the movement and storage of groundwater is controlled by secondary features such as fractures and faults. The density and interconnection of these secondary features tends to vary between the rock units, and within the individual rock units. In this hydrogeologic setting (i.e., fractured rock with spatially variable secondary permeabilities), it would be difficult to predict, control, and manage the reinjection to maintain groundwater levels and groundwater discharge at specific seep and spring locations because of variable (and generally very low) secondary porosity features within localized areas.

Because of these variable hydraulic rock properties, there is a high potential that reinjection into these bedrock units would result in unintended consequences, such as excessively raising local groundwater levels resulting in the emergence of new springs and streams; localized surface flooding; or increasing the baseflow of existing springs and streams above the current conditions. Another potential undesirable effect is that reinjecting mine water likely would involve extracting water from within or near the ore body and reinjecting it into another rock unit that contains water with different geochemical characteristics.

The location for reinjection proposed by the comment also is unsuitable because it is within the projected groundwater drawdown cone. Because the reinjection would occur within the projected drawdown cone, there likely would be interference between the dewatering drawdown cone caused by the dewatering wells and the groundwater mound caused by the reinjection wells. As a result, some of the injection water would be recaptured by the dewatering system and increase dewatering requirements.

Finally, even if reinjection could maintain groundwater levels (and surface flows at locations that are hydraulically connected), during active dewatering, residual drawdown is predicted to occur after dewatering ceases and could impact baseflow to perennial springs in the post-mining period. Any system that reinjects mine dewatering water would need to be shut down when dewatering ceases. Residual drawdown would affect groundwater levels in the same way as active dewatering, but at a later point in time. Contingent mitigation measures, such as those described in the Contingent Mitigation Plans and analyzed in the SEIS, still would be necessary to address potential impacts to surface water resources during post-mining residual drawdown. For these reasons, reinjection is not

Responses

O-001-23 (cont'd) considered a reasonable or feasible option to prevent potential impacts to surface water resources located in this hydrogeologic setting (i.e., low permeability fractured bedrock with highly variable hydraulic properties).

With regard to the seeps and springs of the Horse Canyon area, those resources are in an area located at elevations more than several hundred feet above the regional water table and are unlikely to be affected by mine-related dewatering in the regional aquifer (see page 3.2-56 of the Cortez Hills Expansion Project Final EIS [BLM 2008a]).

While reinjection into bedrock at this location is not considered feasible, it is important to note that reinfiltration of dewatering water (into unconsolidated sediments that comprise the alluvial aquifer system in Crescent Valley) is a significant component of the Cortez Hills Expansion Project as approved by BLM. Water that is not used in mine processing or for irrigation will be returned to groundwater storage in the same hydrographic basin through infiltration (see the Final EIS Section 2.4.4.8, pages 2-22 through 2-24, and Table 3.2-1, page 3.2-45). An estimated 70 percent of the groundwater pumped will be returned to groundwater storage through infiltration into the alluvial aquifer. In addition, another 20 percent of dewatering water pumped for the mine will be used for irrigation and will offset groundwater drawdown from water that would otherwise be pumped for irrigation.

O-001-24 Comment noted. Predicted dewatering rates and the associated impacts are described in Section 3.2 of the Cortez Hills Expansion Project Final EIS (BLM 2008a).

O-001-25 The comment does not consider existing groundwater monitoring being conducted at the Cortez Hills Expansion Project and the associated reporting requirements; see the response to comment O-001-21. Surface water resources located in areas where mine-induced groundwater drawdown could impact baseflow were listed in Table 3.2-12 in the Cortez Hills Expansion Project Final EIS (BLM 2008a). Figure 3.2-3 of the Final EIS identifies the location of monitored seeps and springs in the hydrologic study area. All 30 of the identified potentially impacted springs are included in the current monitoring plans. Monitoring also is required for many other seeps and springs in the region that are not listed in Table 3.2-1 and have not been identified as potentially affected by groundwater pumping. Seeps and springs have been monitored and reported quarterly since 1996 in the Pipeline area and since 2002 in the Cortez Hills area. Seeps and springs in the Horse Canyon area have been monitored since 2009.

Responses

- O-001-25 Site-specific mitigation triggers, contingent mitigation plans, and (cont'd) evaluation of mitigation effectiveness was summarized in Table 3.2-1 of the Draft SEIS and discussed in Section 3.2.4 of the Draft SEIS.
- O-001-26 See the responses to comments S 002-3 and O-001-3 regarding the scope of the SEIS. The use of the model-simulated drawdown predictions and simulated 10-foot drawdown contour was addressed in the Cortez Hills Expansion Project Final EIS (BLM 2008a), and in responses to comments provided in Appendix F1 of the Final EIS from the Great Basin Resource Watch, prepared by Dr. Tom Myers; see the response to comment O-001-085 in Appendix F1 of the Final EIS (BLM 2008a). As explained in that response and in the Final EIS, the numerical groundwater flow model and the model-predicted 10-foot drawdown cone are predictive tools for assessing potential impacts. Please also refer to the responses to comments O-001-21 and O 001 25 above. Monitoring of groundwater levels and surface water flows is required beyond the predicted maximum 10-foot drawdown contour. It is important to note that Mitigation Measure WR1a included in the ROD (BLM 2008b) states that “If the monitoring results identify changes in flow to perennial waters that are attributable to mine-induced drawdown, the network of monitored seeps, springs, and streams will be expanded to include all perennial surface water features located within 2 miles of the affected area.” This provision addresses concerns expressed in the comment regarding potential effects to surface water resources situated outside of the predicted 10-foot drawdown contour. Mitigation Measure WR1b applies to flow reductions to perennial surface waters resulting from mine-induced drawdown and is not restricted to water resources within the 10-foot drawdown contour. However, since these surface waters were not identified as “potentially impacted”, no contingent mitigation measures were required. The surface waters outside of the 10-foot contour are similar in nature and scale to those included in the contingent mitigation plan. In the unlikely event these additional surface waters are impacted, the same types of measures would be implemented and would effectively mitigate potential impacts to surface water flows.

O-001-26
(cont'd)

- Lowering the water table by any amount beneath a spring connected to an aquifer would change its flow character or the amount of time it is ponded. Many of the springs photographed in CGM and JBR (2010) are ponded water sources without measurable flow. If they depend on groundwater, it is due to the water table intersecting the ground surface. Lowering the water table will cause them to dry or to be dry more frequently.
- It is not necessary for the water table to drop at all to affect spring discharges. Darcy's law (relating flow rate to conductance and gradient) shows that just changing the gradient will decrease the flow, even though the water table still intersects the spring.
- Ten-foot drawdown cone predictions are highly uncertain. If Geomega had placed a confidence limit on the extent of the ten-foot drawdown, much additional area could be involved.
- One reason for the uncertainty mentioned in the previous bullet is the fractured nature of the formations. A fracture could extend the drawdown along a vector away from the mine to cause drawdown at some sites while leaving closer-in sites unaffected.
- CGM and JBR illustrate the complexity of the hydrogeology in the region and "the inherent uncertainty in numerical modeling predictions" (CGM and JBR, 2010, p. 6). This very complexity is a prime reason for being conservative in protecting the springs – actual drawdown may reach areas not even contemplated in the model.

For all of these reasons, it is very reasonable to use the one-foot contour to define the area in which springs should be monitored. Using such a drawdown would extend monitoring to far more springs, but this is necessary to protect the springs and water resources of the area.

The DSEIS fails to consider all of the springs which need monitoring and potential mitigation.

O-001-27

Table 6-15 (Geomega, 2007) shows that at least 40 springs will have drawdown in excess of 10 feet; although some of these will be affected even by the No Action alternative (Table 6-16, Geomega, 2007), the proposed action changes their status to "not recover". DSEIS Table 3.2-1 lists only 30 surface water sources, including three streams, as needing the proposed monitoring and mitigation. The statement that "there were 30 springs and seeps and 3 perennial streams identified within the model-simulated groundwater drawdown area" (DSEIS, p. 3-2) is clearly wrong, based on Geomega (2007). Obviously, the DSEIS fails to monitor some of the springs which dewatering will affect at the ten-foot drawdown contour.

The monitoring proposed in the DSEIS for springs potentially affected by dewatering is insufficient.

O-001-28

The proposed monitoring includes either discharge rates at the source or amounts of vegetation lost at the site (DSEIS, CGM and JBR, 2010). This monitoring documents the degradation. Once the impacts are observed, they will continue for a long time; drawdown at many springs will never recover (Geomega, 2007).

Responses

O-001-27 As discussed in the response to comment O-001-25, all of the potentially affected springs are included within the monitoring plan, as well as other surface water locations in the vicinity of the Pipeline and Cortez Hills mines. The identification and analysis of potentially affected springs, as addressed in Table 3.2-1 of the Draft SEIS, is derived from the analysis provided in Section 3.2.2.2 and Table 3.2-12 in the Cortez Hills Expansion Project Final EIS (BLM 2008a). For clarification, Table 6-15 provided in the groundwater flow model report (Geomega 2007) lists all known inventoried perennial springs located within the drawdown area (as defined by the 10-foot drawdown contour), irrespective of potential impact. Table 3.2-12 in the Cortez Hills Expansion Project Final EIS (BLM 2008a) and Table 3.2-1 in the Draft SEIS list springs located in the model-simulated groundwater drawdown area (as defined by the 10-foot drawdown contour) where baseflow potentially could be impacted by dewatering-induced drawdown. As discussed on pages 3.2-56 to 3.2-57 and noted in footnote 1 to Table 3.2-12 in the Final EIS (BLM 2008a), this table excluded surface water resources located in Horse Canyon that are believed to occur in localized perched groundwater systems that are not hydraulically connected with the regional groundwater flow systems.

The statement on page 3-2 of the Draft SEIS has been revised in the Final SEIS to clarify that the 30 springs and seeps and 3 perennial streams were identified within areas where drawdown could impact perennial flows.

O-001-28 The comment does not consider existing groundwater monitoring being conducted at the Cortez Hills Expansion Project and the associated reporting requirements. Please see the responses to comments O-001-21 (relative to groundwater level monitoring) and O 001-25 (relative to the scope of the monitoring program). Groundwater levels between the dewatering wells and the potentially affected seeps and springs currently are, and would continue to be, monitored. The groundwater monitoring system includes a network of wells located in various lithologies and is intended to monitor groundwater levels as mine dewatering progresses. As described in the response to comment O-001-21, the groundwater monitoring program is designed to identify changes in groundwater levels between the mine dewatering wells and the perennial surface water resources in advance of impacts to those resources. Triggers for implementation of mitigation include consideration of both groundwater levels and surface water flows.

O-001-28 (cont'd) Preferred monitoring would be of groundwater levels between the dewatering and spring/seep being protected. This would allow the detection of drawdown moving towards the site. The monitoring wells should be placed so that once drawdown reaches a trigger point in those wells (defined as a specified drawdown), there remains sufficient time to prevent damages to the spring. Drawdown impacts continue to spread even after pumping ceases (Bredehoeft and Durbin, 2009), so monitoring wells must be placed sufficiently far from the spring to provide sufficient warning time to prevent impacts.

The mitigation plan allows the resources it is intended to protect to be damaged before the mitigation steps begin.

O-001-29 The triggers for implementing the mitigations (which are reviewed below as being inadequate) involve waiting for the resource to be damaged. The mitigation trigger (DSEIS Table 3.2-1) is a reduction or cessation in flow at the site or a reduction below a threshold of the hydrophilic vegetation at the site; most of these cases also require that the monitoring well system indicate that drawdown has occurred in the area. Shoshone Wells is an example. The trigger is: "Cessation of flow coincident with a reduction in groundwater levels in this area, as determined from groundwater monitoring."

These triggers clearly allow dewatering to destroy the resource before triggering a half-measure to replace the water. The only way that monitoring and mitigation can work to prevent the damages is to establish a monitoring well that will show groundwater levels in the area of the spring is decreasing. The trigger must be to begin mitigation when the monitoring well reaches a trigger level.

Proposed mitigation does not fix or prevent the problem of springs/seep/streams going dry.

O-001-30 Mitigation WR-1B includes six different actions that could be taken to counter the effects of dewatering at a given site. None of these methods involves avoiding the depletion or provides for restoring the spring. The methods simply provide for bringing in new water to the location of the spring/seep/stream. The mitigation simply equates a spring/seep/stream with water, not a functioning ecological and geological feature. In this regard, the DSEIS completely fails to mitigate the potential damages. An alternative mitigation is proposed below.

Proposed mitigation methods do not fix the problem nor provide for a remedy to recover the problem; a best they are "band-aid" solutions.

O-001-31 The first two mitigations, *installation of a pump in existing wells and constructing a new well* (DSEIS, p 3-12), would develop a new water source to replace the lost source. Developing new water near the point of drawdown would add to the local deficit and add to the ultimate problem; it treats a symptom by making the disease worse. Without any analysis, the FEIS claims the amounts pumped would be so low as to not increase the drawdown; there is simply no data to

Responses

O-001-29 Triggers for implementation of mitigation include consideration of both groundwater levels and surface water flows. As explained on page 3.2-57 of the Cortez Hills Expansion Project Final EIS (BLM 2008a), the actual impacts to individual seeps, springs, or stream reaches would depend on the source of the groundwater that sustains the perennial flow (perched or hydraulically isolated aquifer versus regional groundwater flow system) and the actual extent of the mine-induced drawdown that occurs in the area. If seep or spring flow is not sustained by, or interconnected with, the regional groundwater system affected by drawdown, then surface water flow would continue even though groundwater levels decline. Therefore, it is necessary to monitor both drawdown in the vicinity of the perennial water source and the flow and site characteristics at each individual water source to determine if an impact has actually occurred and, thus, trigger implementation of the site-specific mitigation plan.

Once mitigation is triggered, contingency mitigation measures could be implemented within a single season (or less), thus minimizing the duration of any associated impacts.

Also see the responses to comments O-001-21 and O-001-28 regarding monitoring groundwater levels between the Cortez Hills Expansion Project dewatering wells and the inventoried springs and streams.

O-001-30 The effectiveness of the site-specific mitigation measures was evaluated in Table 3.2-1 and under the "Mitigation Effectiveness" heading on page 3-13 and 3-14 in the Draft SEIS. As discussed in the response to comment O-001-2, all of the proposed mitigation measures meet the definition of "mitigation" under NEPA. The effectiveness of the mitigation measures was evaluated based on the functions and uses of the seep or spring. The environmental functionality of seeps and springs is inherently tied to the presence of water. If the supply of water is diminished, resupply of that water is the only measure that preserves environmental functionality.

O-001-31 See the response to comment O-001-22 regarding the evaluation of the potential groundwater drawdown effects attributable to new wells that may be required to supplement flows at perennial water sources potentially affected by mine-induced drawdown. The estimated pumping rates required to supplement flows are low (i.e., 0.5 to 3 gallons per minute [gpm] for springs; 5 to 20 gpm for streams). As clarification, where lost surface flows are mitigated by installation of a pump in an existing well or construction of a new well, the water removed from the aquifer essentially would be the same as the original groundwater discharge that sustained baseflow in the seep or spring discharge (not twice as much, as stated in the comment).

- support such a contention. CGM and JBR (2010) contend the discharge from a replacement well would have the same impact as discharge from the spring:
- “To replace surface water resources, new wells would be pumped at a rate necessary to sustain the identified use of these water resources. This rate would be comparable to the ambient flow rate. Therefore, the impact of water supply pumping from a new well on local groundwater resources would be comparable to the impact of the surface water discharge under ambient conditions” (CGM and JBR, 2010, p. 11).
- O-001-31 (cont'd) The logic of this analysis is flawed. The spring or seep went dry because a pump is removing water from the aquifer and lowering the water table near the spring/seep. Effectively, CGM’s dewatering has the same effect as the development of a groundwater supply – replace one discharge, to wetlands or springs, with another discharge, to a well. Of course, CGM’s goal is not development but drawdown, but the hydrologic effects are the same. Dewatering pumpage has replaced the spring discharge as far as it concerns the water balance of the aquifer. Replacing a spring with a well essentially causes the aquifer to be drafted twice at the rate of the original spring discharge. This extra discharge from the aquifer could cause local drawdown and actually exacerbate the problems BLM hopes to mitigate.
- O-001-32 The third mitigation, piping water from an existing source (DSEIS, p 3-12), simply moves the problem somewhere else. The method moves water from an existing source of the same type affected by dewatering. A problem with the method is the new/existing source must be upgradient. Moving water from that source just prevents it use at the original location. The DSEIS also does not discuss the water rights implications of this method.
- O-001-33 The fourth mitigation, guzzlers (DSEIS, p 3-12), really has no hydrologic impact other than to intercept some water that may have gone to recharge or runoff.
- O-001-34 The fifth mitigation, enhance development of an existing seep (DSEIS, p 3-12), can develop more water at a site, but often at the expense of the nearby vegetation. Developing a seep by installing a pipe effectively depresses the water table to the bottom of the pipe – vegetation dependent on the high groundwater table may be affected if the lowered water table is below the root bottoms. Figure 6 (CGM and JBR, 2010) shows clearly how this would affect the spring. BLM would replace the spring with cobbles and then pipe the water to a trough. The cobble will lower the water table even further at the spring, potentially drying the site. Although water may be available for drinking, a trough has none of the functionality of a spring.
- O-001-35 The sixth mitigation, fencing the spring (DSEIS, p 3-12), is more of mitigation for bad livestock grazing. It does not replace any water although eliminating the trampling could help the spring form a more defined channel.
- O-001-36 The DSEIS judges these “mitigations” as to their effectiveness based on whether they replace water flow or not (DSEIS, p. 3-13, -14). On this basis, they deem the first three methods to be highly effective unless the hardware for the replacement water breaks down. They do not

Responses

- O-001-32 Piping water from another existing surface water source is not proposed as a contingency mitigation measure for any potentially affected surface water. Although not presently proposed for any specific location, this measure would consist of piping water from an existing surface water source such as a surface water reservoir designed to capture surface runoff. This measure could be an effective mitigation measure to supplement flows in certain circumstances. For example, if the existing source were used for livestock watering, the water could be piped to the new location without any loss of use. Note that if monitoring indicates the need for implementation of this measure, water rights would be transferred from existing approved locations to modified locations; see the response to comment S-003-1.
- O-001-33 As summarized in Table 3.2-1 of the Draft SEIS, guzzlers would be installed as part of the contingent mitigation plan at two small seeps, if impacts occur. These seeps provide a seasonal water supply for livestock or wildlife. The guzzlers would be effective at maintaining a water supply for livestock and wildlife.
- O-001-34 As summarized in Table 3.2-1 of the Draft SEIS, spring enhancement would be used as part of the contingency mitigation plan at three seeps located in the Northeast Corner seep and spring group. These seeps support willows; however, they generally do not have any observable surface flow. The enhancement would be effective at collecting existing surface flow upgradient of the willows and distributing the flow downgradient to the isolated willow areas to maintain the soil moisture and water source for the existing willows.
- O-001-35 As described in Section 3.2.4 of the Draft SEIS, fencing of existing springs would provide protection from livestock and wild horses, thereby minimizing associated impacts (e.g., increased surface evaporation and reduced flow as a result of overgrazing of vegetation). Fencing from livestock and wild horses also likely would improve channel definition and thereby improve flows in the spring, preserving the use of the surface water resource.
- O-001-36 Effectiveness of mitigation measures is evaluated based on maintaining the environmental functionality of the existing surface water; flow is a significant component of that determination. The impact analysis in the Cortez Hills Expansion Project Final EIS (BLM 2008a) indicates that flow impacts at some perennial sources (if they occur) could persist after mining ceases and may not recover in the long term. Mitigation measure WR1a in the Cortez Hills Expansion Project ROD (BLM 2008b) states that “Monitoring and reporting would continue

O-001-36
(cont'd)

consider that the mitigation may be required for years beyond the end of dewatering, and new sources near the site of lost flow actually increases the local deficit and is counter to goal of restoring water resources. At least, the DSEIS acknowledges that developing the seep and fencing is not effective at all if the water table has been lowered too much. If there is no water, it will not reappear at the surface.

The DSEIS does not consider the length of time the mitigations will be required.

Groundwater levels at about 40 springs never recover from drawdown to within 10 feet of the pre-mine levels (Geomega, 2007). Thirty-two springs will experience drawdown exceeding 10 feet (most far in excess of 10 feet) but the peak drawdown will not occur for more than 100 years after dewatering ceases (Table 6-15, Geomega, 2007).

O-001-37

These facts illustrate two things.

- Mitigation will be required to last forever.
- Monitoring will have to occur for more than 100 years due to the continuing spread of the drawdown.

There is no recognition of this fact in the DSEIS or original FEIS, although the FEIS states that WR-1a “would continue until impacts to water resources have been mitigated” (FEIS, p 3.2-110). *The DSEIS needs to acknowledge that monitoring will be required for at least the time to maximum drawdown predicted by Geomega (2007).*

O-001-38

BLM must also explain what is meant by impacts being “mitigated”. Even if the mitigations in the DSEIS were acceptable (they are not), the impacts of drawdown may change (increase) with time, until long after the dewatering ceases. BLM and CGM must plan for mitigation actions to continue essentially forever because Geomega predicted the drawdown under many springs will never recover.

Responses

O-001-36 (cont'd) until impacts to water resources have been mitigated.” The currently established LTCF provides for continued monitoring and mitigation of the groundwater drawdown effects to surface water resources in the long term. Financial assurance for monitoring and implementation and maintenance of the contingent mitigation measures is provided by the LTCF; refer to the responses to comments F-001-3 and F-001-4 above and the response to comment F-002-003 in Appendix F1 of the Cortez Hills Expansion Project Final EIS (BLM 2008a).

See the response to comment O-001-22 regarding the evaluation of the potential drawdown effects attributable to new wells that may be required to supplement flows.

O-001-37 The Cortez Hills Expansion Project Final EIS (page 3.2-58, Table 3.2-12, footnote 4) (BLM 2008a) indicated the specific perennial surface waters located in areas where the groundwater levels are not predicted to fully recover within 100 years. The potential for springs to experience related long-term drawdown impacts or not fully recover within 100 years also was described on page 3.2-57 in the Final EIS (BLM 2008a). See the response to comment O-001-36 regarding long-term mitigation to address these impacts. Financial assurance for monitoring and implementation and maintenance of the contingent mitigation measures is provided by the LTCF (refer to the responses to comments F-001-3 and F-001-4 above and the response to comment F-002-003 in Appendix F1 of the Cortez Hills Expansion Project Final EIS (BLM 2008a).

O-001-38 The identified mitigation meets the definition of mitigation as defined in the Council on Environmental Quality (CEQ) NEPA implementing regulations (40 CFR 1508.20) and BLM’s surface management regulations (43 CFR 3809.5). The CEQ’s definition of “mitigation” has been added to Section 3.2.4 of the Final SEIS. Please see the response to comment O-001-36 regarding long-term mitigation. Please see the response to comment O-001-2 for additional information relative to mitigation in this context. For a discussion on monitoring and long-term mitigation, see the responses to comments O-001-36 and O-001-37.

Alternative Mitigation Proposal

The mitigation proposed in the DSEIS and FEIS and described by CGM and JBR (2010) is insufficient because replacing water just adds to the problem and the mitigation will be required essentially in perpetuity.

O-001-39

Preferably the BLM will require the mine to prevent the degradation of the springs from even occurring. The best way to prevent degradation is to return the dewatering water to the groundwater system in such a way that some of the worst and/or long-term effects of dewatering are prevented. The Pipeline Deposit mine uses rapid infiltration basins; the Cortez Hills mine will use the same basins. But the RIBs are too far from Cortez Hills to mitigate the deficit created in that mine; moving water to the RIBs creates a surplus there without mitigating the deficit near Cortez Hills. BLM should locate an area nearer to Cortez Hills and require properly-placed injection wells.

The drawdown contours (Figure 2) closely resemble the geology (Figure 1) indicating the different (modeled) hydrogeologic properties constrain the predicted drawdown to certain areas. Two areas of interest are considered here: Shoshone Wells and Horse Canyon. Other springs near Shoshone Wells would also respond to remedies to protect Shoshone Wells¹.

O-001-40

Shoshone Wells discharge from near the contact of carbonate (Ds) and tuff (Tt2) (Figure 1). Carbonate rock also underlies the conglomerate east of Shoshone Wells. The area is highly faulted with many offsets among the formations. Drawdown maps show that Shoshone Wells lie in a zone over which the drawdown increases rapidly over a short distance (Geomega, 2007, Figure 6.52 for example) – in other words, on the lip of the drawdown cone. The steep drawdown contours indicate the modeling simulated the faults and offsets primarily as flow barriers. Discharge from Shoshone Wells most likely is from the carbonate rock.

Geomega indicates many of the springs on the north end of the Toiyabe Range and the Cortez Hills area are on a hillside west of the pit. They suggest that precipitation further up the mountain recharges these springs. But Shoshone Wells and others of these springs lie in the 100- to 300-foot drawdown contours (Figure 2). The pre-mine depth to groundwater is high. There is much uncertainty as to the effect this drawdown will have on the springs. They will be monitored but it would be useful to understand the source of the water.

The BLM should do isotope and other geochemical surveys of the springs to determine the source of recharge. Specifically, the springs would differ in character and chemistry if their origin is carbonate rock or if it is local perched water.

¹ Note that the FEIS and Geomega refer to Mapped Cortez Spring (Geomega, 2007, Table 6-15 for example) meaning Shoshone Wells.

Responses

O-001-39 Please see the responses to comments O-001-31 through O-001-38 regarding the impacts of mitigation and the length of time for monitoring, implementation, and maintenance of mitigation measures. The response to comment O-001-23 addresses the specific reinjection scenario proposed in the comment.

O-001-40 Cortez Spring (also known as Shoshone Wells) consists of a buried pipe that emerges from the ground with a very small flow (0-0.13 gpm). The pipe reportedly carries flow from an adit near an outcrop of Tertiary volcanics (Geomega 2006). See the responses to comments O-001-4 and O-001-6 regarding Shoshone Wells.

The BLM agrees with the conclusion in the comment that there is uncertainty as to drawdown effects at Shoshone Wells and other springs in the northern Toiyabe Range. This uncertainty would likely persist even with additional geochemical and isotopic studies due to the fact that most of these sites are seeps or springs with very small baseflows (typically less than 1 to 2 gpm), and it is very difficult (or impossible at many of the sites) to collect water samples that purely reflect the groundwater discharge component of flow. For example, in many instances, the sites are described as seeps with water that ponds but does not flow (see Table 3.2-1 of the SEIS). Water samples at these sites likely would represent a mixture of: 1) groundwater discharged to the site; 2) water captured at the site through direct precipitation to the pond; and 3) water captured by flow from the local watershed. Poned water also is subjected to evaporative processes that change the geochemical character of the spring. Therefore, additional sampling and analysis of the geochemistry at these sites to definitively identify the source of baseflow would likely be non-conclusive. Regardless of the actual source of baseflow to these springs, the Final EIS (BLM 2008a) analysis conservatively identified all known springs within areas where perennial surface waters could be impacted by drawdown. The contingent mitigation plan is designed to maintain the water sources for the identified uses of these springs if impacts to baseflow occur at any or all of these springs.

As clarification, Shoshone Wells (as shown in Figure 1 in the response to comment O 001-4) is located near the contact of tuff (Tt2) and a thin alluvial surface deposit (Qa). The discharge from Shoshone Wells is from volcanic tuff material.

Please note that the steep drawdown contours in the groundwater flow model are not due to simulation of a fault as a flow barrier (refer to Geomega 2007, Figure 4-6, for the locations of fault barrier sequences).

O-001-41 These springs have great ecologic and cultural significance. The BLM should be proactive in protecting them. Although the steep drawdown contours coincide with the faults on the east side of the bedrock, drawdown in excess of ten feet extends west into the bedrock and further into Crescent Valley. As noted by Geomega, the location of the springs may coincide with faults which provide conduits for flow to reach the surface and dam the downgradient flow.

The BLM should require that CGM inject dewatering water into the carbonate rock west and just north of west of Shoshone Wells. This would counter some of the projected drawdown and would help to keep the Shoshone Wells and remaining Toiyabe springs flowing.

Horse Canyon is east of the proposed Cortez Hills pit. The No Action alternative causes no drawdown in this area, so the project drawdown is due strictly to the Cortez Hills expansion. Geomega Table 6-15 shows that the maximum drawdown under these springs is as much as 106 feet, but also that more than 100 years is required for the maximum drawdown to occur. The slow development is due to the modeled low conductivity. Fractures present in the area may allow the effects to spread more quickly.

O-001-42 Horse Canyon is in an adjacent hydrographic basin, the Pine Valley basin (#53). The drawdown in this canyon is due to the dewatering drawing water from the adjacent basin, effectively establishing an interbasin flow. A large outcrop of Wenban limestone separates Horse Canyon from the mining area. Geomega calibrated this formation with horizontal and vertical conductivity equal to 0.13 and 0.127 ft/d, respectively; fracture limestone, the Roberts Formation, calibrated at 45.5 and 4.55 ft/d, respectively. FEIS Figure 3.1-3 shows multiple faults through this carbonate. Faulting in carbonate rock usually leads to high transmissivity. These factors all suggest that dewatering effects could extend in that direction faster than 100 years.

Geomega Figure 4-6 show the Cortez fault modeled as a “barrier sequence”. It lies between the mine and Horse Canyon. This may slow the expansion of dewatering effects in that direction. A question is whether the effects act through the fault or around the fault. Either way, faults limit the predicted Horse Canyon drawdown, which should be considered very uncertain. Proactive measures to protect the spring complexes in this area should be implemented.

BLM should require injection of dewatering water into the Wenban limestone upgradient from Horse Canyon. Alternatively, a RIB could be used but due to the topography this might be a greater impact than a well.

O-001-43 There are potential issues with this plan regarding the interbasin transfer of water. However, since it is for an environmental purpose, the Nevada State Engineer should permit it.

Responses

O-001-40 Instead, they are due to the lithologic contact between a more permeable carbonate lithology to the east and a less permeable volcanic tuff lithology to the west.
(cont'd)

O-001-41 As noted in the response to comment O-001-5, Section 3.9 of the Cortez Hills Expansion Project Final EIS (BLM 2008a) addressed potential impacts, including cumulative impacts, of the Cortez Hills Expansion Project on Native American traditional values, including ecological and water resources. The Final EIS (page 3.9-50) addressed the importance of water in general, and specific springs in particular, to some Western Shoshone. See the response to comment O-001-23 regarding the potential use of injection wells to mitigate impacts to springs.

As discussed in the response to comment O-001-40, the steep drawdown contours in the groundwater flow model coincide with the lithologic contact between volcanic and carbonate units. Shoshone Wells and several other Toiyabe springs emanate from the volcanic tuff unit (Tt2). There are no carbonate units present at the suggested locations.

O-001-42 See the response to comment O-001-23 regarding the potential use of injection wells to mitigate impacts to springs.

The seeps and springs of the Horse Canyon area are located at elevations more than several hundred feet above the regional water table and are unlikely to be affected by mine-related dewatering in the regional aquifer (Cortez Hills Expansion Project Final EIS [BLM 2008a], page 3.2-56). Therefore, no contingent mitigation measures were required for these seeps and springs.

As shown in Figure 3-7 in Geomega 2007, the Wenban limestone is present at elevations above 8,000 feet above mean sea level (amsl) compared to a regional groundwater table at approximately 7,000 feet amsl. In addition, there are several noncarbonate geologic formations underlying the Wenban Formation that may not readily transmit recharge to the regional groundwater system. As a result, artificial recharge in the Wenban limestone at this location may not substantially affect drawdown in the regional groundwater system and could result in the formation of new springs at higher elevations on the flanks of the Cortez Mountains.

O-001-43 See the response to comment O-001-23 regarding the potential use of injection wells to mitigate impacts to springs. The mitigation measures described and evaluated in Section 3.2.4 of the SEIS would not require the interbasin transfer of water.

Responses

- O-001-43 BLM does not believe that the comment regarding injection (or infiltration) of water at Boulder Flat is accurate and refers the commenter to the Betze Pit Expansion Project Supplemental EIS (2008c) for a discussion of dewatering associated with the Goldstrike Mine.

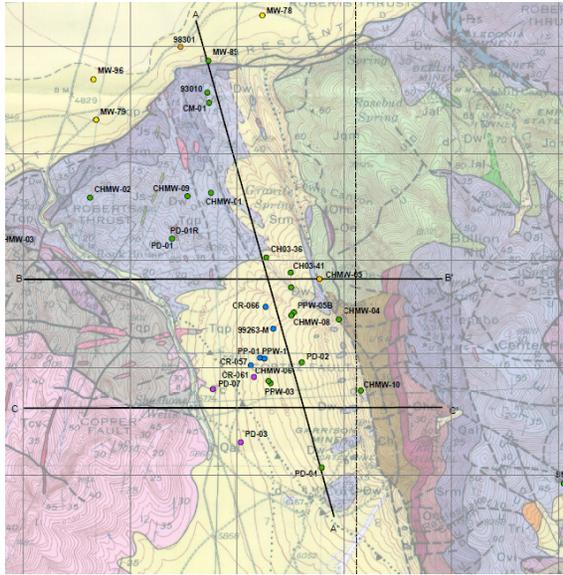


Figure 1: Snapshot of Figure 3-5 from Geomega, 2007). Shoshone Wells are shown SW of the center of the map. Green wells are completed in carbonate rock. The Roberts Thrust roughly corresponds with the narrow Qa formation northwest of Shoshone Wells. The pit area and the area of most drawdown (Figure 2) is between sections B and C and crossed by section A.

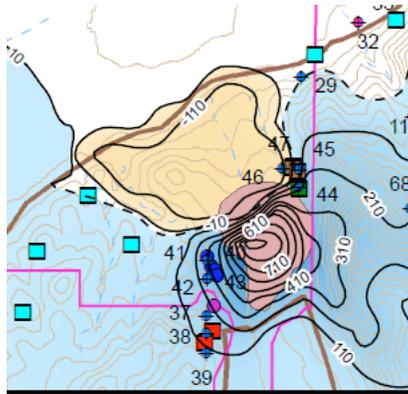


Figure 2: Snapshot of Figure 6-52 (Geomega, 2007) showing drawdown 100 years after dewatering ceases. Maps showing long-term drawdown are relative to the year 2004.

Responses

O-001-43
(cont'd)

Objections to injection in other places should not cause concern at Cortez Hills.

Barrick had attempted injection in Boulder Flat to return dewatering water to the groundwater basin. This attempt was not considered successful because the injection was into volcanic rock. Contaminants leached from the rock and degraded the groundwater. That is not an issue here because the proposal would have water returned to carbonate rock fractures.

A common objection is that the mine will pump the water twice. The solution to this problem is to inject water outside the zone of drawdown as predicted by Geomega (2007). Injection upgradient of a fault that constrains the flow would slow the speed the water returns to the mine area. This problem is not a reason to not reinject because it can be accommodated.

References

Bredehoeft, J., and T. Durbin, 2009. Groundwater Development – The Time to Full Capture Problem. *Groundwater* (2009): 1-9. doi: 10.1111/j.1745-6584.2008.00538.x

Cortez Gold Mine (CGM) and JBR Environmental Consultants, Inc. (JBR) 2010. Technical Memorandum: Contingency Mitigation Plans for Surface Waters, Cortez Hills Expansion Project, Lander and Eureka Counties, Nevada. May 24, 2010.

Geomega, 2007. Groundwater Flow Modeling Report for the Cortez Hill Expansion Project. Prepared for Cortez Gold Mines. August 15, 2007.

DECLARATION OF CARRIE DANN Regarding the Cortez Hills Project

I, Carrie Dann, make this declaration based upon my personal knowledge and belief and state:

I am a traditional Western Shoshone indigenous person residing in Crescent Valley, Nevada in the vicinity of Mt. Tenabo and the proposed Cortez Hills Expansion Project (Cortez Hills Project). My address is P.O. Box 211308, Crescent Valley, Nevada. I am a grandmother and great grandmother and competent to testify.

O-001-44

I am the founding member and director of the Western Shoshone Defense Project (WSDP). My previous Declarations submitted to BLM and the federal courts regarding the Cortez Hills Project are incorporated into this Declaration.

I am aware of the BLM's issuance of the Draft Supplemental EIS for the Cortez Hills Project (DSFEIS, August 2010), to which this Declaration is in response to.

O-001-45

In that DSFEIS, BLM proposes to "mitigate" for the loss or impairment of underground waters and surface springs by simply monitoring the extent of the drawdown of these waters. Thus, only after drawdown and loss of these waters has begun will BLM even consider protecting these waters. That is completely unacceptable. BLM is under an obligation to protect these waters from degradation – waiting until the waters are lost before considering protection is not protection. Life cannot be mitigated. Water is life and only the Great Creator can and should be the sole entity allowed to mitigate the use of water. If BLM is the caretaker of the land then BLM must protect this and all waters that are threatened by mining. If BLM has a plan to substitute gold for water then they must show how we and all life can drink gold. BLM's responsibility is not to allow this to happen.

O-001-46

Further, even when monitoring detects these water losses, BLM's plan for protecting these waters is to bring "replacement" water to supposedly compensate for these lost waters. Such a scheme, even if technically possible (which has not been shown), completely ignores the

Responses

O-001-44 The BLM acknowledges and has reviewed previous declarations of Carrie Dann. Responses to comments provided in previous declarations also are incorporated by reference.

O-001-45 See the response to comment O-001-2 regarding the protection of groundwater and surface water resources and associated mitigation measures. Note that both groundwater levels and surface waters currently are, and will continue to be, monitored; see the response to comment O-001-21. As described in the response to comment O-001-5, BLM has considered the cultural and traditional significance of the waters.

O-001-46 As noted in the response to comment O-001-5, Section 3.9 of the Cortez Hills Expansion Project Final EIS (BLM 2008a) addressed potential impacts, including cumulative impacts, of the Cortez Hills Expansion Project on Native American traditional values, including water resources. The Final EIS (page 3.9-50) addressed the importance of water in general, and specific springs in particular, to some Western Shoshone. Mount Tenabo, the Shoshone Wells camp area, and other places and resources of importance to some Native Americans are addressed in Section 3.9 of the Final EIS.

The technical feasibility of the mitigation measures is discussed in the Contingent Mitigation Plan for Surface Waters (JBR 2010). All of the measures to mitigate specific surface water flows that potentially may be affected by mine dewatering have been successfully implemented in Nevada and elsewhere.

As clarification, the replacement of surface water flows with water from "outside" the Mount Tenabo area is not proposed. If a surface water is hydraulically connected to the regional aquifer and that surface water is affected by mine dewatering, the contingent mitigation measure will provide replacement flow from the same aquifer; see the response to comment O-001-6.

Please also refer to the response to comment O-001-5 regarding the extensive analysis of potential impacts to Western Shoshone spiritual, religious, and cultural values, including potential impacts from mine dewatering, in Appendix F1 of the Cortez Hills Expansion Project Final EIS (BLM 2008a).

Responses

spiritual and religious value of these waters. There should be no water loss; it is reprehensible to even think about water loss. It is our spiritual area that BLM is allowing to be torn up to all for the destruction of the water sources. This would be the second time that the important cultural and spiritual way of life is being destroyed. Remember that land and water is life and life can't exist, that is all forms of life, without land and water, to me this is spiritual and cultural GENOCIDE.

Replacing the waters currently in Mt. Tenabo with outside water represents a severe intrusion into Western Shoshone and my religious beliefs. Water is the source of all life and the power of life flows through water. The water flowing underneath the Mt. Tenabo area is especially important to maintaining the balance and power of life I value as a central tenet of my religious beliefs as a Western Shoshone. Using the water from Mt. Tenabo is considered a sacrament. The elimination of the sacred springs prevents this sacrament and destroys all life.

Under our religious beliefs, the water in Mt. Tenabo is unique and is connected to specific spirits that reside in the Mountain and in the water. These spirits are suffering greatly now, and indeed are being eliminated altogether, when this water is lost through the Project's dewatering operations. BLM should not allow the destruction of Western Shoshone spiritual and cultural areas, when they do allow the destruction of the Western Shoshone beliefs and culture it is genocide. Such water, and these spirits, cannot be "replaced" by foreign water piped or otherwise delivered to the Mountain from elsewhere.

BLM's plan to first monitor these water losses, and only then "replace" these lost waters utterly fails to respect the religious traditions of Western Shoshone people, including myself. The loss of these irreplaceable waters, and the spirits and religious values of these waters, constitutes irreparable damage to them, as well as to the fundamental religious practices and beliefs of myself and other traditional Western Shoshone. The BLM, representing the U.S. and the Obama administration, is totally ignoring our ancient teachings, which to us is equivalent

O-001-46
(cont'd)

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O-001-46
(cont'd)

to the teachings observed in Judaism, Islam and Christianity. It has been the practice of non-indigenous religions to destroy the traditional indigenous practices, like what happened in Europe during the Crusades when all traditional practices were destroyed.

I declare under penalty of perjury that the foregoing is true and correct to the best of my personal knowledge, information and belief.

Executed this 29th day of September, 2010 at Crescent Valley, Nevada.

Carrie Dann

/s/ _____
Carrie Dann

DECLARATION OF JOE KENNEDY Regarding the Cortez Hills Project

I, Joe Kennedy, make this declaration based upon my personal knowledge and belief and state:

O-001-47

I reside in Oasis, California. I am 43 years old and competent to testify. I am the elected Chairman of the Timbisha Shoshone Tribe (“Timbisha”). My previous Declarations submitted to BLM and the federal courts regarding the Cortez Hills Project are incorporated into this Declaration.

O-001-48

The Timbisha Shoshone Tribe is a federally-recognized Indian Tribe whose ancestral homelands encompass much of western Nevada and eastern California. Timbisha’s headquarters is located in Death Valley, CA. Although the land base for the Timbisha is in western Nevada and eastern California, the Tribe and its members have concrete and significant interests in the lands affected by the Project, and use these lands for traditional, cultural, and religious purposes. These interests will be, and are being, negatively affected, and many will be eliminated, by the Mine.

The Project area includes Mt. Tenabo (including the piñon bearing Pediment area at the base of Mt. Tenabo, and portions of Grass Valley) and surrounding lands. Mt. Tenabo is a sacred Mountain, one of the most sacred places for Western Shoshone.

Of particular importance to me is the Project’s severe impacts to the sacred waters of Mt. Tenabo, which due to the Project’s massive dewatering operations, will cause the permanent loss of sacred springs, such as the Shoshone Wells Spring.

O-001-49

I am aware of the BLM’s issuance of the Draft Supplemental EIS for the Cortez Hills Project (DSFEIS, August 2010), to which this Declaration is in response to. BLM’s proposes to “mitigate” for the loss or impairment of groundwaters and surface springs by simply monitoring the extent of the drawdown of these waters. Thus, only after drawdown and loss of these waters

Responses

O-001-47 The BLM acknowledges and has reviewed previous declarations of Joe Kennedy. Responses to comments provided in previous declarations also are incorporated by reference.

O-001-48 As noted in the response to comment O-001-5, Section 3.9 of the Cortez Hills Expansion Project Final EIS (BLM 2008a) addressed potential impacts, including cumulative impacts, of the Cortez Hills Expansion Project on Native American traditional values, including water resources. The Final EIS (page 3.9-50) addressed the importance of water in general, and specific springs in particular, to some Western Shoshone. Mount Tenabo, the Shoshone Wells camp area, and other places and resources of importance to some Native Americans are addressed in Section 3.9 of the Final EIS.

O-001-49 The comment does not accurately reflect the monitoring and mitigation for the Cortez Hills Expansion Project. Please see the responses to comments O-001-21 and O-001-29 relative to monitoring and mitigation.

Responses

O-001-49
(cont'd) has begun will BLM even consider protecting these waters. That is completely unacceptable. BLM is under an obligation to protect these waters from degradation – waiting until the waters are lost before considering protection is not protection.

Further, even when monitoring detects these water losses, BLM’s plan for protecting these waters is to bring “replacement” water to supposedly compensate for these lost waters. Such a scheme utterly ignores the spiritual and religious value of these waters. According to my (and many other Western Shoshone) religious beliefs, water is one of the most sacred things. Replacing the waters currently in Mt. Tenabo with outside water represents severe degradation of these resources and of Western Shoshone and my religious beliefs. Water is the source of all life and the power of life flows through water. The water flowing underneath the Mt. Tenabo area is especially important to maintaining the balance and power of life I value as a central tenet of my religious beliefs as a Western Shoshone.

O-001-50 Under our religious beliefs, the water in Mt. Tenabo is unique and is connected to specific spirits that reside in the Mountain and in the water. These spirits will suffer greatly, and indeed will likely be eliminated altogether, when this water is lost through the Project’s dewatering operations. Such water, and these spirits, cannot be “replaced” by foreign water piped or otherwise delivered to the Mountain from elsewhere. BLM’s plan to first monitor these water losses, and only then “replace” these lost waters utterly fails to respect the religious traditions of Western Shoshone people, including myself. The loss of these irreplaceable waters, and the spirits and religious values of these waters, constitutes irreparable damage to them, as well as to the fundamental religious practices and beliefs of myself and other traditional Western Shoshone.

O-001-50 See the response to comment O-001-46.

Responses

I declare under penalty of perjury that the foregoing is true and correct to the best of my personal knowledge, information and belief.

Executed this 4th day of October, 2010 at Oasis, California.

/s/ Joe Kennedy

Joe Kennedy

Responses

O-001-51 The BLM acknowledges and has reviewed previous declarations of Larson Bill. Responses to comments provided in previous declarations also are incorporated by reference.

O-001-52 As noted in the response to comment O-001-5, Section 3.9 of the Cortez Hills Expansion Project Final EIS (BLM 2008a) addressed potential impacts, including cumulative impacts, of the Cortez Hills Expansion Project on Native American traditional values, including water resources. The Final EIS (page 3.9-50) addressed the importance of water in general, and specific springs in particular, to some Western Shoshone. Mount Tenabo, the Shoshone Wells camp area, and other places and resources of importance to some Native Americans are addressed in Section 3.9 of the Final EIS. Also, note that the CEQ's definition of "mitigation" has been added to Section 3.2.4 of the Final SEIS.

DECLARATION OF LARSON BILL Regarding the Cortez Hills Project

I reside in South Fork, Nevada. I am 61 years old and competent to testify.

O-001-51

I am the elected Council Member of the South Fork Band Council of Western Shoshone of Nevada ("South Fork Band") and of the Te-Moak Tribe of Western Shoshone ("Te-Moak Tribe"). My previous Declarations submitted to BLM and the federal courts regarding the Cortez Hills Project are incorporated into this Declaration.

I am aware of the BLM's issuance of the Draft Supplemental EIS for the Cortez Hills Project (DSFEIS, August 2010), to which this Declaration is in response to. BLM's plan to simply monitor for the damage to the sacred waters of Mt. Tenabo, and then only attempt to "mitigate" for these losses by replacing these waters by importing outside waters, is completely unacceptable. This ignores the sacred nature of the waters in Mt. Tenabo. They are unique and irreplaceable. Any water piped or otherwise transported to Mt. Tenabo to supposedly replace/mitigate for the waters lost through Barrick's dewatering will not contain the same spirits that currently are part of the existing waters. BLM cannot replace these spirits by simply bringing in foreign water.

O-001-52

To BLM, water is simply a commodity that can be moved around – without any regard for the religious and spiritual values inherent in water that exists at unique locations such as at Mt. Tenabo. To myself and other traditional Western Shoshone, the water at Mt. Tenabo is sacred and irreplaceable and cannot be protected by simply importing different water to the site.

BLM is under an obligation to protect the unique waters in Mt. Tenabo. The scheme proposed in the DSFEIS fails this duty. Again the BLM undermines the Shoshone People's lands, religious and spiritual rights under the shadows of the 1872 mining law.

I declare under penalty of perjury that the foregoing is true and correct to the best of my personal knowledge, information and belief.

Responses

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CAVANAUGH BILL

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Executed this 23 day of September, 2010 at Spring Creek, Nevada.

/s/ Liam Larson
Larson Bill

Attention: Christopher Worthington
Bureau of Land Management
Battle Mountain Field Office
50 Bastian Road
Battle Mountain, NV

RECEIVED-MAILROOM
SEP 30 AM 11:03
BUREAU OF LAND MANAGEMENT
BATTLE MOUNTAIN
DISTRICT OFFICE

September 28, 2010

Re: Cortez Hills Expansion Project draft Supplementary Environmental Impact Statement

Dear Mr. Worthington,

O-002-1 I appreciate the opportunity to comment on the Cortez Hills Expansion Project Draft Supplementary Environmental Impact Statement and urge the Bureau of Land Management to deliberate with great consideration on this very controversial project.

O-002-2 The permanent impacts of the project to the cultural and spiritual practices of the Western Shoshone are undeniable. Mt. Tenabo has been, and continues to be, used by Western Shoshone people as a central part of their religious practices. Western Shoshone visit the mountain and the valley below (the location of the mine pit) for prayer ceremonies, gathering of sacred plants, fasting, and vision quests. The Mountain also contains Western Shoshone gravesites. All of these values and uses will be destroyed by the Project.

O-002-3 In addition, the massive pumping of groundwater will dry-up culturally significant and sacred springs and streams on and around Mt. Tenabo. I do not feel that the analysis is adequate in terms of the impacts from pumping the groundwater. I understand that the water table will not recover completely, but I didn't see any discussion of that. Is the BLM planning to maintain a water replacement procedure indefinitely? What happens when the mine is closed up? Who will be responsible for maintaining those springs that will not recover on their own? To be stewards of the land, we must maintain essential springs whenever possible.

O-002-4 I also do not agree that the mitigation plan of replacement of water from another well is the right thing to do. Any spring, especially when it has special significance from a cultural perspective, cannot be protected by just replacing it with another source. Will the water quality be the same? How will the "different" water affect the plants, animals, and microbes that utilize that water? I didn't see any analysis of this in the document.

O-002-5 I was also alarmed at how much mercury would be released into the air as a result of this project – almost 1,800 pounds over the course of the existence of the mine. The SEIS states, "The fraction of the maximum annual mercury emissions associated with the processing of Cortez refractory ore at Goldstrike would not contribute significantly to near-field mercury deposition,"

Responses

O-002-1 Comment noted. The BLM appreciates your interest in this project. The BLM has addressed, and will continue to address, the issues associated with the Cortez Hills Expansion Project.

O-002-2 Potential impacts to Native American traditional values associated with the Cortez Hills Expansion Project were considered by the BLM. The BLM conducted a comprehensive analysis of the impacts, including cumulative impacts, to Native American traditional values in Section 3.9 of the Cortez Hills Expansion Project Final EIS (BLM 2008a). This analysis addressed the values and uses identified in this comment. Please also see the response to comment O-003-004 in Appendix F1 of the Cortez Hills Expansion Project Final EIS (BLM 2008a) and responses to comments O-001-4 and O-001-5 above relative to Native American use of the project vicinity.

As discussed in Section 3.9 and response to comment O-003-018 in Appendix F1 of the Cortez Hills Expansion Project Final EIS (BLM 2008a), although evidence of burials has not been found on Mount Tenabo, the BLM designated the top of Mount Tenabo and the White Cliffs as a property of cultural and religious importance. As a result, the Cortez Hills Expansion Project has been designed to avoid physical disturbance of these areas, as discussed in Section 2.4.11.5 of the Final EIS (BLM 2008a).

As discussed in Section 3.8 of the Cortez Hills Expansion Project Final EIS (BLM 2008a), cultural resources inventories (Class I and Class III) were conducted within the entire footprint of the project, the results of which were submitted to the BLM and the Nevada State Historic Preservation Office (SHPO) for review and concurrence. All identified NRHP-eligible sites have been treated in accordance with the Historic Properties Treatment Plan approved by the BLM and the SHPO. Based on the results of the cultural resources inventories and Native American consultation, no Native American burial sites have been identified within the project boundary.

O-002-3 Section 3.9 of the Cortez Hills Expansion Project Final EIS (BLM 2008a) addressed potential impacts, including cumulative impacts, of the Cortez Hills Expansion Project on Native American traditional values, including water resources. The analysis of potential groundwater pumping impacts to surface water resources, and predictions of long-term residual groundwater drawdown and recovery of spring flows, was evaluated and addressed in Section 3.2.2 of the Cortez Hills Expansion Project Final EIS (BLM 2008a). Mitigation measure WR1a in the Cortez Hills Expansion Project ROD (BLM 2008b) states that "Monitoring

O-002-5
(cont'd)

but it does not say how much this actually is. The SEIS should state how much mercury this would be from year to year and explain why this amount is not significant. Can't mercury accumulate in the environment? It appears that this impact should have been analyzed as well.

Sincerely



Jan Gilbert
Progressive Leadership Alliance of Nevada
821 Riverside Drive
Reno, Nevada 89503

Responses

- O-002-3 (cont'd) and reporting would continue until impacts to water resources have been mitigated." The project's Reclamation Plan provides for mitigation for 3 years post-closure. The LTCF provides for continued long-term monitoring and mitigation in the post-closure period.
- O-002-4 Where water from a new or existing well would be used to supplement or replace baseflow in perennial waters potentially impacted by the mine-induced drawdown, the well would be located in close proximity to the original water source (i.e., no more than 200 feet from the water resource), as stated in the Draft SEIS. The well would target the same geologic formations that controlled discharge to the original spring. In this case, the water quality would be expected to have the same or similar geochemical characteristics as the original spring discharge. As a result, no associated impact to biological resources is anticipated.
- O-002-5 Please see the discussion of mercury emissions in responses to comments O-001-12 through O-001-17. Additional language regarding mercury emissions and deposition has been added to the text of the Final SEIS; see Section 3.10.2.1.

Responses

Sprenger Property Management INC.
225 W. Moana Lane
Reno, NV 89509
(775)826-4414
(775)826-6464
FAX (775)826-0976

Date: 9/28/10

To: Christopher Worthington

Fax Number: 775-635-4034

From: Moana Investments LLC

Number of Pages: 2

Responses

B-001-1 Comment noted.

09/28/10

Moana Investments LLC
225 W. Moana Lane
Reno, NV 89509
775-826-4414

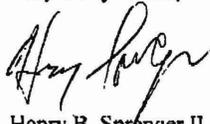
Bureau of Land Management
Battle Mountain Field Office
50 Bastian Road
Battle Mountain, NV 89820

Attention: Christopher Worthington
Re: DEIS Cortez Hills Expansion

I have just finished reading the Cortez Hills Expansion Project Draft Supplemental Environmental Impact Statement, and I agree with the findings. As a landowner with numerous large vacant parcels around Nevada, I am extremely familiar with mining activity. I have dealt with BLM on several occasions and have found them to be thorough in their findings.

I would highly recommend the continuing approval of this project, as I feel it would positively impact the surrounding counties.

Very Truly Yours,



Henry B. Sprenger II
Managing Member

B-001-1

James and Deborah Baratta
225 W. Moana Lane #A
Reno, NV 89509

BLM
50 Bastian Road
Battle Mountain, NV 89020
Attn: Christopher Worthington
CortezHillsDSEIS@BLM.gov

September 27, 2010

RE: DEIS Cortez Hills Expansion Draft Environmental Impact Statement

Dear Mr. Worthington,

I-001-1 We have read the entire Cortez Hills Expansion Project draft (NVN-067575. We have many friends living in the Elko and Battle Mountain areas, a few of whom are employed at the Cortez Mine but most residents and vendors in the area. The economic lift Cortez Hills has given to this area is unbelievable. I have spoken to many residents living in the area and none have felt a negative environmental impact due to this mine's existence but rather a true POSITIVE impact. Mining is a very important part of the economic stability of that entire area, and historically for Nevada, and we strongly feel that the Cortez Hills folks are prudent in their execution of extracting ore from the earth and take responsibility for the environment in leaving it in a better condition than they found it. It would be absurd to allow this operation to halt.

Sincerely,



James and Deborah Baratta
Concern citizens in Reno

2010 OCT -1 AM 11:23
BUREAU OF LAND MANAGEMENT
BATTLE MOUNTAIN
DISTRICT OFFICE

Responses

I-001-1 Comment noted. The BLM recognizes the positive economic impact on the area of the Cortez Hills Expansion Project.

September 21, 2010

Christopher Worthington
Bureau of Land Management
Battle Mountain Field Office
50 Bastian Road
Battle Mountain, NV 89820

RECEIVED-MAILROOM

SEP 27 AM 11:17

BUREAU OF LAND MANAGEMENT
BATTLE MOUNTAIN
DISTRICT OFFICE

I-002-1 I am writing because Barrick Gold Corp. is actively mining at Mt. Tenabo under the constraint of a "limited injunction." The ability of the Western Shoshone to use this Mt. Tenabo for cultural and spiritual practice has been impaired. However, under the injunction, which significantly limits the pumping of groundwater, the waters of Mt. Tenabo are still being protected.

As part of the injunction court order, the BLM was required to redo some of the analysis in the Environmental Impact Statement (EIS) including a meaningful mitigation plan for enormous pumping of groundwater (over a billion gallons) due to "dewatering," particulate air emissions, and mercury emissions. The courts said that the analysis was inadequate, and the BLM has now released the revised analysis in a draft Supplementary EIS.

I-002-2 The BLM needs to determine if seeps and springs are connected to the groundwater aquifer. Replacement of water from another source is not a satisfactory mitigation plan for springs - replacement is not protection. The proposed mitigation procedure for the dewatering impacts is to monitor springs, and once the spring flow drops below a predetermined "trigger," the plan is largely to replace the lost water from elsewhere. This replacement process is not protection of the springs. It also does not maintain the cultural significance of the impacted spring. To the Shoshone the water underground is connected, but each spring source has its own unique spirits that cannot be imported from another source.

Mitigation strategies that prevent the source of a spring from being impacted need to be analyzed.

I-002-3 The SEIS needs to examine the long term impacts of the groundwater loss and the pit lake formation – how will the anticipated permanent decrease in the water table near the open pit be mitigated?

I-002-4 I have read that mercury emission will still be high; the local deposition numbers are not mentioned.

I-002-5 Mercury emissions from non-point sources like the waste rock piles and heap leach pads are not analyzed – these are called "fugitive emissions" and can be significant.

I-002-6 It is imperative that the BLM take a hard examination of the seeps and springs to determine whether each is connected to the aquifer that will be affected by groundwater pumping. There must also be analysis of mitigation approaches that prevent the source of the springs to be directly affected, especially for those that have special cultural and/or spiritual significance.

Thank you for your help on behalf of Mt. Tenabo.

Yours truly,



J. Capozzelli
New York

Responses

I-002-1 Comment noted regarding the limited injunction.

The analysis of potential groundwater pumping impacts to surface water resources was evaluated in Section 3.2.2 of the Cortez Hills Expansion Project Final EIS (BLM 2008a). Section 3.9 of the Final EIS (BLM 2008a) addressed potential impacts, including cumulative impacts, of the Cortez Hills Expansion Project on Native American traditional values, including water resources.

I-002-2 Please see the response to comment I-002-6 regarding the analysis provided in the Final EIS (BLM 2008a) for determination of seeps and springs that potentially could be impacted by drawdown. See the responses to comments O-001-21 and O-001-29 relative to the current and ongoing groundwater level and surface water monitoring being conducted at the Cortez Hills Expansion Project. Also see the responses to comments O-001-6 and O-002-4 regarding the source and quality, respectively, of the replacement water.

As noted in the response to comment O-001-5, Section 3.9 of the Cortez Hills Expansion Project Final EIS (BLM 2008a) addressed potential impacts, including cumulative impacts, of the Cortez Hills Expansion Project on Native American traditional values, including water resources. The Final EIS (page 3.9-50) addressed the importance of water in general, and specific springs in particular, to some Western Shoshone. Please see the response to comment O-001-6 regarding replacement water as mitigation of impacts to surface water flows.

I-002-3 The scope of the Draft SEIS for water resources included providing supplemental information and analysis to refine the evaluation of the effectiveness of mine dewatering mitigation measures provided in Mitigation Measure WR1b in the Cortez Hills Expansion Project Final EIS (BLM 2008a). This assessment did not re-evaluate long-term impacts associated with groundwater loss and pit lake formation. Impacts to surface water resources associated with long-term drawdown affects and effects of pit lake development were addressed in the impact analysis provided in Section 3.2.2 of the Final EIS (BLM 2008a).

I-002-4 Please see responses to comments O-001-15 and O-001-16.

I-002-5 Please see responses to comments O-001-15 and O-001-16.

I-002-6 The Cortez Hills Expansion Project Final EIS (BLM 2008a) took a hard look in evaluating seeps and springs that could be impacted as a result of mine-related groundwater drawdown. Specifically, the

Responses

I-002-6 (cont'd) EIS used a calibrated model to predict mine-related groundwater drawdown, identified all inventoried perennial waters within in the modeled drawdown area, and evaluated the potential for impacts to occur for each of the identified perennial waters using the best available information on the geology and hydrogeology of the area. The analysis used environmentally conservative assumptions to identify all known perennial waters that could be impacted. The EIS also described the potential impacts that could occur to these perennial waters and then provided monitoring and mitigation measures to address these potential impacts. As the conclusion of the analysis, the EIS acknowledged the fact that there is uncertainty regarding the level of impacts that would occur at these springs. Regardless of the uncertainty of the impacts, the EIS clearly identified all springs that potentially could be impacted and provided monitoring and mitigation measures to address those “potential” impacts.

Section 3.9 of the Cortez Hills Expansion Project Final EIS (BLM 2008a) addressed potential impacts, including cumulative impacts, of the Cortez Hills Expansion Project on Native American traditional values, including water resources. Also, see the response to comment O-001-5 regarding the cultural and spiritual significance of waters in the project area and the response to comment O-002-4 regarding the water quality of the replacement water.



Comment Form
Cortez Hills Expansion Project
Draft Supplemental Environmental Impact Statement

Please complete this comment form today or submit to the Battle Mountain District Office of the Bureau of Land Management by **October 4, 2010**. Comments may be mailed to the address on the reverse side of this form or emailed to: CortezHills_DSEIS@blm.gov.

Comments, including names and street addresses, will be available for public review at the Battle Mountain District Office during regular business hours, 7:30 a.m. to 4:30 p.m., Monday through Friday, except holidays, and will be published as part of the Final SEIS. Before including your address, phone number, email address, or other personal identifying information in your comment, be advised that your entire comment and the personal identifying information may be made publicly available at any time. While you can ask us in your comment to withhold from public review your personal identifying information, we cannot guarantee that we will be able to do so.

Please provide your comments below:

I-003-1

My concern is the destruction of water sources. No body knows where water comes from or where it goes underground. They have theories but that's it. When I have to pay a large water bill to exist & then see water wasted for so called dust control.

I-003-2

As for the statement that if a well or spring goes dry, they will dig it deeper - there's a lot of BS that's robbing Peter to pay Paul.

I-003-3

As for air pollution - it is very discouraging to look down the valley & see the blue discoloration of the air. We know that isn't very good to be breathing.

Responses

I-003-1 Section 3.2 of the Cortez Hills Expansion Project Final EIS (BLM 2008a) includes a description of the existing conditions and potential environmental impacts to surface water and groundwater resources in the project area and cumulative effects study area. These studies included analyses of the surface water-groundwater interaction. The description of existing water resources was based on data collection and analyses conducted over approximately 8 to 10 years in the project area.

I-003-2 Please see the responses to comment I-002-6 regarding the analysis provided in the Cortez Hills Expansion Project Final EIS (BLM 2008a) for determination of seeps and springs that potentially could be impacted by drawdown. See the response to comment O-001-22 regarding the estimated pumping rates required to supplement baseflows and the associated impacts.

I-003-3 Emissions of air pollutants from mining activities as well as natural sources potentially can create visible plumes, and air pollutants also have the potential to affect human health and welfare. Sources of air pollutants at the mine are regulated by permits issued by the state, and the air quality analyses in the Cortez Hills Expansion Project Final EIS (BLM 2008a) and SEIS indicate that the emissions and allowable concentrations of air pollutants would meet the state and National ambient air quality standards. The permit conditions imposed by various regulations and the air quality standards are designed to be protective of the public health and welfare.

Commentor:

Name: Barbara & Ken Duggan Title: _____
Mailing address: P.O. Box 211652
City, State, Zip Code: Crescent Valley, NV 89821
Phone: 775-468-0435 Fax: _____ E-mail: _____

If you would like to receive future project-related information, fill in the box on the reverse side of this form.

Thank you for your interest and participation!

BLM
50 Bastian Road
Battle Mountain, NV 89020

RECEIVED-MAILROOM

2010 SEP 30 AM 11:03

BUREAU OF LAND MANAGEMENT
BATTLE MOUNTAIN
DISTRICT OFFICE

Attention: Christopher Worthington

September 28, 2010

Dear Mr. Worthington,

I-004-1 We have read the Draft Supplemental Environmental Impact Statement regarding the Cortez Hills Expansion Project. It seems to us that the BLM has done a very thorough job in preparing this study. We do not work at the Cortez mine but have several friends who do as well as numerous friends who live in the Battle Mountain and Elko areas. The economic impact that this mine has had on these communities is immeasurable. We have heard only positive things about the Cortez operator, Barrick, with regard to their relations with their employees and the community. It appears they are very responsible in operating as well as in reclamation of the lands mined.

To not allow the operation to expand and continue, hundreds of people would lose their jobs and the impact on the neighboring communities would be devastating. We urge you to approve the proposed action.

Sincerely,



Mack and Susan L. Herzog
2809 Mountain Springs Road
Reno, NV 89519

Responses

I-004-1 Comment noted. The BLM recognizes the positive economic impact on the area of the Cortez Hills Expansion Project.

Christopher Worthington
Bureau of Land Management
Battle Mountain Field Office
50 Basin Road
Battle Mountain, NV 89820

RECEIVED-MAILROOM

2010 OCT -4 AM 11:50

BUREAU OF LAND MANAGEMENT
BATTLE MOUNTAIN
DISTRICT OFFICE

September 28, 2010

Dear Mr. Worthington,

- I-005-1 | I am an enrolled Western Shoshone and have a deep spiritual, familial, and social connection to Mt. Tenabo. Please consider this a letter of protest in how the Bureau of Land Management is handling this deeply important issue, while supporting the continued mining by Barrick Gold Corp, even under the constraints of a "limited injunction."
- I-005-2 | Your plan to replace water from one source to another is an unacceptable practice and fails to address the long term impacts of groundwater loss and pit lake formation. It also does not address the significant cultural and spiritual practices which are unique to that geographical area.
- I-005-3 |
- I-005-4 | Mt. Tenabo is a place of rejuvenation, prayer and deep spiritual connection for me. The previous spring gathering was the last time I was there, and I am planning a trip there in the next month or sooner. I am deeply concerned at the abandon BLM and Barrick Gold Corp continues to have in regard to the spiritual/historical site of such huge significant to the local native population.
- I-005-5 | I would like to know how you would feel if one of your temples, or churches was treated with such disregard and disrespect. Has your heart been so hardened that you will continue on a path so ruthless that it could very well lead to the destruction of even your water source? Are you so hardened that you cannot see the benefit of preserving this sacred site honoring the wishes of the people, and your own grandchildren and future generations?
- I-005-6 | Water is intrinsically linked to life, spirit and heart, and your continued journey of dewatering, high amounts of mercury emissions and ground water impact is completely bankrupt.

Regards,



Katrina Maczen-Cantrell
PO BOX 254
Round Mountain, CA 96084

Responses

- I-005-1 | Comment noted regarding the limited injunction.
- I-005-2 | Please see the responses to comments O-001-6 and O-001-22 relative to the source of replacement water and the associated impact, respectively. Also see the response to comment O-001-36 relative to provisions for long-term mitigation for potentially affected perennial waters.
- I-005-3 | The BLM conducted a comprehensive analysis of the impacts, including cumulative impacts, to Native American traditional values in Section 3.9 of the Cortez Hills Expansion Project Final EIS (BLM 2008a). This analysis addressed cultural and spiritual practices. Also see the responses to comments O-001-4 and O-001-5 regarding the results of the ethnographic surveys and ongoing consultation being conducted by BLM with Western Shoshone individuals.
- I-005-4 | The BLM notes this concern. The BLM addressed Mount Tenabo and its importance to certain Native Americans in Section 3.9.1.4 of the Cortez Hills Expansion Project Final EIS (2008a); Section 3.9.2.1 of that document addresses potential impacts to resources of concern to Native Americans, including Mount Tenabo. Also see the responses to comments O-001-4 and O-001-5 regarding the results of the ethnographic surveys and ongoing consultation being conducted by BLM with Western Shoshone individuals.
- I-005-5 | The BLM notes this concern. Please see the response to I-005-4 relative to potential impacts to Mount Tenabo.
- I-005-6 | The BLM notes this concern. Please see the response to comment O-001-16 relative to potential mercury emissions and response to comment O-001-8 relative to groundwater impacts.

Kimbrough mauney
<kimbroughred@yahoo.com>
09/28/2010 08:11 AM
To
Christopher.Worthington@blm.gov
cc
Subject
selling instead of regulating- Mt.
Tenabo

I-006-1 Hello Christopher and thanks for considering my comments,
As a citizen in a state whose resources include both those for human consumption and enjoyment, I'm well aware of the pressure companies place on environmental regulators like you. I am very upset that certain leaderships in Alaska often sell our resources rather than protect them (our DEC regarding coal and the Asian market, for ex.). I hope you will do the right thing and not allow mining at the sacred site of Mt. Tenabo, as the project would both destroy many things sacred to the people there and harm their health. I am concerned that the SEIS is far from adequate. Here are some concerns:

I-006-2 1. The SEIS does not discuss mercury to the detail this toxic substance warrants. Almost 1,800 pounds would be released over the course of the mine!

I-006-3 2, The analysis is inadequate in terms of the impacts from pumping the groundwater. I understand that the water table will not recover completely, but I didn't see any discussion of that. Is the BLM planning to maintain a water replacement procedure indefinitely? What happens when the mine is closed up? Who will be responsible for maintaining those

Responses

- I-006-1 The BLM notes this concern. Please see the response to comment I-005-4 regarding the importance of Mount Tenabo to certain Native Americans. Also, a thorough analysis of potential effects to Native American traditional values was presented in Section 3.9 of the Cortez Hills Expansion Project Final EIS (BLM 2008a).
- I-006-2 Potential project-related mercury emissions and deposition associated with operations and processing at the Cortez Gold Mines Operations Area were analyzed in Section 3.10 of the Cortez Hills Expansion Project Final EIS (BLM 2008a). Potential mercury emissions and deposition associated with processing of Cortez refractory ore at Goldstrike are discussed in Section 3.10.2 of the SEIS. Please see the responses to comments O-001-12 through O-001-16 for additional information relative to mercury emissions and deposition, and the response to comment O-001-17 relative to established airborne mercury limits for the protection of human health.
- I-006-3 Potential effects associated with mine dewatering were evaluated in Section 3.2 of the Cortez Hills Expansion Project Final EIS (BLM 2008a). Please see the responses to comments O-001-36 and O-001-37 relative to provisions for long-term mitigation for potentially affected perennial waters.

I-006-3
(cont'd)

springs that will not recover on their own?

3. The mitigation plan of replacement of water from another well is the right thing to do. It seems to me that any spring, especially when it has special significance from a cultural perspective, cannot be protected by just putting water into it from another source. My understanding is that the source of the water is important. Will the water quality be the same? How will the "different" water affect the plants, animals, and microbes that use that water. I didn't see any analysis of this in the document. The BLM should have an analysis of other mitigation strategies that would prevent the sources of the springs from being affected in the first place.

I-006-4

I-006-5

Thank you and again, please do your job as a regulator and preserve our environment rather than sell it to wealthy companies!

~Kimbrough Mauney, Anchorage, AK

Responses

- I-006-4 Please see the response to comment O-002-4 regarding the water quality of the replacement water and potential associated effects to biological resources. Also see the response to comment O-001-5 relative to the cultural and spiritual significance of waters in the project area.
- I-006-5 See response to comment O-001-23 for a discussion of the feasibility of using reinjection to attempt to prevent the source of a spring from being impacted.

Responses

I-007-1 Comment noted. As noted in Table 3.0-1 of the Final EIS (BLM 2008a), the project is outside of wild horses herd areas.

jean public
<usacitizen1@live.com>
To
<bob.abbey@blm.gov>,
08/21/2010 10:22 AM <bob_abbey@blm.gov>,
<americanvoices@mail.house.gov>,
<president@whitehouse.gov>,
<sf.nancy@mail.house.gov>,
<rush.holt@mail.house.gov>,
<christopher_worthington@blm.gov>,
<christopher.worthington@blm.gov>,
<friends@harryreid.com>
cc
Subject
PUBLIC comment ON EIS 2010-0323 IN
FEDERAL REGISTER

I-007-1

I OPPOSE MINE BUILDING OR EXPANSION AT CORTEZ HILLS AS SHOWN BELOW IN EIS 2010 0323. THIS MEANS THE SLAUGHTER OF WILD HORSES WHICH IS AN ABOMINATION IN NEVADA. IT IS GIVING AWAY AMERICAN TO MINING PROFITEERS, OIL RIG DRILLERS, AND CATTLE RANCHERS WHO DESTROY THE ENVIRONMENT. LETS GET HARRY REID ON THE CARPET ABOUT THIS WILD HORSE SLAUGHTER BEFORE THE ELECTION. I OPPOSE THIS MINE EXPANSION/BUILDING.
JEAN PUBLIC 15 ELM ST FLORHAM PARK NJ07932

Delaine Spilsbury
 P O Box 1055
 McGill NV 89318
 775-235-7557
mssquaw@hotmail.com

RECEIVED-MAIL ROOM
 SEP 27 AM 11:13
 BUREAU OF LAND MANAGEMENT
 BATTLE MOUNTAIN
 DISTRICT OFFICE

*Attention: Christopher Worthington
 Bureau of Land Management
 Battle Mountain Field Office
 50 Bastian Road
 Battle Mountain, NV 89820*

I-008-1 | Barrick Gold Corp. is actively mining at Mt. Tenabo under the constraint of a “limited injunction.” The ability of the Western Shoshone to use this Mt. Tenabo for cultural and spiritual practice has been impaired. As part of the injunction court order the BLM was required to redo some of the analysis in the Environmental Impact Statement (EIS) including a meaningful mitigation plan for enormous pumping of groundwater (over a billion gallons total) due to “dewatering,” particulate air emissions, and mercury emissions.

I-008-2 | *BLM needs to determine if seeps and springs are connected to the groundwater aquifer*

- I-008-2 | • replace of water from another source is not a satisfactory mitigation plan for springs
- I-008-2 | • mitigation strategies that prevent the source of a spring from being impacted need to be analyzed
- I-008-3 | • the SEIS fails to examine the long term impacts of the groundwater loss and the pit lake formation – how will the anticipated permanent decrease in the water table near the open pit be mitigated?

I-008-4 | • mercury emission will still be high and the local deposition numbers are not mentioned

I-008-5 | • mercury emissions from non-point sources like the waste rock piles and heap leach pads are not analyzed – these are called “fugitive emissions” (these can be significant)

I-008-6 | • *Springs are sacred to us Newe people. “Sacred Milk of the Earth Mother” flows from her breast to provide for her people – the Newe.*

Delaine Spilsbury Ely Shoshone Tribal Member

Responses

- I-008-1 | Comment noted regarding the limited injunction.
- I-008-2 | Please see the response to comment O-001-6 regarding the source of water for use to supplement or replace baseflow.

See response to comment O-001-23 for a discussion of the feasibility of using reinjection to attempt to prevent the source of a spring from being impacted.
- I-008-3 | Potential impacts to water resources were analyzed in Section 3.2.2 of the Cortez Hills Expansion Project Final EIS (BLM 2008a). Please see the response to comment I-002-3 relative to the scope of the SEIS. Also see the response to comment O-001-36 relative to provisions for long-term mitigation for potentially affected perennial waters.
- I-008-4 | Potential project-related mercury emissions and deposition associated with operations and processing at the Cortez Gold Mines Operations Area were analyzed in Section 3.10 of the Cortez Hills Expansion Project Final EIS (BLM 2008a). Potential mercury emissions and deposition associated with processing of Cortez refractory ore at Goldstrike are discussed in Section 3.10.2 of the SEIS. Please see the responses to comments O-001-12 through O-001-16 for additional information relative to mercury emissions and deposition, and the response to comment O-001-17 relative to established airborne mercury limits for the protection of human health.
- I-008-5 | Please see the response to comment O-001-16.
- I-008-6 | The BLM notes this concern. Please see the response to comment O-001-5 regarding the importance of Native American traditional values, including water resources, and the analysis of potential impacts to Native American traditional values in the Cortez Hills Expansion Project Final EIS (BLM 2008a).

RECEIVED-MAILROOM

SEP 27 AM 11:13

BUREAU OF LAND MANAGEMENT
BATTLE MOUNTAIN
DISTRICT OFFICE

Wendy Stott
6715 2nd Street, NW
Washington, DC 20012

Christopher Worthington
Bureau of Land Management
Battle Mountain Field Office
50 Bastian Road
Battle Mountain, NV 89820

September 22, 2010

Dear Mr. Worthington,

I am writing today to express my deep concern for the current mitigation suggestions that the BLM is proposing for Mt. Tenabo, in order for foreign-owned Barrick Gold, the largest gold mining corporation in the world to continue to destroy the sacred mountain for its own private gain.

Mt. Tenabo is a most sacred of places to the Western Shoshone people. Their traditional teachings tell them it is where the Creator left them instructions on how they are to live and the area is used for sacred rituals and the gathering of spiritual, cultural and medicinal plants.

While there are many reasons for which I believe the decision to allow such a toxic practice as open-pit cyanide heap leach mining to occur at all, but especially on such a sacred and spiritual place as Mt. Tenabo, I write today to specifically address two main areas: water depletion and contamination on and in the area of Mt. Tenabo, and mercury contamination.

The Western Shoshone believe that the water on Mt. Tenabo is the blood of Mother Earth. The FEIS published in September 2008 for the extension project stated that the Pit Lake at Cortez Hills Mine will create a long-term effect of a 10-foot drawdown of surrounding water that could last 100 years. This could reduce or fully eliminate the flow of up to 25 streams and springs in the area. The FEIS called this a "significant impact" and yet the BLM proceeded with the plan, without any mitigation measures, until a recent court order. Now, the mitigation measure you are proposing is to watch the springs, and if the water gets too low, to add water from another source. While this approach may appear to satisfy the technical requirements of water levels, it does not come close to satisfying the spiritual beliefs of the Western Shoshone people or of actually protecting the springs. Replacement is not protection.

Also regarding water, contamination is a serious concern in this area. According to your agency's own findings there has already been groundwater contamination at the current Pipeline Mine. The FEIS released in September 2008 stated that at Pipeline Complex, "the maximum constituent concentrations in the alluvial well samples exceed the Nevada MCLs for aluminum, arsenic, beryllium, cadmium, chloride, iron, fluoride, lead, magnesium, manganese, mercury, nickel, nitrate, pH, selenium, silver, sulfate, thallium and TDS." In Crescent Valley, a town a few miles north of the mine, three test wells were also sampled, and maximum levels of arsenic, cyanide,

Responses

I-009-1 The BLM notes this concern. The BLM addressed Mount Tenabo and its associated spiritual importance to certain Native Americans in Section 3.9.1.4 of the Cortez Hills Expansion Project Final EIS (2008a); Section 3.9.2.1 of that document addressed potential impacts to resources of concern to Native Americans, including Mount Tenabo.

I-009-2 As clarification, the mitigation measures discussed in the Draft SEIS are not new. As discussed above in the response to comment O-001-2, these measures were described in Section 3.2.4 of the Cortez Hills Expansion Project Final EIS (BLM 2008a) to mitigate potential mine-related groundwater drawdown effects to perennial seeps, springs, and streams and were adopted in the ROD (BLM 2008b). In order to evaluate the effectiveness of the previously identified mitigation measures, BLM directed CGM to prepare a contingent mitigation plan for each potentially affected seep, spring, or stream, describing the specific measures that would be applied at each identified site and addressing the goals of the specific measures proposed for each site. The BLM subsequently reviewed and evaluated the effectiveness of these measures, and the potential impacts associated with implementation of these measures, on a site-by-site basis, as reflected in Section 3.2.4 of the Draft SEIS.

Potential impacts to Western Shoshone spiritual, religious, and cultural values, including potential impacts from mine dewatering, were extensively evaluated and discussed in Section 3.9 and responses to related comments (e.g., response to comment O-003-004) in the Cortez Hills Expansion Project Final EIS (BLM 2008a). Also see the response to comment O-001-4 above relative to documented use of the project vicinity based on BLM's previous ethnographic studies and previous and ongoing Native American consultation.

Please see the responses to comments O-001-21 and O-001-29 regarding ongoing groundwater level and surface water monitoring and reporting that will continue to be conducted for the Cortez Hills Expansion Project. Also see the response to comment O-001-6 relative to the replacement water.

I-009-3 The scope of the Draft SEIS for water resources was focused on providing supplemental information and analysis to refine the evaluation of the effectiveness of mine dewatering mitigation measures provided in Mitigation Measure WR1b in the Cortez Hills Expansion Project Final EIS (BLM 2008a). Please see the response to comment O-001-3 for additional explanation relative to the scope of the SEIS. In addition, it should be noted that the water chemistry data reported for Crescent Valley pertains to the entire Crescent Valley hydrologic basin rather than Crescent Valley Township specifically.

I-009-1

I-009-2

I-009-3

I-009-3
(cont'd)

lead and thallium concentrations exceeded the Nevada MCLs. The average levels of arsenic at .031 mg/L were more than triple the federal level of .01 mg/L. Nevada's MCL for cyanide is .2 mg/L. In Crescent Valley, the maximum level of cyanide found in test samples has been as high as 7.700 mg/L. This is more than 38 times the maximum contaminant level of cyanide set by the state.

I-009-4

Also, it has already been shown that the Pit Lake that will be formed by the expansion project will outflow back into the groundwater supply. Your agency stated in the FEIS that it does not believe at this time that there will be enough issues with pH acidity or leaching of heavy metals, arsenic or other contaminants for this to be of concern. But this pit lake will be created in a matter of years but will last for hundreds or thousands; your agency cannot truly know what will happen to rocks or to the water that is being pushed back into the aquifer in that time. And you cannot confidently state that it will never cause harm to the groundwater supply or the people living in the surrounding area who depend on the water for their livelihood.

I-009-5

Mercury pollution is a primary toxic impact of the mining industry in northern Nevada. According to the EPA, mercury emissions from gold mining in northern Nevada have made the area the top mercury "hot spot" in the United States, accounting for more emissions than anywhere else in the country. Mercury has been linked to birth defects, brain damage, kidney disease, lung damage, tremors, central nervous system problems, memory problems and more.

Currently, mercury from Nevada mining is only monitored from the smokestacks, and even then only by companies hired by the mining corporations themselves (i.e. not by the government) and have been unreliable in reporting their own emissions. There is no monitoring from the tailings piles or the heap leach pads. This is highly problematic because, according to an air emissions study done by Patrick Joyce and Glenn Miller of University of Nevada, Reno, "Actively leached cyanide heaps were found to be potentially large sources of release of mercury into the atmosphere."

I-009-6

In conclusion, I ask you, Mr. Worthington, how it is that a government agency with a mission "to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations" can consistently approve foreign mining companies to systematically contaminate and destroy American lands. These practices are not sustainable for this generation, much less the next. I strongly urge you to reconsider you decision to allow open-pit cyanide heap leach mining to occur on Mt. Tenabo as I want to be able to visit the area some day with my children and explain to them the importance of such a wonderful place; not just the importance to the Western Shoshone people, but the endearing place that the mountain now holds in my heart, and the essential need to protect the health and diversity of American public lands as well as the cultures of Native American peoples.

Sincerely,



Wendy Stott

Responses

I-009-4

The scope of the Draft SEIS for water resources included providing supplemental information and analysis to refine the evaluation of the effectiveness of mine dewatering mitigation measures provided in Mitigation Measure WR1b in the Cortez Hills Expansion Project Final EIS (BLM 2008a). Please see the response to comment O-001-3 for additional explanation relative to the scope of the SEIS.

The assessment of potential impacts associated with the pit lake formation was addressed in Section 3.3.2 of the Final EIS (BLM 2008a). As described in the Final EIS, the pit lake geochemistry modeling results indicated that the pit lakes are expected to contain water that would not exceed any water quality standards and would not impact the water quality of downgradient aquifers.

I-009-5

Please see the response to comment O-001-16.

I-009-6

The BLM notes this concern. The BLM addressed Mount Tenabo and its associated importance to certain Native Americans in Section 3.9.1.4 of the Cortez Hills Expansion Project Final EIS (2008a); Section 3.9.2.1 of that document addresses potential impacts to resources of concern to Native Americans, including Mount Tenabo.

9/30/10

From:
Caron Tayloe
210 Waterman Ct.
Reno, NV 89511

To:
Christopher Worthington
BLM Battle Mountain Field Office
50 Bastian Rd.
Battle Mountain, NV 89820

Re: Mt. Tenabo

Dear Mr. Worthington:

I am writing this letter because I am concerned that Mt. Tenabo will not be protected by the current plans that are available. I hope that mercury emissions will be reduced and that fugitive emissions will be considered; that the current plan does not take into account the impact on water for wildlife; and that replacing water is not the solution for springs that are lost.

I will continue to follow this issue closely as I have lived in Nevada most of my life and I am concerned about the current direction that the BLM is taking in regard to this area.

Sincerely,


Caron Tayloe

RECEIVED-MAILROOM
2010 OCT -6 PM 12:02
BUREAU OF LAND MANAGEMENT
BATTLE MOUNTAIN
DISTRICT OFFICE

Responses

I-010-1 The BLM notes these concerns. Section 3.9.2.1 of the Cortez Hills Expansion Project Final EIS (2008a) addressed potential impacts to resources of concern to Native Americans, including Mount Tenabo.

Please see the response to comment O-001-16 regarding mercury emissions, including fugitive emissions. Please see Section 3.5.2.1 of the Cortez Hills Final EIS (BLM 2008a) regarding potential water quantity-related and air quality-related effects to wildlife. Please see the response to comment O-001-23 relative to the replacement of water in affected springs.

I-010-1

Responses

I-011-1 Comment noted. The BLM recognizes the positive economic impact on the area of the Cortez Hills Expansion Project.

RECEIVED-MAILROOM

SEP 30 AM 11:03

BUREAU OF LAND MANAGEMENT
BATTLE MOUNTAIN
DISTRICT OFFICE

Timothy Wilson
490 Genovese Ln.
Reno, NV 89511
(775) 851-2880

BLM
50 Bastian Road
Battle Mountain, NV 89020
ATTN: Christopher Worthington

September 28, 2010

RE: Public comment on DEIS at Cortez Hills (NVN-067575)

Dear Mr. Worthington,

I wish to voice my support and gratitude to the BLM for the thorough assessment and resulting recommendation concerning the Cortez Hills Expansion Project. It is apparent to me that the BLM staff has given careful and thoughtful consideration to a multitude of issues associated with this project in selecting their preferred alternative concerning transportation and ground water concerns.

I am also impressed with the operator of this project, Barrick Gold, and their commitment to the safety, compliance, and demonstrated civic responsibility. Additionally, the positive economic impact this project provides to our State is considerable.

Thanks again for your careful consideration and stewardship. I strongly support your proposed recommendations concerning this project.

Sincerely,



Timothy Wilson

I-011-1

W.L. Wilson
P. O. Box 2183
Grand Junction, Colorado 81502-2183

Phone: (970) 243-7806
Fax: (970) 243-8090

October 1, 2010

Bureau of Land Management
Battle Mountain Field Office
50 Bastian Road
Battle Mountain, NV 89820

VIA FAX (775) 635-4034

Attn: Christopher Worthington Re: DSEIS Cortez Hills
Expansion

I wish to furnish comments on the DRAFT SEIS for the Cortez Hills Expansion Project. As I wrote in comments about the FEIS in 2008, I have been associated with the Cortez Joint Venture ("CJV") since its inception in 1963, and continuing to the present time. I have spent the greater part of my professional career working in the Cortez District, and have worked extensively in the area which encompasses the Cortez Hills/ Pediment deposits, therefore I am quite familiar with the geography and history of the involved area, as well as recent developments that involve the definition of reserves and resources which are being and will be exploited in this expansion.

In my opinion, the DSEIS Preferred Alternative represents the best solution to allow this project to proceed. It is still important to have timely approval of the Proposed Action, which is needed for the continuing operations to proceed with optimum extraction of the mineral products. This will result in some new jobs and the extension of several hundred jobs in this local area. Failure to have timely approval of the expansion request would also result in loss of tax base and taxation revenues to the affected towns, counties and the State of Nevada, as well as the U. S. Treasury. In short, the mine will have a shorter life if this is not approved.

For the above reasons, I strongly recommend speedy approval of the Preferred Alternative--it is a good plan! My observations about the opposition to this project is that the attorney(s) representing the Native Americans and the Tribes and Bands involved are causing much damage to their clients by not cooperating with Barrick. It seems to me that the attorneys or their sponsor (presumably Great Basin Mine Watch) are using the Native Americans to pursue their own agendas, without regard for the welfare of the Native Americans and the tribes involved.

Sincerely,



W. L. Wilson

Responses

- I-012-1 Comment noted. The BLM recognizes the positive economic impact on the area of the Cortez Hills Expansion Project.
- I-012-2 Comment noted.

I-012-1

I-012-2



George and Frances Alderson
<george7096@verizon.net>

09/27/2010 01:23 PM

Please respond to
george7096@verizon.net

To CortezHills_DSEIS@blm.gov

cc

bcc

Subject Protect Mount Tenabo

Dear Mr. Worthington -

Please include this message as our comment on the Cortez Hills Expansion Project DSEIS. We ask BLM to consider the impacts of this project very carefully.

The project would have a serious impact on the cultural and spiritual values of the Western Shoshone. Mount Tenabo is important to their religion and their culture.

Those values appear to be jeopardized by the project in question. The pumping of groundwater on a large scale will also drain sacred springs and streams on and near Mount Tenabo.

We want to see a better explanation of these impacts in the EIS, with commitments to how the problems will be avoided. In addition, the problem of mercury contamination in the environment needs further analysis and a commitment to no releases of mercury.

Thank you for considering our views.

George and Frances Alderson
112 Hilton Ave
Baltimore, MD 21228
US

I-013-1

I-013-2

Responses

I-013-1 The BLM notes these concerns. Section 3.9 of the Cortez Hills Expansion Project Final EIS (BLM 2008a) addressed potential impacts, including cumulative impacts, of the Cortez Hills Expansion Project on Native American traditional values, including water resources. The Final EIS (page 3.9-50) addressed the importance of water in general, and specific springs in particular, to some Western Shoshone. Mount Tenabo and other places and resources of importance to some Native Americans also are addressed in Section 3.9 of the Final EIS. Also see the responses to comments O-001-5 and O-001-6 relative to cultural and spiritual significance of waters in the project area.

I-013-2 Potential project-related mercury emissions and deposition associated with operations and processing at the Cortez Gold Mines Operations Area were analyzed in Section 3.10 of the Cortez Hills Expansion Project Final EIS (BLM 2008a). Potential mercury emissions and deposition associated with processing of Cortez refractory ore at Goldstrike are discussed in Section 3.10.2 of the SEIS. Please see the responses to comments O-001-12 through O-001-16 for additional information relative to mercury emissions and deposition, and the response to comment O-001-17 relative to established airborne mercury limits for the protection of human health.



"Arbonies, Dave (Cortez)"
<DArbonies@barrick.com>
09/23/2010 01:36 PM

To <CortezHills_DSEIS@blm.gov>
cc
bcc
Subject Supplementary EIS For Cortez Hills

Responses

I-014-1 Comment noted.

I-014-2 Comment noted. The BLM recognizes the positive economic impact on the area of the Cortez Hills Expansion Project.

Attention Christopher Warren:

I-014-1

After reviewing the supplementary EIS for Cortez Hills, I find the document to be highly adequate in addressing the concerns of the 9th Circuit Court. Barrick and BLM have done a great job in providing all the information requested and as the initial EIS had already pointed out, all of these concerns can be mitigated by Barrick.

I-014-2

I am strongly supportive of the Cortez Hills Project. In the current times of Economic strife that the State of Nevada is currently in, it is vitally important to the economic well being of Northeastern Nevada to continue this project.

Thank you,
Dave Arbonies



Robert Binnie
<albinnie@yahoo.com>

09/27/2010 10:23 PM

Please respond to
albinnie@yahoo.com

To CortezHills_DSEIS@blm.gov

cc

bcc

Subject Comment for Cortez Hills Expansion Project Draft

Dear Mr. Worthington,

I-015-1

I'm writing to urge the BLM to give the religious and cultural aspects of the Western Shoshone high priority when planning any future developments near Mount Tenabo.

I-015-2

Mining and it's the associated impacts on water and mercury contaminations are not adequately regulated in the draft.

Sincerely

Robert Binnie
8945 N Shadow Mountain Drive
Tucson, AZ 85704
US

Responses

- I-015-1 The BLM notes this concern. Section 3.9.2.1 of the Cortez Hills Expansion Project Final EIS (2008a) addresses potential impacts, including cumulative impacts, to resources of concern to Native Americans, including Mount Tenabo.
- I-015-2 Please see the response to comment O-001-3 relative to the scope of the SEIS. Potential project-related impacts to surface water and groundwater resources were analyzed in Section 3.2 of the Cortez Hills Expansion Project Final EIS (BLM 2008a), and potential impacts to air quality were analyzed in Section 3.10 of the Final EIS. BLM-required monitoring and mitigation for the project are presented in the associated ROD (BLM 2008b).



Charles Brumleve
<ctbrumleve@cox.net>

09/27/2010 09:26 PM

Please respond to
ctbrumleve@cox.net

To CortezHills_DSEIS@blm.gov

cc

bcc

Subject Protect what makes Mt. Tenabo's springs sacred

Dear Mr. Worthington -

I appreciate the opportunity to comment on the Cortez Hills Expansion Project Draft Supplementary Environmental Impact Statement (dSEIS), and urge the Bureau of Land Management (BLM) to deliberate with great consideration on this very controversial project.

I-016-1

WE NEED TO SHOW OUR NATIVE AMERICANS THAT WE DO CARE ABOUT THEM AND DO UNDERSTAND WHAT THEY CONSIDER IMPORTANT. PLEASE RECONSIDER AND STOP THE MINE. YOU CANNOT EAT GOLD. THANK YOU.

Charles Brumleve
2416 Wilmar Drive
Manhattan, KS 66502
US

Responses

I-016-1 Comment noted. Please see the response to comment O-001-3 relative to the scope of the SEIS. Potential impacts, including cumulative impacts, of the Cortez Hills Expansion Project on Native American traditional values, including water resources, are addressed in Section 3.9 of the Cortez Hills Expansion Project Final EIS (BLM 2008a). The Final EIS (page 3.9-50) addressed the importance of water in general, and specific springs in particular, to some Western Shoshone. Mount Tenabo and other places and resources of importance to some Native Americans also are addressed in Section 3.9 of the Final EIS.



Jeff Carlton
 <carlton_jeff@hotmail.com>
 10/04/2010 02:55 PM

To <cortezhills_dseis@blm.gov>
 cc
 bcc
 Subject EIS Comments on Mt Tenabo and the Cortez Hills Expansion Project

Christopher Worthington
 Bureau of Land Management, Battle Mountain Field Office
 50 Bastian Road, Battle Mountain, NV 89820

Dear Mr. Worthington,
 This letter is regarding the draft Supplementary Environmental Impact Statement for the Cortez Hills Expansion Project. I hope that the BLM will take great care as it makes a decision on this controversial Cortez Hills Expansion Project's supplemental draft EIS. Thank-you for this opportunity for public input.

I-017-1 I have a real concern for what the current plan will do to Mt Tenabo, its water table, and all of the life that relies on this water. What will happen to the quality of water in the seeps and springs on this impacted side of Mt. Tenabo. This Mountain is beautiful, and a valuable asset for all Nevadans. It is also sacred for the Western Shoshone. They have gravesites there, and it is central in their prayer ceremonies and religious pilgrimages. It is important to their world, and this massive groundwater pumping will probably cause many of their sacred springs and streams to go dry both on the mountain, and below it. Once the magic is drawn out, where are they supposed to turn? The current plan stands to turn a vibrant ecosystem into a sterile, monotonous industrial impact zone.

I-017-2 Don't forget that climate change will likely further dry out our mountains and valleys in the Great Basin. Can we be sure that the mountain's water table can ever return to what it is today once the massive pumping begins? How much water from exterior sources can be brought in? For how long will this be necessary? At what cost? And what happens to the life that relies on this water from whence it is taken? When the mine is exhausted, who oversee the water table's maintenance? I have lived in Eastern Kentucky. The streams and rivers do not recover. The people live with the destruction for generation and generations after. The tailings and ponds leak toxins. The hydrology is destroyed. The rivers are unfishable, and unswimmable.

I-017-3 And water brought in from elsewhere will be different. Mt Tenabo's life has adapted to the unique chemistry, and biota of the water it has been given. How will imported water affect the biota of Mt Tenabo?

Responses

I-017-1 Section 3.2.2 of the Cortez Hills Expansion Project Final EIS (BLM 2008a) contains a comprehensive analysis of potential impacts to water resources, including the effects of mine dewatering on surface water resources (inclusive of seeps and springs) and identified mitigation. Potential related impacts to vegetation and wildlife resources are addressed in Sections 3.4.2 and 3.5.2, respectively, of the Final EIS.

I-017-2 The BLM notes these concerns. Section 3.9 of the Cortez Hills Expansion Project Final EIS (BLM 2008a) addressed potential impacts, including cumulative impacts, of the Cortez Hills Expansion Project on Native American traditional values, including water resources. The Final EIS (page 3.9-50) addressed the importance of water in general, and specific springs in particular, to some Western Shoshone. Mount Tenabo and other places and resources of importance to some Native Americans also are addressed in Section 3.9 of the Final EIS. Please see the responses to comments O-001-5 and O-001-6 relative to the cultural and spiritual significance of waters in the project area.

As clarification, based on cultural resource inventories conducted for the project, no Native American burial sites were identified in the project boundary; see the response to comment O-002-2.

I-017-3 Chapter 3.0 of the Cortez Hills Expansion Project Final EIS (BLM 2008a) contains a comprehensive analysis of potential impacts to all environmental resources, an analysis of the effectiveness of CGM's applicant-committed environmental protection measures (including the reclamation plan) to minimize impacts, and presents additional mitigation identified to further minimize impacts.

I-017-4 The analysis of potential groundwater pumping impacts to surface water resources, including predictions of long-term residual groundwater drawdown and recovery of spring flows, was evaluated and addressed in Section 3.2.2 of the Cortez Hills Expansion Project Final EIS (BLM 2008a). The analysis of potential water quality impacts also was presented in Section 3.2.2 of the Final EIS. Potential impacts to vegetation and wildlife resources as a result of mine-related groundwater drawdown were addressed in Sections 3.4.2 and 3.5.2 of the Final EIS, respectively.

As clarification, the use of water from "exterior sources" is not proposed for mitigating potentially affected perennial waters within the mine-

I-017-6

And how will the mine's mercury emissions affect Mt Tenabo? This toxin does accumulate over the years. The piles of waste rock will also leach mercury and other toxins. More study is needed of how this will affect this sacred Mountain.

Mt. Tenabo is an important treasure. Please proceed cautiously and make decisions that best serve all Nevadans. Nevadan's, both our current generations, and untold future generations matter at least as much as the short term interests of some out of state gold mining corporation. I hope you agree.

Sincerely, Jeff Carlton

Jeff Carlton 3365 Pierremont Road, Reno, NV 89503
(775) 787-2691 (H); (775) 857-1544
(W:Teacher,ICDA Charter H.S.); carlton_jeff@hotmail.com
UUFNN Social Justice Council; UU Green Sanctuary Committee
I've adopted the Simultaneous Policy (SP): <http://www.simpol.org>

Responses

- I-017-4 (cont'd) related groundwater drawdown area. Please see Table 3.2-1 and the discussion in Section 3.2.4 of the Draft SEIS relative to the mitigation triggers and proposed mitigation measures outlined in the Contingency Mitigation Plans for Surface Waters (CGM and JBR 2010). If mitigation of potentially affected perennial waters is triggered, the project's Reclamation Plan would provide for mitigation for 3 years post-closure. The project's LTCF would provide for continued long-term monitoring and mitigation in the post-closure period.
- I-017-5 Please see the response to comment O-002-4 relative to the projected geochemistry of supplemental or replaced baseflow at seeps or springs potentially impacted by the mine-induced drawdown and related effects to biological resources.
- I-017-6 Potential project-related mercury emissions and deposition associated with operations and processing at the Cortez Gold Mines Operations Area were analyzed in Section 3.10 of the Cortez Hills Expansion Project Final EIS (BLM 2008a). Potential mercury emissions and deposition associated with processing of Cortez refractory ore at Goldstrike are discussed in Section 3.10.2 of the SEIS. Please see the responses to comments O-001-12 through O-001-16 for additional information relative to mercury emissions and deposition, and the response to comment O-001-17 relative to established airborne mercury limits for the protection of human health. Please also see pages 3.2-6 through 3.2-67 of the Cortez Hills Expansion Project Final EIS (BLM 2008a) for a discussion of mercury impacts on water resources.



BlazeCee@aol.com
09/22/2010 05:48 PM

To CortezHills_DSEIS@blm.gov
cc
bcc
Subject Mt. Tenabo

Att: Mr. Christopher Worthington

Sir,

I-018-1

The history of the land inhabited by Western Shoshone is one of incursion, deception, exploitation, and very questionable treaty obligations on the part of governments. Further action or inaction by the BLM or any federal or state entity that threatens the culture and especially the spirituality of the Western Shoshone is abominable. I hope that the Mount Tenabo environs, including the underground aquifer, will remain inviolate. May you be blessed and remembered for supporting protection for this area.

Sincerely,

Ned S. Coates
154 English Hill Rd.
Cogan Station, PA 17728
blazecee@aol.com

Responses

I-018-1 The BLM notes this concern. Section 3.9 of the Cortez Hills Expansion Project Final EIS (BLM 2008a) addressed potential impacts, including cumulative impacts, of the Cortez Hills Expansion Project on Native American traditional values, including water resources. The Final EIS (page 3.9-50) addressed the importance of water in general, and specific springs in particular, to some Western Shoshone. Mount Tenabo and other places and resources of importance to some Native Americans also are addressed in Section 3.9 of the Final EIS.



Gay Garrison
<gaysemail@yahoo.com>

09/27/2010 02:38 PM

Please respond to
gaysemail@yahoo.com

To CortezHills_DSEIS@blm.gov

cc

bcc

Subject Mt. Tenabo not corporate property

Dear Mr. Worthington -

I appreciate the opportunity to comment on the Cortez Hills Expansion Project Draft Supplementary Environmental Impact Statement (dSEIS), and urge the Bureau of Land Management (BLM) to deliberate with great consideration on this very controversial project.

I-019-1 | The massive pumping of groundwater will likely dry-up culturally significant and sacred springs and streams on and around Mt. Tenabo.

I-019-2 | Cumulative impacts have been overlooked in this document, and of particular concern is the issue of mercury accumulation in the environment. It is not right for an indigenous sacred site to be pillaged and polluted by yet another corporate mineral extraction racket.

Sincerely,

Gay Garrison
976 steam mill rd
Ithaca, NY 14850

Responses

- I-019-1 Potential impacts to Western Shoshone spiritual, religious, and cultural values, including potential impacts of mine dewatering, were extensively evaluated and discussed in the Cortez Hills Expansion Project Final EIS (BLM 2008a). Please see the response to comment O-001-5 for additional information.
- I-019-2 Potential cumulative impacts, including potential cumulative impacts associated with air quality and Native American traditional values, were extensively analyzed and discussed in the Cortez Hills Expansion Project Final EIS (BLM 2008a). The potential cumulative air quality impacts also are presented in Section 3.10.3 of the Draft SEIS.



Lee Greenawalt
<LeeGshack@yahoo.com>

09/27/2010 04:01 PM

Please respond to
LeeGshack@yahoo.com

To CortezHills_DSEIS@blm.gov
cc
bcc
Subject Protect what makes Mt. Tenabo's springs sacred

Dear Mr. Worthington -

I-020-1

Mt Tenabo is not just water springs. It is water spirits. Any plan that allows a company to cause any of the spirit springs to dry up, cannot be replaced by water from another source. Yes the chemical H2O will be replaced, but that is not the spirit of the spring.

Lee Greenawalt
3122 141st StreetCourt NW
Gig Harbor, WA 98332
US

Responses

I-020-1 The BLM notes this concern. Potential impacts to Western Shoshone spiritual, religious, and cultural values, including potential impacts from mine dewatering on surface water resources, were evaluated and discussed in Section 3.9 of the Cortez Hills Expansion Project Final EIS (BLM 2008a). See the responses to comments O-001-4 and O-001-5 above for additional information. Also see the response to comment O-001-6 for clarification regarding the source of mitigation water.



Alecia Keen
 <keendesign@sbcglobal.net>
 09/30/2010 06:08 AM
 Please respond to
 keendesign@sbcglobal.net

To CortezHills_DSEIS@blm.gov
 cc
 bcc
 Subject Protect what makes Mt. Tenabo's springs sacred

Dear Mr. Worthington -

I appreciate the opportunity to comment on the Cortez Hills Expansion Project Draft Supplementary Environmental Impact Statement (dSEIS), and urge the Bureau of Land Management (BLM) to deliberate with great consideration on this very controversial project.

I imagine you have received if not read hundreds of these letters. I will simply state that we as a nation must stop choosing short term profits over the preservation of resources which can never be replaced. The quality of our water should always be of the highest priority .

I-021-1

The Shoshone deserve better protection of a cultural resource from private industry and it is my opinion that the BLM should go back to the drawing board if necessary to see that they receive it. Once contaminated these springs could be lost forever.

I-021-2

I-021-3

"Mitigation" usually means what is the bare minimum we can do to make this go away? It is not a solution and what is needed here is a tough solution. Say no to mining in these sensitive areas.

I-021-4

Sincerely,

Alecia Keen

Alecia Keen
 1011 Lindendale
 1011 Lindendale
 Fullerton, CA 92831
 US

Responses

- I-021-1 The BLM notes this concern. Please see Section 3.2.2 of the Cortez Hills Expansion Project Final EIS (BLM 2008a) for an analysis of potential project-related impacts to surface water and groundwater resources. Also see Section 3.2.4 of the SEIS for refinement of the evaluation of the effectiveness of mine dewatering mitigation measures.

- I-021-2 The BLM notes this concern. Potential impacts to Western Shoshone spiritual, religious, and cultural values, including potential impacts from mine dewatering, were evaluated and discussed in Section 3.9 of the Cortez Hills Expansion Project Final EIS (BLM 2008a). Cultural resources were addressed in Section 3.8 of the Final EIS (BLM 2008a). See the response to comment O-001-5 above for additional information.

- I-021-3 Potential impacts to surface water and groundwater quality as a result of the project were analyzed in Section 3.2.2 of the Cortez Hills Expansion Project Final EIS (BLM 2008a). Based on that analysis, no project-related impacts to surface water or groundwater quality were identified.

- I-021-4 The BLM is responsible for authorizing mineral rights access on certain federal lands as authorized by the General Mining Law of 1872 as amended. Under the law, qualified applicants are entitled to reasonable access to mineral deposits on public domain lands that have not been withdrawn from mineral entry. Please see Section 1.2.1 of the Cortez Hills Expansion Project Final EIS (BLM 2008a) for additional information. Also see Section 3.2.2 of the Final EIS (BLM 2008a) for an analysis of potential impacts to water resources. As discussed in Section 3.2.4 and Table 3.2-1 of the Draft SEIS, based on the BLM's analysis of CGM's Contingency Mitigation Plans for Surface Waters (CGM and JBR 2010), the proposed measures would be effective in maintaining the uses of these potentially impacted perennial water resources. Also see the response to comment O-001-23 relative to mitigation.



Stanley Jones-Umberger
<stanleyjonesumberger@yahoo.com>

09/27/2010 12:23 PM

Please respond to
stanleyjonesumberger@yahoo.com

To CortezHills_DSEIS@blm.gov

cc

bcc

Subject Protect what makes Mt. Tenabo's springs sacred

Responses

I-022-1 Comment noted. An analysis of potential impacts associated with on site processing of ore was presented in the applicable sections in Chapter 3.0 of the Cortez Hills Expansion Project Final EIS (BLM 2008a).

Dear Mr. Worthington -

I appreciate the opportunity to comment on the Cortez Hills Expansion Project Draft Supplementary Environmental Impact Statement (dSEIS), and urge the Bureau of Land Management (BLM) to deliberate with great consideration on this very controversial project.

I-022-1 | Do not process ore on site.

Sincerely,

Stanley Jones-Umberger
37425 SE 39th St
Washougal, WA 98671
US



Liz Sheppard
 <liz@jeweledplanet.com>
 Sent by: lizcanvpa@gmail.com
 09/23/2010 12:45 PM

To: CortezHills_DSEIS@blm.gov
 cc
 bcc
 Subject: inadequate seeps and springs mitigation plan - Mt Tenabo

Mail to:
 Attention: Christopher Worthington
 Bureau of Land Management
 Battle Mountain Field Office
 50 Bastian Road
 Battle Mountain, NV 89820

Regarding: Mt. Tenabo

The BLM needs to make sure that the Supplemental EIS provides an adequate mitigation plan for the seeps and springs that are under risk.

I-023-1

- BLM needs to determine if seeps and springs are connected to the groundwater aquifer
- replacement of water from another source is not a satisfactory mitigation plan for springs - replacement is not protection
- how will the anticipated permanent decrease in the water table near the open pit be mitigated?
- mitigation strategies that prevent the source of a spring from being impacted need to be analyzed
- the SEIS fails to examine the long term impacts of the groundwater loss and the pit lake formation.

I-023-2

- mercury emission will still be high and the local deposition numbers are not mentioned
- mercury emissions from non-point sources like the waste rock piles and heap leach pads are not analyzed – these are called “fugitive emissions” (these can be significant)

Thank you,
 Liz Sheppard

Responses

I-023-1 Please see the response to comment O-001-2 relative to the proposed Contingency Mitigation Plans for Surface Waters (CGM and JBR 2010). Also see the response to comment I-002-6 regarding the analysis in the Cortez Hills Expansion Project Final EIS (BLM 2008a) of potentially affected surface waters, and the response to comment O-001-6 regarding the source of mitigation water. Impacts to surface water resources associated with long-term drawdown effects and effects of pit lake development were addressed in the impact analysis provided in Section 3.2.2 of the Final EIS (BLM 2008a).

No reasonable and feasible mitigation strategies that eliminate the risk of effects to perennial surface water resources have been identified. Please also see the response to comment O-001-23 regarding the feasibility of using bedrock reinjection to mitigate potential impacts to perennial water sources, which was suggested in the comment. In summary, the BLM’s evaluation of this mitigation strategy concludes that for the reasons stated in the response, reinjection is not considered a reasonable or feasible option to prevent potential impacts to surface water resources located in this hydrogeologic setting.

I-023-2 Potential project-related mercury emissions and deposition associated with operations and processing at the Cortez Gold Mines Operations Area were analyzed in Section 3.10 of the Cortez Hills Expansion Project Final EIS (BLM 2008a). Please see the response to comment O-001-16 for additional information relative to mercury emissions and deposition in the project area.



csewall@springmail.com
 10/04/2010 03:40 PM
 Please respond to
 csewall@springmail.com

To CortezHills_DSEIS@blm.gov
 cc
 bcc
 Subject Attn Chris Worthington Cortez Hills SDEIS

Attention: Christopher Worthington

Bureau of Land Management
 Battle Mountain Field Office
 50 Bastian Road
 Battle Mountain, NV 89820

Re: Cortez Hills Expansion Project draft Supplementary Environmental Impact Statement

Dear Mr. Worthington,

This letter is to provide comments in response to the Cortez Hills DSEIS. For 12 years, from 1993 to 2005, I lived and worked in the Crescent Valley area under the auspices of the Western Shoshone Defense Project. I continue to maintain family ties to the area and periodically visit, using and enjoying waters and land throughout the project area. The proposed mitigation of water sources as described in this document paints a picture of the future that is shocking; a future in which naturally flowing waters that have provided life for both the people and the land are reduced to a set of man made pipes and structures, a landscape on life support.

It is apparent from the release of the SDEIS that the BLM has continued a policy of ignoring and/or marginalizing the concerns of both traditional and Federally recognized Tribal Governments, Organizations and individuals. The proposed mitigations do not address issues raised by the Western Shoshone. This marginalization of the indigenous peoples concerns is made obvious by the description of the various Tribal governments as "organizations." Despite copious amounts of Federal law, legal precedent and executive orders, no recognition is given to the required nation to nation, government to government relationships that are said to exist between the Federal agencies and the Western Shoshone. This is particularly striking because the SDEIS was prepared as a result of appeals involving both Western Shoshone Tribal governments as well as Western Shoshone organizations.

The permanent impacts of the project to the cultural and spiritual practices of the Western Shoshone is undeniable. Mt. Tenabo has been, and continues to be, used by Western Shoshone people as a central part of their religious practices and world view. Western Shoshone visit the mountain and the valley below (the location of the mine pit) for prayer ceremonies, gathering of sacred plants, fasting, and vision quests, among other uses. The Mountain also contains Western Shoshone gravesites. All of these values and uses will be destroyed by the Project. In addition, the massive pumping of groundwater will likely dry-up culturally significant and sacred springs and streams on and around Mt. Tenabo.

I have read the draft Supplementary Environmental Impact Statement for the Cortez Hills Expansion project and I do not feel that the analysis is adequate in terms of the impacts from pumping the groundwater. I understand that the water table will not recover completely, but I didn't see any discussion of that. Is the BLM planning to maintain a water replacement procedure indefinitely? What happens when the mine is closed up? Who will be responsible for maintaining those springs that will not recover on their own?

I believe the following points need much further discussion before this SDEIS can be deemed adequate:

- BLM needs to determine if seeps and springs are connected to the groundwater aquifer

Responses

I-024-1 BLM notes the expressed point of view of the commenter.

I-024-2 As discussed in Section 3.9 and summarized in the response to comment O-003-004 in Appendix F1 of the Cortez Hills Expansion Project Final EIS (BLM 2008a), the BLM conducted ethnographic studies and has consulted with local federally-recognized tribes and Western Shoshone elders regarding tribal concerns about the project since 1992 in compliance with the NHPA and Executive Orders. A summary of ongoing consultation since the issuance of the Final EIS is presented in Section 4.2 of the SEIS. Please see the response to comment O-001-4 relative to the documented use of the project vicinity based on BLM's previous ethnographic studies and previous and ongoing Native American consultation.

Potential impacts to Western Shoshone spiritual, religious, and cultural values, including potential impacts from mine dewatering, were extensively evaluated and discussed in Section 3.9 and responses to related comments (e.g., response to comment O-003-004) in Appendix F1 of the Cortez Hills Expansion Project Final EIS (BLM 2008a). Please see the response to comment O-001-5 above for additional information on this issue. Also see the response to comment O-002-2 relative to potential burials.

I-024-3 The potential environmental impacts of groundwater pumping were fully evaluated and described in Section 3.2 and the responses to comments (Appendix F1) of the Cortez Hills Expansion Project Final EIS (BLM 2008a). As discussed in Section 3.2.4 of the Draft SEIS, the information presented in this document supplements the analysis in the Final EIS (BLM 2008a) to refine the evaluation of the effectiveness of mine dewatering mitigation measures. Please see the response to comment O-001-36 regarding long-term mitigation.

I-024-4 Please see the response to comment O-001-2 relative to the proposed Contingency Mitigation Plans for Surface Waters (CGM and JBR 2010). Also see the response to comment I-002-6 regarding the analysis in the Cortez Hills Expansion Project Final EIS (BLM 2008a) of potentially affected surface waters, and the response to comment O-001-6 regarding the source of mitigation water. Impacts to surface water resources associated with long-term drawdown effects and effects of pit lake development were addressed in the impact analysis in Section 3.2.2 of the Final EIS (BLM 2008a). Also see the responses to comments I-001-2 and I-023-1 relative to mitigation strategies.

I-024-4 (cont'd)

- replacement of water from another source is not a satisfactory mitigation plan for springs - replacement is not protection
- mitigation strategies that prevent the source of a spring from being impacted need to be analyzed
- the SEIS fails to examine the long term impacts of the groundwater loss and the pit lake formation – how will the anticipated permanent decrease in the water table near the open pit be mitigated?

I-024-5

In regards to the air quality issues the following points need more discussion:

- mercury emission will still be high and the local deposition numbers are not mentioned
- mercury emissions from non-point sources like the waste rock piles and heap leach pads are not analyzed – these are called “fugitive emissions” (these can be significant)

I-024-6

I do not agree that the mitigation plan of replacement of water from another well is the right thing to do. It seems to me that any spring, especially when it has special significance from a cultural perspective, cannot be protected by just putting water into it from another source. And from my experience in talking with Shoshone people this is their view as well. My understanding is that the source of the water is important. Will the water quality be the same? How will the “different” water affect the plants, animals, and microbes that use that water. I didn’t see any analysis of this in the document. The BLM should have an analysis of other mitigation strategies that would prevent the sources of the springs from being affected in the first place.

I-024-7

In all discussion of mitigation and uses of the potentially impacted water sources, no mention is made of the use of these waters for traditional cultural practices. How will traditions using these natural waters be effected by their replacement with man-made features? Interestingly, many of the proposed mitigations were also proposed during the NEPA process leading to the permitting of the Pipeline Mine. According to the SDEIS and past monitoring reports, springs/seeps in several locations originally documented as part of the background studies are no longer flowing since pumping began at Pipeline. Why has the loss of these waters not been mitigated or even discussed? Mitigation triggers set to go off after 2 years of recorded impact (as described by the SDEIS) do nothing to mitigate impact during those 2 years!

It is my sincere hope that BLM will live up to its legal responsibilities and address these issues before granting any further approvals at the Cortez Hills mine.

Sincerely,

Christopher Sewall
po box 29
Phippsburg, Maine 04562

Responses

I-024-5 Potential project-related mercury emissions and deposition associated with operations and processing at the Cortez Gold Mines Operations Area were analyzed in Section 3.10 of the Cortez Hills Expansion Project Final EIS (BLM 2008a). Please see the response to comment O-001-16 for additional information relative to mercury emissions and deposition in the project area.

I-024-6 Please see the response to comment O-001-6 regarding the source of mitigation water and the response to comment O-002-4 regarding the source and quality of mitigation water and the associated impacts to biological resources. Also see the response to comment I-001-2 relative to mitigation and the response to comment I-023-1 regarding mitigation strategies.

I-024-7 Potential impacts to Western Shoshone spiritual, religious, and cultural values, including potential impacts from mine dewatering, were extensively evaluated and discussed in Section 3.9 and responses to related comments (e.g., response to comment O-003-004 in Appendix F1) of the Cortez Hills Expansion Project Final EIS (BLM 2008a). Please see the response to comment O-001-5 above for additional discussion relative to the spiritual, religious, and cultural values/uses of waters in the study area. Also see the response to comment O-001-4 above relative to documented use of the project vicinity based on BLM’s previous ethnographic studies and previous and ongoing Native American consultation.

As explained in Section 1.0 of the SEIS and the responses to comments S-002-3 and O-001-21, the scope of the water resources evaluation for the SEIS is refinement of the analysis of the effectiveness of measures adopted to mitigate potential impacts to surface water resources from mine-related groundwater pumping. The BLM receives and reviews quarterly and semi-annual surface water monitoring results conducted as part of the Integrated Monitoring Plan (CGM 2007) for the project and in accordance with the Records of Decision for the Pipeline, South Pipeline, and Cortez Hills Expansion Projects. The BLM reviews the monitoring results to evaluate whether the changes observed in flow are resulting from mine-induced drawdown or other causes (such as meteorological conditions, grazing impacts, flow diversions, etc.). Section 3.2 of the Cortez Hills Expansion Project Final EIS (BLM 2008a) includes a discussion of flow changes in springs observed in southern Crescent Valley between 1996 and 2005. As stated on page 3.2-58 of the Final EIS (BLM 2008a) “Based on available information, it is unknown if the changes in flow at any of these springs has been related to mine dewatering.” Table 3.2-1 in the SEIS defines specific monitoring parameters to be used by the BLM to identify impacts to seeps, springs, and streams resulting from mine-induced drawdown and to trigger implementation of the identified site-specific mitigation measures. It

Responses

I-024-7 (cont'd) is important to note that Table 3.2-1 encompasses all known perennial resources located within the cumulative drawdown area (defined by the 10-foot drawdown contour) for the Pipeline, South Pipeline, and Cortez Hills Expansion Projects.

Most springs and streams exhibit highly variable flows resulting from variations in precipitation patterns and meteorological conditions (as shown by the flow monitoring data provided in CGM and JBR 2010). These variations in flow reflect seasonal, annual, and multi-year variations in precipitation (i.e., wet and dry cycles). The observation of reductions of flow over a 2-year time frame is to be expected in this hydrologic setting, considering the natural flow variations; flow reduction at a specific site may be caused by mine-induced drawdown or reductions in recharge associated with natural variations in meteorological conditions.



"CasMediacomEml"
 <casmas@mediacombb.net>
 10/02/2010 03:42 PM
 Please respond to
 "CasMediacomEml"
 <casmas@mediacombb.net>

To <cortezhills_DSEIS@blm.gov>
 cc
 bcc
 Subject Mt. Tenabo

Charlotte Smith
POB 137
Tovey, IL 62570
October 2, 2010

Attention: Christopher Worthington
 Bureau of Land Management
 Battle Mountain Field Office
 50 Bastian Road
 Battle Mountain, NV 89820

Dear Mr. Worthington:

BLM needs to examine the seeps and springs to find out if each is connected to the aquifer that will be affected by groundwater pumping. Alleviation methods that prevent the source of the springs to be directly affected, especially for those connected by special cultural and/or spiritual significance, also need to be examined. Replacement of water from another source is not an adequate mitigation plan to prevent the source of a spring from being affected.

How will the expected permanent decrease in the water table near the pit be alleviated?

Thank you for your time and consideration.

Charlotte Smith

casmas@mediacombb.net OR
casmas@live.com

Responses

I-025-1 The Cortez Hills Expansion Project Final EIS (BLM 2008a) took a hard look in evaluating seeps and springs that potentially could be impacted as a result of mine-related groundwater drawdown. Please see the response to comment O-001-8 for additional discussion relative to this issue. Also see the response to comment O-001-6 regarding the source of mitigation water. Impacts to surface water resources associated with long-term drawdown effects and effects of pit lake development were addressed in the impact analysis in Section 3.2.2 of the Final EIS (BLM 2008a).

I-025-1

Responses

Anxiety does not empty tomorrow of its sorrows,
but only empties today of its strength.

-Charles Spurgeon - English Baptist Preacher

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Susan Wallace-Babb
<indigo11@peoplepc.com>

09/30/2010 08:47 AM

Please respond to
indigo11@peoplepc.com

To CortezHills_DSEIS@blm.gov
cc
bcc
Subject Protect what makes Mt. Tenabo's springs sacred

Dear Mr. Worthington -

I-026-1 | Public lands are meant for all citizens. To open them up for corporations to destroy for profit is criminal.

I-026-2 | To disregard the spiritual nature of Mt. Tenabo's springs is an action that continues the abuse of our native people and their rights.

It's time honor promises and live with respect for all citizens and their land. Please remember what your true job is; to care for public lands not look for ways to profit at others' expense.

Sincerely,

Susan Wallace-Babb
532 CR 4760
532 CR 4760
Winnsboro, TX 75494
US

Responses

- I-026-1 Please see the response to comment I-021-4 regarding BLM's responsibility relative to authorization of mineral rights access on certain federal lands.
- I-026-2 The BLM considered Mount Tenabo and its associated spiritual importance to certain Native Americans in Section 3.9.1.4 of the Cortez Hills Expansion Project Final EIS (BLM 2008a); Section 3.9.2.1 of that document addressed potential impacts to resources of concern to Native Americans, including Mount Tenabo.

Sample letter:

Attention: Christopher Worthington
Bureau of Land Management
Battle Mountain Field Office
50 Bastian Road
Battle Mountain, NV 89820

Re: Cortez Hills Expansion Project draft Supplementary Environmental Impact Statement

Dear Mr. Worthington,

I appreciate the opportunity to comment on the Cortez Hills Expansion Project Draft Supplementary Environmental Impact Statement (dSEIS), and urge the Bureau of Land Management (BLM) to deliberate with great consideration on this very controversial project.

E-001-1 The permanent impacts of the project to the cultural and spiritual practices of the Western Shoshone is undeniable. Mt. Tenabo has been, and continues to be, used by Western Shoshone people as a central part of their religious practices and world view. Western Shoshone visit the mountain and the valley below (the location of the mine pit) for prayer ceremonies, gathering of sacred plants, fasting, and vision quests, among other uses. The Mountain also contains Western Shoshone gravesites. All of these values and uses will be destroyed by the Project. In addition, the massive pumping of groundwater will likely dry-up culturally significant and sacred springs and streams on and around Mt. Tenabo.

E-001-2 I have read the draft Supplementary Environmental Impact Statement for the Cortez Hills Expansion project and I do not feel that the analysis is adequate in terms of the impacts from pumping the groundwater. I understand that the water table will not recover completely, but I didn't see any discussion of that. Is the BLM planning to maintain a water replacement procedure indefinitely? What happens when the mine is closed up? Who will be responsible for maintaining those springs that will not recover on their own?

E-001-3 I also do not agree that the mitigation plan of replacement of water from another well is the right thing to do. It seems to me that any spring, especially when it has special significance from a cultural perspective, cannot be protected by just putting water into it from another source. And from my experience in talking with Shoshone people this is their view as well. My understanding is that the source of the water is important. Will the water quality be the same? How will the "different" water affect the plants, animals, and microbes that use that water. I didn't see any analysis of this in the document. The BLM should have an analysis of other mitigation strategies that would prevent the sources of the springs from being affected in the first place.

E-001-4 I was also alarmed at how much mercury would be released into the air as a result of this project – almost 1,800 pounds over the course of the mine. The SEIS states, "The fraction of the maximum annual mercury emissions associated with the processing of Cortez refractory ore at Goldstrike would not contribute significantly to near-field mercury deposition," but it does not say how much this actually is. The SEIS should state how much mercury this would be from year to year and explain why this amount is not significant. Mercury is so toxic I think there should be a more complete discussion of amounts. Can't mercury accumulate in the environment? In looking over information about mercury I see where mercury can be released from other parts of the mine like the waste rock piles of heap leach pads. Seems like this impact should have been analyzed as well especially given the significance of the Mt. Tenabo area in general.

Sincerely

Responses

- E-001-1 The BLM considered Mount Tenabo and its associated spiritual importance to certain Native Americans in Section 3.9.1.4 of the Cortez Hills Expansion Project Final EIS (2008a); Section 3.9.2.1 of that document considered potential impacts to resources of concern to Native Americans, including Mount Tenabo. Please see the response to comment O-001-4 relative to documented use of the project vicinity based on BLM's previous ethnographic studies and previous and ongoing Native American consultation. Also see the response to comment O-002-2 relative to BLM's designation of Mount Tenabo and the White Cliffs as a property of cultural and religious importance and for information relative to potential burials.
- E-001-2 The potential environmental impacts of groundwater pumping were fully evaluated and described in Section 3.2.2 and the responses to comments (Appendix F1) of the Cortez Hills Expansion Project Final EIS (BLM 2008a). As discussed in Section 3.2.4 of the Draft SEIS, the information presented in this document supplements the analysis in the Final EIS (BLM 2008a) to refine the evaluation of the effectiveness of mine dewatering mitigation measures. Please see the responses to comments F-001-4 and O-001-36 regarding long-term mitigation.
- E-001-3 Please see the responses to comments O-001-6 and O-002-4 regarding the source and quality of mitigation water and the associated impacts to biological resources. Also see the response to comment I-001-2 and I-023-1 relative to mitigation strategies.
- E-001-4 The Cortez Hills Expansion Project Draft SEIS statement noted in the comment relative to mercury emissions and subsequent mercury deposition associated with processing of Cortez refractory ore at Goldstrike has been replaced with a more detailed discussion based on the REMSAD results. Please see the responses to comments O-001-13 and O-001-14 for additional information relative to this issue. Also see the response to comment O-001-16 relative to fugitive mercury emissions from mine facilities.



Michael Ballin
<ballin_5_3@yahoo.com>

09/28/2010 08:19 AM

Please respond to
ballin_5_3@yahoo.com

To CortezHills_DSEIS@blm.gov

cc

bcc

Subject Pay real respect to the indigenous peoples. Protect what makes Mt. Tenabo's springs sacred

Responses

E-002-1 Section 3.9 of the Cortez Hills Expansion Project Final EIS (BLM 2008a) addressed potential impacts of the Cortez Hills Expansion Project on Native American traditional values. Please also see the responses to comment letter E-001.

Dear Mr. Worthington -

I appreciate the opportunity to comment on the Cortez Hills Expansion Project Draft Supplementary Environmental Impact Statement (dSEIS), and urge the Bureau of Land Management (BLM) to deliberate with great consideration on this very controversial project.

please pay more than lipservice to principles of environmental protection and respect to the human rights of righthfull inidenous landowners who are the subject of such mistreatment from those who exploit their lands . The permanent impacts of the project to the cultural and spiritual practices of the Western Shoshone is undeniable. Mt. Tenabo has been, and continues to be, used by Western Shoshone people as a central part of their religious practices and world view. Western Shoshone visit the mountain and the valley below (the location of the mine pit) for prayer ceremonies, gathering of sacred plants, fasting, and vision quests, among other uses. The Mountain also contains Western Shoshone gravesites. All of these values and uses will be destroyed by the Project. In addition, the massive pumping of groundwater will likely dry-up culturally significant and sacred springs and streams on and around Mt. Tenabo.

I have read the draft Supplementary Environmental Impact Statement for the Cortez Hills Expansion project and I do not feel that the analysis is adequate in terms of the impacts from pumping the groundwater. I understand that the water table will not recover completely, but I didn't see any discussion of that. Is the BLM planning to maintain a water replacement procedure indefinitely? What happens when the mine is closed up? Who will be responsible for maintaining those springs that will not recover on their own?

I also do not agree that the mitigation plan of replacement of water from another well is the right thing to do. It seems to me that any spring, especially when it has special significance from a cultural perspective, cannot be protected by just putting water into it from another source. And from my experience in talking with Shoshone people this is their view as well. My understanding is that the source of the water is important. Will the water quality be the same? How will the "different" water affect the plants, animals, and microbes that use that water. I didn't see any analysis of this in the document. The BLM should have an analysis of other mitigation strategies that would prevent the sources of the springs from being affected in the first place.

I was also alarmed at how much mercury would be released into the air as a result of this project - almost 1,800 pounds over the course of the mine. The SEIS states, "The fraction of the maximum annual mercury emissions associated with the processing of Cortez refractory ore at Goldstrike would not contribute significantly to near-field mercury deposition," but it does not say how much this actually is. The SEIS should state how much mercury this would be from year to year and explain why this amount is not significant. Mercury is so toxic I think there should be a more complete discussion of

E-002-1

Responses

amounts. Can't mercury accumulate in the environment? In looking over information about mercury I see where mercury can be released from other parts of the mine like the waste rock piles of heap leach pads. Seems like this impact should have been analyzed as well especially given the significance of the Mt. Tenabo area in general.

Sincerely,

Michael Ballin
587 Avenue Rd #15
Toronto, ON M4V 2K3
ca



Daniel Brower
<danb@oars.com>

09/27/2010 01:22 PM

Please respond to
danb@oars.com

To CortezHills_DSEIS@blm.gov

cc

bcc

Subject Protect what makes Mt. Tenabo's springs sacred

Responses

E-004-1 Comment noted. Please see the responses to comment letter E-001.

Dear Mr. Worthington -

I appreciate the opportunity to comment on the Cortez Hills Expansion Project Draft Supplementary Environmental Impact Statement (DSEIS), and urge the Bureau of Land Management (BLM) to deliberate with great consideration on this very controversial project. As a former employee of Placer Dome US, Inc. the predecessor of Barick at the Cortez Mine Complex, I feel my perspective is valuable to your deliberations. I witnessed first-hand the huge scale and permanent destruction of this vast desert landscape that this mining project is causing. Just working for the company responsible for the environmental degradation challenged my own ethics.

The permanent impacts of the project to the cultural and spiritual practices of the Western Shoshone is undeniable. Mt. Tenabo has been, and continues to be, used by Western Shoshone people as a central part of their religious practices and world view. Western Shoshone visit the mountain and the valley below (the location of the mine pit) for prayer ceremonies, gathering of sacred plants, fasting, and vision quests, among other uses. The Mountain also contains Western Shoshone gravesites. All of these values and uses will be destroyed by the Project. In addition, the massive pumping of groundwater will likely dry-up culturally significant and sacred springs and streams on and around Mt. Tenabo. The tremendous industrial uses of ground water in such an arid land is not acceptable.

The draft Supplementary Environmental Impact Statement for the Cortez Hills Expansion project does not offer adequate analysis in terms of the impacts from pumping the groundwater. I understand that the water table will not recover completely, but I didn't see any discussion of that. Is the BLM planning to maintain a water replacement procedure indefinitely? What happens when the mine is closed up? Who will be responsible for maintaining those springs that will not recover on their own?

I also do not agree that the mitigation plan of replacement of water from another well is the right thing to do. It seems to me that any spring, especially when it has special significance from a cultural perspective, cannot be protected by just putting water into it from another source. My understanding is that the source of the water is important. Will the water quality be the same? How will the "different" water affect the plants, animals, and microbes that use that water. I didn't see any analysis of this in the document. The BLM should have an analysis of other mitigation strategies that would prevent the sources of the springs from being affected in the first place.

I was also alarmed at how much mercury would be released into the air as a result of this project - almost 1,800 pounds over the course of the mine. The SEIS states, "The fraction of the maximum annual mercury emissions associated with the processing of Cortez refractory ore at Goldstrike would not contribute significantly to near-field mercury deposition," but it does not

E-004-1

Responses

say how much this actually is. The SEIS should state how much mercury this would be from year to year and explain why this amount is not significant. Mercury is so toxic I think there should be a more complete discussion of amounts. Can't mercury accumulate in the environment? In looking over information about mercury I see where mercury can be released from other parts of the mine like the waste rock piles of heap leach pads. Seems like this impact should have been analyzed as well especially given the significance of the Mt. Tenabo area in general.

Sincerely,

Daniel Brower
10449 Oak Valley Road
Angels Camp, CA 95222
US



Judith Castiano
 <hewayzha@hotmail.com>
 09/28/2010 01:49 PM
 Please respond to
 hewayzha@hotmail.com

To CortezHills_DSEIS@blm.gov
 cc
 bcc
 Subject Protect what makes Mt. Tenabo's springs sacred

Responses

E-005-1 BLM notes the expressed point of view of the commenter. Section 3.9 of the Cortez Hills Expansion Project Final EIS (BLM 2008a) evaluated the potential impacts of the Cortez Hills Expansion Project on Native American traditional values. Please also see the responses to comment letter E-001.

Dear Mr. Worthington -

E-005-1

If Barrick's proposal were to take place in a church, synagogue or anything other religious building everyone would be up in arms. But because it is on American Indian land that is as sacred as any other religious site, the BLM and the powers that be say "Who cares?" Why is it that we MUST still work harder at having our rights protected than other people? Why is it okay to treat our religions in a sacrilegious manner? Our religions are just as important and have as much validity as any other religion that is being practiced by other Americans! Stop treating us and our culture as second class citizens. I wonder when the FIRST Americans will actually be equal to every other American.

I appreciate the opportunity to comment on the Cortez Hills Expansion Project Draft Supplementary Environmental Impact Statement (dSEIS), and urge the Bureau of Land Management (BLM) to deliberate with great consideration on this very controversial project.

The permanent impacts of the project to the cultural and spiritual practices of the Western Shoshone is undeniable. Mt. Tenabo has been, and continues to be, used by Western Shoshone people as a central part of their religious practices and world view. Western Shoshone visit the mountain and the valley below (the location of the mine pit) for prayer ceremonies, gathering of sacred plants, fasting, and vision quests, among other uses. The Mountain also contains Western Shoshone gravesites. All of these values and uses will be destroyed by the Project. In addition, the massive pumping of groundwater will likely dry-up culturally significant and sacred springs and streams on and around Mt. Tenabo.

I have read the draft Supplementary Environmental Impact Statement for the Cortez Hills Expansion project and I do not feel that the analysis is adequate in terms of the impacts from pumping the groundwater. I understand that the water table will not recover completely, but I didn't see any discussion of that. Is the BLM planning to maintain a water replacement procedure indefinitely? What happens when the mine is closed up? Who will be responsible for maintaining those springs that will not recover on their own?

I also do not agree that the mitigation plan of replacement of water from another well is the right thing to do. It seems to me that any spring, especially when it has special significance from a cultural perspective, cannot be protected by just putting water into it from another source. And from my experience in talking with Shoshone people this is their view as well. My understanding is that the source of the water is important. Will the water quality be the same? How will the "different" water affect the plants, animals, and microbes that use that water. I didn't see any analysis of this in the document. The BLM should have an analysis of other mitigation strategies that would prevent the sources of the springs from being affected in the first place.

Responses

I was also alarmed at how much mercury would be released into the air as a result of this project - almost 1,800 pounds over the course of the mine. The SEIS states, "The fraction of the maximum annual mercury emissions associated with the processing of Cortez refractory ore at Goldstrike would not contribute significantly to near-field mercury deposition," but it does not say how much this actually is. The SEIS should state how much mercury this would be from year to year and explain why this amount is not significant. Mercury is so toxic I think there should be a more complete discussion of amounts. Can't mercury accumulate in the environment? In looking over information about mercury I see where mercury can be released from other parts of the mine like the waste rock piles of heap leach pads. Seems like this impact should have been analyzed as well especially given the significance of the Mt. Tenabo area in general.

Sincerely,

Judith Castiano
9060 N. 68th Ln.
Peoria, AZ 85345-8838
us



Patricia Dair
<dair5@comcast.net>

09/27/2010 11:53 AM

Please respond to
dair5@comcast.net

To CortezHills_DSEIS@blm.gov
cc
bcc
Subject Protect what makes Mt. Tenabo's springs sacred

Dear Mr. Worthington -

Regards the Cortez Hills Expansion Project Draft Supplementary Environmental Impact Statement (dSEIS), I urge the Bureau of Land Management (BLM) to reach a conservative conclusion that does not permit damage to this indigenous water site nor full, unadulterated use of it by the Western Shoshone and others who depend on it for their spiritual practices.

The permanent impacts of the project to the cultural and spiritual practices of the Western Shoshone should not allowed to any degree. Mt. Tenabo has been, and continues to be, used by Western Shoshone people as a central part of their religious practices and world view. Western Shoshone visit the mountain and the valley below (the location of the mine pit) for prayer ceremonies, gathering of sacred plants, fasting, and vision quests, among other uses. The Mountain also contains Western Shoshone gravesites. All of these values and uses will be destroyed by the Project. In addition, the massive pumping of groundwater will likely dry-up culturally significant and sacred springs and streams on and around Mt. Tenabo.

I have read the draft Supplementary Environmental Impact Statement for the Cortez Hills Expansion project and I do not feel that the analysis is adequate in terms of the impacts from pumping the groundwater. I understand that the water table will not recover completely, but I didn't see any discussion of that. Is the BLM planning to maintain a water replacement procedure indefinitely? What happens when the mine is closed up? Who will be responsible for maintaining those springs that will not recover on their own?

I also do not agree that the mitigation plan of replacement of water from another well is the right thing to do. It seems to me that any spring, especially when it has special significance from a cultural perspective, cannot be protected by just putting water into it from another source. And from my experience in talking with Shoshone people this is their view as well. My understanding is that the source of the water is important. Will the water quality be the same? How will the "different" water affect the plants, animals, and microbes that use that water. I didn't see any analysis of this in the document. The BLM should have an analysis of other mitigation strategies that would prevent the sources of the springs from being affected in the first place.

I was also alarmed at how much mercury would be released into the air as a result of this project - almost 1,800 pounds over the course of the mine. The SEIS states, "The fraction of the maximum annual mercury emissions associated with the processing of Cortez refractory ore at Goldstrike would not contribute significantly to near-field mercury deposition," but it does not say how much this actually is. The SEIS should state how much mercury this would be from year to year and explain why this amount is not significant. Mercury is so toxic I think there should be a more complete discussion of amounts. Can't mercury accumulate in the environment? Will you create a fund

Responses

E-006-1 Potential impacts to Western Shoshone spiritual, religious, and cultural values, including potential impacts from mine dewatering, were extensively evaluated and discussed in Section 3.9 and responses to related comments (e.g., response to comment O-003-004) in Appendix F1 of the Cortez Hills Expansion Project Final EIS (BLM 2008a). Please see the responses to comments O-001-4 and O-001-5 above for additional information on this issue. Also see the responses to comment letter E-001.

E-006-2 Please see the response to comment O-001-17 relative to established airborne mercury limits for the protection of human health in relation to fugitive mercury emissions at the Cortez Hills Expansion Project.

E-006-1

E-006-2

Responses

E-006-2 | to provide long term medical care for those in the area, given that no level
(cont'd) | of mercury exposure is safe and, if this project goes through, there will be
an involuntary increase in mercury exposure for those in the area? Also, In
looking over information about mercury I see where mercury can be released
from other parts of the mine like the waste rock piles of heap leach pads.
Seems like this impact should have been analyzed as well especially given the
significance of the Mt. Tenabo area in general.

Thank you for your consideration.

Sincerely,

Patricia Dair
223 SE 62nd Ave
Portland, OR 97215
us



Diadra Decker
 <diadra@att.net>
 10/03/2010 08:27 PM
 Please respond to
 diadra@att.net

To CortezHills_DSEIS@blm.gov
 cc
 bcc
 Subject Protect what makes Mt. Tenabo's springs sacred

Dear Mr. Worthington,

Re: Cortez Hills Expansion Project draft Supplementary Environmental Impact Statement

I appreciate the opportunity to comment on the Cortez Hills Expansion Project Draft Supplementary Environmental Impact Statement (dSEIS), and urge the Bureau of Land Management (BLM) to deliberate with great consideration on this very controversial project. I have grave concerns that have not been addressed adequately in the dSEIS.

E-007-1

That the permanent, irreversible impacts of the project to the cultural and spiritual practices of the Western Shoshone is undeniable. Mt. Tenabo has been, and continues to be, used by Western Shoshone people as a central part of their religious practices and world view. Western Shoshone visit the mountain and the valley below (the location of the mine pit) for prayer ceremonies, gathering of sacred plants, fasting, and vision quests, among other uses. The Mountain also contains Western Shoshone gravesites.

All of these values and uses would be destroyed by the Project. In addition, the massive pumping of groundwater will likely dry-up culturally significant and sacred springs and streams on and around Mt. Tenabo. The analysis in the draft Supplementary Environmental Impact Statement for the Cortez Hills Expansion project is not adequate in terms of the impacts from pumping of groundwater. I understand that the water table would not recover completely, but I didn't see any discussion of that. Is the BLM planning to maintain a water replacement procedure indefinitely? What would happen after mine closure? Who will be responsible for maintaining those springs that will not recover on their own?

Any spring, especially when it has special significance from a cultural perspective, cannot be protected by just putting water into it from another source. The source of the water is important to its behavior and function. Otherwise, how can you assure that the water quality and quantity be the same? How would "different" water affect the plants, animals, and microbes that use that water. There is no analysis of this in the document. The BLM should require analysis of other mitigation strategies that prevent the sources of the springs from being affected in the first place.

I am alarmed at how much mercury would be released into the air as a result of this project - almost 1,800 pounds over the course of the mine. Mercury is a potent and well-documented neurotoxin, affecting humans and wildlife. As with "acid rain" in the past, much of this mercury would add to air deposition of mercury and other pollutants in midwestern states. In Minnesota, we have many water bodies already impaired for mercury, where it bio-accumulates, so additional load from Goldstrike would be significant.

E-007-2

The dSEIS states, "The fraction of the maximum annual mercury emissions

Responses

E-007-1 Please see Chapter 3.0 of the Cortez Hills Expansion Project Final EIS (BLM 2008a) for an analysis of potential project-related impacts to the natural environment, human environment, and Native American traditional values. Also see the responses to comment letter E-001.

E-007-2 Please see the responses to comments O-001-12, O-001-13, and O-001-14 relative to mercury emissions and deposition associated with processing of Cortez refractory ore at Goldstrike. Also see the response to comment O-001-17 relative to established airborne mercury limits for the protection of human health.

associated with the processing of Cortez refractory ore at Goldstrike would not contribute significantly to near-field mercury deposition," but it does not reveal how much this actually would be. In addition to air release, mercury can be released from other parts of the mining operation, including waste rock piles and heap leach pads. The SEIS should state how much mercury is expected to be released from year to year and explain why this amount is not considered significant.

E-007-3

Mt. Tenabo area is a place of special cultural and spiritual significance that needs to be protected along with the surrounding and distant environment. The Cortez Hills Expansion project should be denied if it cannot operate and be passively maintained after closure. The current draft contains inadequate information to support this result.

Sincerely,
Diadra Decker

Diadra Decker
6837 Booth Ave.
Clean Water Action
Inver Grove Heights, MN 55076
US

Responses

E-007-3 Please see the response to comment I-021-4 regarding BLM's responsibility relative to authorization of mineral rights access on certain federal lands. Also see the response to comment O-001-36 regarding long-term mitigation funding.



Kari Gunter
 <Karlene_Gunter@umc.rochester.edu>

09/23/2010 09:15 AM

To <CortezHills_DSEIS@blm.gov>

cc

bcc

Subject Cortez Hills Expansion Project Draft Supplementary Environmental Impact Statement

Dear Mr. Worthington,

I am writing to comment on the Cortez Hills Expansion Project

Draft

Supplementary Environmental Impact Statement. I do not think that the analysis is adequate in terms of the impacts from pumping such large amounts of ground water (over a billion gallons total). I understand that the water table will not recover completely, but I didn't see any discussion of that. The west has tended to be dry and seems to be getting dryer still. A permanent decrease in the water table is not a good policy. Is the BLM planning to maintain a water replacement procedure indefinitely? Who will pay for it. The taxpayers should not be responsible for this. Can you make the company pay indefinitely? What happens if they go bankrupt?

E-008-1

I am also alarmed at how much mercury would be released into the air

as a result of this project - almost 1,800 pounds over the course of the mine. The SEIS states, "The fraction of the maximum annual mercury emissions associated with the processing of Cortez refractory ore at Goldstrike would not contribute significantly to near-field mercury deposition," but it does not say how much this actually is. The SEIS should state how much mercury this would be from year to year and explain why this amount is not significant. Mercury is so toxic I think there should be a more complete discussion of amounts. In looking over information about mercury I see where mercury can be released from other parts of the mine like the waste rock piles of heap leach pads. It seems to me that this impact should have been analyzed as well especially given the significance of the Mt. Tenabo area in general. Mercury is long lasting. In the wild it converts to methylmercury which accumulates in animals and fish and is highly toxic. It's impact should not be so cavalierly dismissed.

E-008-2

The permanent impacts of the project to the cultural and spiritual practices of the Western Shoshone is undeniable. Mt. Tenabo has been, and continues to be, used by Western Shoshone people as a central part of their religious practices and world view. Western Shoshone visit the mountain and the valley below (the location of the mine pit) for prayer ceremonies, gathering of sacred plants, fasting, and vision quests, among other uses. The Mountain also contains Western Shoshone gravesites. All of these values and uses will be destroyed by the Project. In addition, the massive pumping of groundwater will likely dry-up culturally significant and sacred springs and streams on and around Mt. Tenabo. If some springs dry up, replacement water will not replace the lost springs. To them, the source of the water in the springs is important. Each spring source has its own unique spirits that cannot be imported from another source.

E-008-3

Sincerely yours,
 Prof. Karlene Gunter
 University of Rochester

Rochester, NY 14642

Responses

- E-008-1 Please see the response to comment O-001-36 regarding long-term mitigation funding. Also see the responses to comment letter E-001.
- E-008-2 Potential project-related mercury emissions and deposition associated with operations and processing at the Cortez Gold Mines Operations Area were analyzed in Section 3.10.2 of the Cortez Hills Expansion Project Final EIS (BLM 2008a). Potential mercury emissions and deposition associated with processing of Cortez refractory ore at Goldstrike are discussed in Section 3.10.2 of the SEIS. Please see the responses to comments O-001-12 through O-001-16 for additional information relative to mercury emissions and deposition, and the response to comment O-001-17 relative to established airborne mercury limits for the protection of human health.
- E-008-3 Please see the response to comment O-001-6 regarding the proposed source of mitigation water.

Responses



Mary Hicklin
<mary@virgomoan.com>

09/27/2010 12:46 PM

Please respond to
mary@virgomoan.com

To CortezHills_DSEIS@blm.gov

cc

bcc

Subject Protect what makes Mt. Tenabo's springs sacred

Dear Mr. Worthington -

I appreciate the opportunity to comment on the Cortez Hills Expansion Project Draft Supplementary Environmental Impact Statement (dSEIS), and urge the Bureau of Land Management (BLM) to deliberate with great consideration on this very controversial project.

The permanent impacts of the project to the cultural and spiritual practices of the Western Shoshone is undeniable. Mt. Tenabo has been, and continues to be, used by Western Shoshone people as a central part of their religious practices and world view. Western Shoshone visit the mountain and the valley below (the location of the mine pit) for prayer ceremonies, gathering of sacred plants, fasting, and vision quests, among other uses. The Mountain also contains Western Shoshone gravesites. All of these values and uses will be destroyed by the Project. In addition, the massive pumping of groundwater will likely dry-up culturally significant and sacred springs and streams on and around Mt. Tenabo.

I have read the draft Supplementary Environmental Impact Statement for the Cortez Hills Expansion project and I do not think that the analysis is adequate in terms of the impacts from pumping the groundwater. I understand that the water table will not recover completely, but I didn't see any discussion of that. Is the BLM planning to maintain a water replacement procedure indefinitely? What happens when the mine is closed up? Who will be responsible for maintaining those springs that will not recover on their own?

I also do not agree that the mitigation plan of replacement of water from another well is the right thing to do. It seems to me that any spring, especially when it has special significance from a cultural perspective, cannot be protected by just putting water into it from another source. And from my experience in talking with Shoshone people this is their view as well. My understanding is that the source of the water is important. Will the water quality be the same? How will the "different" water affect the plants, animals, and microbes that use that water. I didn't see any analysis of this in the document. The BLM should have an analysis of other mitigation strategies that would prevent the sources of the springs from being affected in the first place.

I was also alarmed at how much mercury would be released into the air as a result of this project - almost 1,800 pounds over the course of the mine. The SEIS states, "The fraction of the maximum annual mercury emissions associated with the processing of Cortez refractory ore at Goldstrike would not contribute significantly to near-field mercury deposition," but it does not say how much this actually is. The SEIS should state how much mercury this would be from year to year and explain why this amount is not significant. Mercury is so toxic I think there should be a more complete discussion of amounts. Can't mercury accumulate in the environment? In looking over information about mercury I see where mercury can be released from other parts

of the mine like the waste rock piles of heap leach pads. It seems like this impact should have been analyzed as well especially given the significance of the Mt. Tenabo area in general.

E-009-1

Finally, Barrick's disastrous environmental record to date should be considered. In my opinion, this organization should be prosecuted for its environmental crimes, not rewarded with mining leases and a free pass to continue business as usual.

E-009-2

You have an obligation to ALL the people of this country to protect our precious lands. Allowing companies like this to destroy sacred sites, to destroy ANY place on our precious earth is WRONG. Please stand up to Barrick, consider the environmental and spiritual destruction their plans require, the ultimate cost to taxpayers for cleanup (taxpayers ALWAYS are left holding the bag), and tell them to take a hike.

Sincerely,

Mary Hicklin
11770 Hi Ridge Rd
Lakeside, CA 92040
us

Responses

E-009-1 Table 1-1 of the Cortez Hills Expansion Project Final EIS (BLM 2008a) identified the permits and approvals that CGM was required to obtain from the authorizing regulatory agencies for the Cortez Hills Expansion Project. CGM's previous and ongoing mining activities in the Cortez Gold Mines Operations Area have been required, and would continue to be required, to operate and submit required reports in accordance with all site-specific permit criteria established by the authorizing regulatory agencies. Also see the responses to comment letter E-001.

E-009-2 Potential project-related environmental impacts were analyzed in Chapter 3.0 of the Cortez Hills Expansion Project Final EIS (BLM 2008a). Potential impacts to Western Shoshone spiritual, religious, and cultural values, including potential impacts from mine dewatering, were extensively evaluated and discussed in Section 3.9 and responses to related comments (e.g., response to comment O-003-004) in Appendix F1 of the Final EIS. Please see the responses to comments O-001-4 and O-001-5 above for additional information on this issue. Also see the response to comment O-001-36 regarding long-term mitigation funding, and the response to comment I-021-4 regarding BLM's responsibility relative to authorization of mineral leasing.



Gayle Janzen
 <cgjanzen@comcast.net>

09/27/2010 11:37 AM

Please respond to
 cgjanzen@comcast.net

To CortezHills_DSEIS@blm.gov

cc

bcc

Subject Mt. Tenabo's water is sacred - please protect it!

Dear Mr. Worthington -

It doesn't seem like the BLM is doing it's job to protect the sacred waters of Mt. Tenabo. These waters cannot be replaced by bringing water in from someplace else. The planet is warming and water will become even more precious, so to be using it for a gold mine, is a waste to say the least. And to totally disregard the importance of this water to the Shoshone people is really despicable. If something was important to you, would you want some company coming in destroying it so they could make a lot of money. It's time to show show respect to the people and the land instead of destroying everything is sight for money.

I appreciate the opportunity to comment on the Cortez Hills Expansion Project Draft Supplementary Environmental Impact Statement (dSEIS), and urge the Bureau of Land Management (BLM) to deliberate with great consideration on this very controversial project.

The permanent impacts of the project to the cultural and spiritual practices of the Western Shoshone is undeniable. Mt. Tenabo has been, and continues to be, used by Western Shoshone people as a central part of their religious practices and world view. Western Shoshone visit the mountain and the valley below (the location of the mine pit) for prayer ceremonies, gathering of sacred plants, fasting, and vision quests, among other uses. The Mountain also contains Western Shoshone gravesites. All of these values and uses will be destroyed by the Project. In addition, the massive pumping of groundwater will likely dry-up culturally significant and sacred springs and streams on and around Mt. Tenabo.

I have read the draft Supplementary Environmental Impact Statement for the Cortez Hills Expansion project and I do not feel that the analysis is adequate in terms of the impacts from pumping the groundwater. I understand that the water table will not recover completely, but I didn't see any discussion of that. Is the BLM planning to maintain a water replacement procedure indefinitely? What happens when the mine is closed up? Who will be responsible for maintaining those springs that will not recover on their own?

I also do not agree that the mitigation plan of replacement of water from another well is the right thing to do. It seems to me that any spring, especially when it has special significance from a cultural perspective, cannot be protected by just putting water into it from another source. And from my experience in talking with Shoshone people this is their view as well. My understanding is that the source of the water is important. Will the water quality be the same? How will the "different" water affect the plants, animals, and microbes that use that water. I didn't see any analysis of this in the document. The BLM should have an analysis of other mitigation strategies that would prevent the sources of the springs from being affected in the first place.

Responses

E-010-1 Potential impacts to Western Shoshone spiritual, religious, and cultural values, including potential impacts to perennial surface waters due to mine-related groundwater drawdown, were extensively evaluated and discussed in Section 3.9 and responses to related comments (e.g., response to comment O-003-004) in Appendix F1 of the Cortez Hills Expansion Project Final EIS (BLM 2008a). Please see the responses to comments O-001-4 and O-001-5 above for additional information on this issue. Also see the responses to comment letter E-001.

E-010-1

Responses

I was also alarmed at how much mercury would be released into the air as a result of this project - almost 1,800 pounds over the course of the mine. The SEIS states, "The fraction of the maximum annual mercury emissions associated with the processing of Cortez refractory ore at Goldstrike would not contribute significantly to near-field mercury deposition," but it does not say how much this actually is. The SEIS should state how much mercury this would be from year to year and explain why this amount is not significant. Mercury is so toxic I think there should be a more complete discussion of amounts. Can't mercury accumulate in the environment? In looking over information about mercury I see where mercury can be released from other parts of the mine like the waste rock piles of heap leach pads. Seems like this impact should have been analyzed as well especially given the significance of the Mt. Tenabo area in general.

Sincerely,

Gayle Janzen
11232 Dayton Ave N
Seattle, WA 98133
US



Michael McLaughlin
<briseboy@msn.com>

09/27/2010 11:32 AM

Please respond to
briseboy@msn.com

To CortezHills_DSEIS@blm.gov

cc

bcc

Subject Please do your utmost to protect Great Basin waters

Dear Mr. Worthington -

I would like to comment on Cortez Hills Expansion Project Draft Supplementary Environmental Impact Statement (dSEIS).

I am a visitor from time to time of Great Basin areas. While not a Shoshone member, I recognize that the Bureau of Land Management (BLM) must show increasing recognition to natural and traditional values on this controversial project.

The permanent impacts of the project to the cultural and spiritual practices of the Western Shoshone make it vital that you deny mining considerations in favor of Native and natural values.

Mt. Tenabo has been, and continues to be, used by Western Shoshone people as a central part of their religious practices and world view. Western Shoshone visit the mountain and the valley below (the location of the mine pit) for prayer ceremonies, gathering of sacred plants, fasting, and vision quests, among other uses.

The Mountain also contains Western Shoshone gravesites. All of these values and uses will be destroyed by the Project. In addition, the massive pumping of groundwater will likely dry-up culturally significant and sacred springs and streams on and around Mt. Tenabo.

I have read the draft Supplementary Environmental Impact Statement for the Cortez Hills Expansion project and I do not feel that the analysis is adequate in terms of the impacts from pumping the groundwater.

I understand that the water table will not recover completely, but I didn't see any discussion of that. Is the BLM planning to maintain a water replacement procedure indefinitely? What happens when the mine is closed up? Who will be responsible for maintaining those springs that will not recover on their own?

I also do not agree that the mitigation plan of replacement of water from another well is the right thing to do. It seems to me that any spring, especially when it has special significance from a cultural perspective, cannot be protected by just putting water into it from another source.

And from my experience in talking with Shoshone people this is their view as well. My understanding is that the source of the water is important.

Will the water quality be the same?

How will the "different" water affect the plants, animals, and microbes that use that water?

Responses

E-011-1 As discussed in the response to comment O-001-5, potential impacts to Western Shoshone spiritual, religious, and cultural values, including potential impacts from mine dewatering, were extensively evaluated and discussed in Section 3.9 and responses to related comments (e.g., response to comment O-003-004) in Appendix F1 of the Cortez Hills Expansion Project Final EIS (BLM 2008a). Also as discussed in Section 3.9 and summarized in the response to comment O-003-004 in Appendix F1 of the Final EIS, the BLM conducted ethnographic studies and has consulted with local federally-recognized tribes and Western Shoshone elders regarding tribal concerns about the project since 1992 in compliance with the NHPA and Executive Orders. A summary of ongoing consultation since the issuance of the Final EIS is presented in Section 4.2 of the SEIS. Please see the response to comment O-001-4 relative to the documented use of the project vicinity based on BLM's previous ethnographic studies and previous and ongoing Native American consultation. Also see the response to comment I-021-4 regarding BLM's responsibility relative to authorization of mineral leasing. In addition, please see the responses to comment letter E-001.

E-011-1

E-011-2 | No analysis of this occurs in the document.

The BLM should have an analysis of other mitigation strategies that would prevent the sources of the springs from being affected in the first place.

It is astonishing that mercury would be allowed to be released into the air as a result of this project - almost 1,800 pounds over the course of the mine.

E-011-3 | The SEIS states, "The fraction of the maximum annual mercury emissions associated with the processing of Cortez refractory ore at Goldstrike would not contribute significantly to near-field mercury deposition," but it does not sufficiently consider the totality of mining's impacts on environments through toxic emissions, and the need to cease essentially giving away public lands for corporate profit, knowing that every increase in such toxics is deleterious and needs to be completely mitigated.

The SEIS should state how much mercury emission would occur from year to year and explain why this amount is not significant.

Mercury is so toxic I think there should be a more complete discussion of alternatives and methods of removing mercury before any further mining on public lands is done.

E-011-4 | Mercury can be released from other parts of the mine like the waste rock piles of heap leach pads. This excess emission is intolerable over the long term, and no mining should be further allowed which increases this and other toxic substances in the waters, air, and landscape.

E-011-5 | To restate, ALL the natural and ecological values, and traditional Shoshone values must be given prerogative in analysis of permits for mining.

Sincerely,

Michael McLaughlin
1011 H St
Eureka, CA 95501
us

Responses

E-011-2 Please see the response to comment O-002-4 regarding the source and quality of mitigation water and the associated impacts to biological resources.

E-011-3 Potential project-related mercury emissions and deposition associated with operations and processing at the Cortez Gold Mines Operations Area were analyzed in Section 3.10.2 of the Cortez Hills Expansion Project Final EIS (BLM 2008a). Potential mercury emissions and deposition associated with processing of Cortez refractory ore at Goldstrike are discussed in Section 3.10.2 of the SEIS. Please see the responses to comments O-001-12 through O-001-16 for additional information relative to mercury emissions and deposition, and the response to comment O-001-17 relative to established airborne mercury limits for the protection of human health.

E-011-4 Please see the response to comment E-011-3. Potential project-related impacts to water quality were evaluated in Section 3.2.2 of the Cortez Hills Expansion Project Final EIS (BLM 2008a).

E-011-5 Potential project-related environmental impacts were analyzed in Chapter 3.0 of the Cortez Hills Expansion Project Final EIS (BLM 2008a). Potential impacts to Western Shoshone spiritual, religious, and cultural values, including potential impacts from mine dewatering, were extensively evaluated and discussed in Section 3.9 and responses to related comments (e.g., response to comment O-003-004) in Appendix F1 of the Final EIS.



Susan Michetti
 <stardust10000@yahoo.com>
 09/27/2010 04:27 PM
 Please respond to
 stardust10000@yahoo.com

To CortezHills_DSEIS@blm.gov
 cc
 bcc
 Subject Protect what makes Mt. Tenabo's springs sacred

Dear Mr. Worthington -

I appreciate the opportunity to comment on the Cortez Hills Expansion Project Draft Supplementary Environmental Impact Statement (dSEIS), and urge the Bureau of Land Management (BLM) to deliberate with great consideration on this very controversial project.

The permanent impacts of the project to the cultural and spiritual practices of the Western Shoshone is undeniable. Mt. Tenabo has been, and continues to be, used by Western Shoshone people as a central part of their religious practices and world view. Western Shoshone visit the mountain and the valley below (the location of the mine pit) for prayer ceremonies, gathering of sacred plants, fasting, and vision quests, among other uses. The Mountain also contains Western Shoshone gravesites. All of these values and uses will be destroyed by the Project. This is gross disrespect to the Shoshone people--my relatives. In addition, the massive pumping of groundwater will likely dry-up culturally significant and sacred springs and streams on and around Mt. Tenabo.

I have read the draft Supplementary Environmental Impact Statement for the Cortez Hills Expansion project and I do not feel that the analysis is adequate in terms of the impacts from pumping the groundwater. I understand that the water table will not recover completely, but I didn't see any discussion of that. The failure to have this discussion is unacceptable and shows a disregard of basic environmental values. Is the BLM planning to maintain a water replacement procedure indefinitely? What happens when the mine is closed up? Who will be responsible for maintaining those springs that will not recover on their own? Any decrease of value of these springs is unacceptable.

E-012-1

I also do not agree that the mitigation plan of replacement of water from another well is the right thing to do. It seems to me that any spring, especially when it has special significance from a cultural perspective, cannot be protected by just putting water into it from another source. The qualities of one well are different from another well in subtle ways, and replacement mitigation never comes close to the original quality, from my research. And from my experience in talking with Shoshone relatives, this is their view as well. I know beyond any doubt that this source of the water is important. It is time that businesses and industries pay 100% for all the costs of doing business and to restore the environment to 100% of its value or to pay those who lost it not a pittance but its irreplaceable value worth trillions of dollars.

E-012-2

E-012-3

Will the water quality be the same? How will the "different" water affect the plants, animals, and microbes that use that water. I didn't see any analysis of this in the document. The BLM should have an analysis of other mitigation strategies that would prevent the sources of the springs from being affected in the first place.

Responses

- E-012-1 As discussed in the response to comment O-001-2, all of the proposed mitigation measures meet the definition of "mitigation" under NEPA. The effectiveness of the mitigation measures was evaluated in Table 3.2-1 and under the "Mitigation Effectiveness" heading on page 3-13 and 3-14 in the Draft SEIS based on the functions and uses of the seep or spring. The environmental functionality of seeps and springs is inherently tied to the presence of water. If the supply of water is diminished, resupply of that water is the only measure that preserves environmental functionality. Also see the responses to comment letter E-001.
- E-012-2 Please see the responses to comments O-001-6 and O-002-4 regarding the source and quality, respectively, of the mitigation water.
- E-012-3 Financial assurances are in place for the Cortez Hills Expansion Project, including a Barrick Cortez Inc. (BCI) LTCF for the Cortez Gold Mines Operations Area. Please see the responses to comments F-001-3 and F-001-4 for additional information.

E-012-4

I was also alarmed at how much unacceptable mercury would be released into the air as a result of this project - almost 1,800 pounds over the course of the mine. Minute amounts of mercury cause major adverse health effects, and this is another attempt by industry to treat indigenous people as disposable, and it has to stop.

E-012-5

The SEIS states, "The fraction of the maximum annual mercury emissions associated with the processing of Cortez refractory ore at Goldstrike would not contribute significantly to near-field mercury deposition," but it does not say how much this actually is. This non-transparent information shows that integrity is not part of this plan at this time, because it wants to hide this important information from those who will get sick and unable to function properly. The SEIS should state how much mercury this would be from year to year and explain why this amount is as significant as it is--mercury contamination is always significant, and any info less than honest is a demonstration of lack of integrity to take advantage of others unfairly in a way that they can't access hidden information .

Mercury is so toxic and the full facts are mandatory to fairness. Mercury accumulates in the environment. In looking over information about mercury I see where mercury can be released from other parts of the mine like the waste rock piles of heap leach pads. This impact should have been analyzed as well especially given the significance of the Mt. Tenabo area in general.

Sincerely,

Susan Michetti
605 Sheila St
605 Sheila st
Mount Horeb, WI 53572
US

Responses

E-012-4 Potential project-related mercury emissions and deposition associated with operations and processing at the Cortez Gold Mines Operations Area were analyzed in Section 3.10.2 of the Cortez Hills Expansion Project Final EIS (BLM 2008a). Potential mercury emissions and deposition associated with processing of Cortez refractory ore at Goldstrike are discussed in Section 3.10.2 of the SEIS. Please see the responses to comments O-001-12 through O-001-16 for additional information relative to mercury emissions and deposition, and the response to comment O-001-17 relative to established airborne mercury limits for the protection of human health.

E-012-5 Please see the discussion of mercury emissions in responses to comments O-001-12 through O-001-17. Additional language regarding mercury emissions and deposition has been added to the text of the Final SEIS; see Section 3.10.2.1.



Carlene Petty
 <clpett01@gwise.louisville.edu>

09/27/2010 02:25 PM

Please respond to
 clpett01@gwise.louisville.edu

To CortezHills_DSEIS@blm.gov

cc

bcc

Subject Protect what makes Mt. Tenabo's springs sacred

Dear Mr. Worthington -

I appreciate the opportunity to comment on the Cortez Hills Expansion Project Draft Supplementary Environmental Impact Statement (dSEIS), and urge the Bureau of Land Management (BLM) to deliberate with great consideration on this very controversial project.

The permanent impacts of the project to the cultural and spiritual practices of the Western Shoshone is undeniable. Mt. Tenabo has been, and continues to be, used by Western Shoshone people as a central part of their religious practices and world view. Western Shoshone visit the mountain and the valley below (the location of the mine pit) for prayer ceremonies, gathering of sacred plants, fasting, and vision quests, among other uses. The Mountain also contains Western Shoshone gravesites. All of these values and uses will be destroyed by the Project. In addition, the massive pumping of groundwater will likely dry-up culturally significant and sacred springs and streams on and around Mt. Tenabo.

I have read the draft Supplementary Environmental Impact Statement for the Cortez Hills Expansion project and I do not feel that the analysis is adequate in terms of the impacts from pumping the groundwater. I understand that the water table will not recover completely, but I didn't see any discussion of that. Is the BLM planning to maintain a water replacement procedure indefinitely? What happens when the mine is closed up? Who will be responsible for maintaining those springs that will not recover on their own?

I also do not agree that the mitigation plan of replacement of water from another well is the right thing to do. It seems to me that any spring, especially when it has special significance from a cultural perspective, cannot be protected by just putting water into it from another source. And from my experience in talking with Shoshone people this is their view as well. My understanding is that the source of the water is important. Will the water quality be the same? How will the "different" water affect the plants, animals, and microbes that use that water. I didn't see any analysis of this in the document. The BLM should have an analysis of other mitigation strategies that would prevent the sources of the springs from being affected in the first place.

Since I am also a Native American of the Cherokee tribe, I understand the significance of these springs. Water from elsewhere will NOT have the Spirit that each sacred spring has; each Spirit is unique to each spring, just as each soul is unique to each human person. Substitutions do not work. And I am actually appalled that the Bureau of Land Management would contaminate these sacred waters through mining.

I was also alarmed at how much mercury would be released into the air as a result of this project - almost 1,800 pounds over the course of the mine. The SEIS states, "The fraction of the maximum annual mercury emissions associated

Responses

E-013-1 BLM notes this concern. Section 3.9 of the Cortez Hills Expansion Project Final EIS (BLM 2008a) addressed potential impacts of the Cortez Hills Expansion Project on Native American traditional values, including water resources. Also, potential impacts to surface water and groundwater quality as a result of the project were analyzed in Section 3.2.2 of the Final EIS (BLM 2008a). Based on that analysis, no project-related impacts to surface water or groundwater quality were identified. Please see the responses to comments O-001-6 and O-002-4 regarding the source and quality of proposed replacement water, respectively. Also see the responses to comment letter E-001.

E-013-1

Responses

with the processing of Cortez refractory ore at Goldstrike would not contribute significantly to near-field mercury deposition," but it does not say how much this actually is. The SEIS should state how much mercury this would be from year to year and explain why this amount is not significant. Mercury is so toxic I think there should be a more complete discussion of amounts. Can't mercury accumulate in the environment? In looking over information about mercury I see where mercury can be released from other parts of the mine like the waste rock piles of heap leach pads. Seems like this impact should have been analyzed as well especially given the significance of the Mt. Tenabo area in general.

Sincerely,

Carlene Petty
780 Highway #44 West, Lot #50
Lot #50
Shepherdsville, KY 40165-6073
US



Paul Richards
 <Paul@PRMediaConsultants.com>

09/27/2010 03:43 PM

Please respond to
 Paul@PRMediaConsultants.com

To CortezHills_DSEIS@blm.gov
 cc
 bcc
 Subject RE: The cultural and spiritual practices of the Western Shoshone

September 27, 2010

RE: The cultural and spiritual practices of the Western Shoshone

Dear Mr. Worthington ,

I appreciate the opportunity to comment on the Cortez Hills Expansion Project Draft Supplementary Environmental Impact Statement and to urge the Bureau of Land Management (BLM) to START OVER concerning this this very controversial project, AND, THIS TIME, DO IT RIGHT!.

The permanent impacts of the project to the cultural and spiritual practices of the Western Shoshone are absolutely is undeniable.

Mt. Tenabo has been, and continues to be, used by Western Shoshone people as a central part of their religious practices and World view.

Western Shoshone visit the Mountain and the valley below (the location of the mine pit) for prayer ceremonies, gathering of sacred plants, fasting, and vision quests, among other uses.

The Mountain also contains Western Shoshone gravesites. All of these values and uses will be destroyed by industrial mining.

In addition, the massive pumping of groundwater will likely dry up the Sacred springs on and around Mt. Tenabo.

I do not feel that the Cortez Hills Expansion project analysis is technically competent, regarding surface water contamination and massive deleterious effects from pumping the groundwater.

We all know that the water table will not recover completely. But, so far, you, our public agency responsible for enforcing our environmental laws, do not even consider this an issue!

Are you, the BLM, planning to maintain "water replacement procedures" indefinitely? What will happen, when the mine is all used up and closed?

Will you, the BLM, restore these Sacred springs despoiled by the mining?

Will you, the BLM, ensure pure water for the public, wildlife, and livestock for the countless generations to come?

Replacing poisoned and despoiled water from another well is NOT the right thing to do!

Can you promise the water quality will be the same? How will different

Responses

E-014-1 The potential surface water quality impacts and potential environmental impacts of groundwater pumping were fully evaluated and described in Section 3.2 and the responses to comments (Appendix F1) of the Cortez Hills Expansion Project Final EIS (BLM 2008a). Please see the response to comment O-001-8 above for additional information on this issue. Also see the responses to comment letter E-001.

E-014-2 Please see the response to comment O-001-36 regarding long-term mitigation. Also see the responses to comments O-001-4 and O-001-5 regarding the spiritual, religious, and cultural uses/values of water in the study area. In addition, please see the responses to comments O-001-6 and O-002-4 regarding the source and quality of proposed replacement water, respectively.

E-014-3 As clarification, potential impacts to surface water and groundwater quality as a result of the project were analyzed in Section 3.2.2 of the Cortez Hills Expansion Project Final EIS (BLM 2008a). Based on that analysis, no project-related impacts to surface water or groundwater quality were identified. Please see the response to comment O-001-6 regarding the source of replacement water, and the response to comment O-002-4 regarding the source and quality of mitigation water and the associated impacts to biological resources.

E-014-1

E-014-2

E-014-3

E-014-3 | non-Native waters affect the plants, animals, fish, and other living organisms
(cont'd) | and microbes?

I didn't see any analyses of these important issues in your draft document.

E-014-4 | Clearly, the BLM need to START OVER AND SUPPORT AN ALTERNATIVE THAT ENSURES
THESE SACRED SPRINGS OF MOUNT TENABO WILL NEVER BECOME CONTAMINATED IN THE
FIRST PLACE!

Please keep me informed concerning this vital issue.
Thank you.

Sincerely,
Paul Richards
30 Brown's Gulch Road
Boulder, MT 59632
Paul@PRMediaConsultants.com
Dispatches from the Wildlands: <http://blogs.alternet.org/paulrichards/>

Paul Richards
30 Brown's Gulch Road
Boulder, MT 59632
US

Responses

E-014-4 Please see the responses to comments O-001-23 and I-023-1 regarding mitigation strategies.

Responses



John Mark Robertson
<jmr66@sympatico.ca>

09/27/2010 01:59 PM

Please respond to
jmr66@sympatico.ca

To CortezHills_DSEIS@blm.gov

cc

bcc

Subject Protect what makes Mt. Tenabo's springs sacred

Dear Mr. Worthington -

I appreciate the opportunity to comment on the Cortez Hills Expansion Project Draft Supplementary Environmental Impact Statement (dSEIS), and urge the Bureau of Land Management (BLM) to deliberate with great consideration on this very controversial project.

The permanent impacts of the project to the cultural and spiritual practices of the Western Shoshone is undeniable. Mt. Tenabo has been, and continues to be, used by Western Shoshone people as a central part of their religious practices and world view. Western Shoshone visit the mountain and the valley below (the location of the mine pit) for prayer ceremonies, gathering of sacred plants, fasting, and vision quests, among other uses. The Mountain also contains Western Shoshone gravesites. All of these values and uses will be destroyed by the Project. In addition, the massive pumping of groundwater will likely dry-up culturally significant and sacred springs and streams on and around Mt. Tenabo. We don't drop bombs on churches or synagogues-why allow the equivalent to take place on this mountain?

I have read the draft Supplementary Environmental Impact Statement for the Cortez Hills Expansion project and I do not feel that the analysis is adequate in terms of the impacts from pumping the groundwater. I understand that the water table will not recover completely, but I didn't see any discussion of that. Is the BLM planning to maintain a water replacement procedure indefinitely? What happens when the mine is closed up? Who will be responsible for maintaining those springs that will not recover on their own?

I also do not agree that the mitigation plan of replacement of water from another well is the right thing to do. It seems to me that any spring, especially when it has special significance from a cultural perspective, cannot be protected by just putting water into it from another source. And from my experience in talking with Shoshone people this is their view as well. My understanding is that the source of the water is important. Will the water quality be the same? How will the "different" water affect the plants, animals, and microbes that use that water. I didn't see any analysis of this in the document. The BLM should have an analysis of other mitigation strategies that would prevent the sources of the springs from being affected in the first place.

I was also alarmed at how much mercury would be released into the air as a result of this project - almost 1,800 pounds over the course of the mine. The SEIS states, "The fraction of the maximum annual mercury emissions associated with the processing of Cortez refractory ore at Goldstrike would not contribute significantly to near-field mercury deposition," but it does not say how much this actually is. The SEIS should state how much mercury this would be from year to year and explain why this amount is not significant. Mercury is so toxic I think there should be a more complete discussion of amounts. Can't mercury accumulate in the environment? In looking over

E-015-1

information about mercury I see where mercury can be released from other parts of the mine like the waste rock piles of heap leach pads. Mercury is linked to brain damage and other serious health effects. It must be stopped. Seems like this impact should have been analyzed as well especially given the significance of the Mt. Tenabo area in general.

Sincerely,

John Mark Robertson
155 Hastings Drive
Belleville, ON K8N 1J7
CA

Responses

E-015-1 Please see the response to O-001-17 relative to established airborne mercury limits for the protection of human health in relation to fugitive mercury emissions at the Cortez Hills Expansion Project. Also see the responses to comment letter E-001. relative to authorization of mineral leasing. In addition, please see the responses to comment letter E-001.

Responses



Lars Jørgen Sørfonn
<zuluxray@hotmail.com>

09/27/2010 12:42 PM

Please respond to
zuluxray@hotmail.com

To CortezHills_DSEIS@blm.gov

cc

bcc

Subject Protect what makes Mt. Tenabo's springs sacred

Dear Mr. Worthington -

I appreciate the opportunity to comment on the Cortez Hills Expansion Project Draft Supplementary Environmental Impact Statement (dSEIS), and urge the Bureau of Land Management (BLM) to deliberate with great consideration on this very controversial project.

The permanent impacts of the project to the cultural and spiritual practices of the Western Shoshone is undeniable. Mt. Tenabo has been, and continues to be, used by Western Shoshone people as a central part of their religious practices and world view. Western Shoshone visit the mountain and the valley below (the location of the mine pit) for prayer ceremonies, gathering of sacred plants, fasting, and vision quests, among other uses. The Mountain also contains Western Shoshone gravesites. All of these values and uses will be destroyed by the Project. In addition, the massive pumping of groundwater will likely dry-up culturally significant and sacred springs and streams on and around Mt. Tenabo.

I have read the draft Supplementary Environmental Impact Statement for the Cortez Hills Expansion project and I do not feel that the analysis is adequate in terms of the impacts from pumping the groundwater. I understand that the water table will not recover completely, but I didn't see any discussion of that. Is the BLM planning to maintain a water replacement procedure indefinitely? What happens when the mine is closed up? Who will be responsible for maintaining those springs that will not recover on their own?

I also do not agree that the mitigation plan of replacement of water from another well is the right thing to do. It seems to me that any spring, especially when it has special significance from a cultural perspective, cannot be protected by just putting water into it from another source. And from my experience in talking with Shoshone people this is their view as well. My understanding is that the source of the water is important. Will the water quality be the same? How will the "different" water affect the plants, animals, and microbes that use that water. I didn't see any analysis of this in the document. The BLM should have an analysis of other mitigation strategies that would prevent the sources of the springs from being affected in the first place.

I was also alarmed at how much mercury would be released into the air as a result of this project - almost 1,800 pounds over the course of the mine. The SEIS states, "The fraction of the maximum annual mercury emissions associated with the processing of Cortez refractory ore at Goldstrike would not contribute significantly to near-field mercury deposition," but it does not say how much this actually is. The SEIS should state how much mercury this would be from year to year and explain why this amount is not significant. Mercury is so toxic I think there should be a more complete discussion of amounts. Can't mercury accumulate in the environment? In looking over information about mercury I see where mercury can be released from other parts

of the mine like the waste rock piles of heap leach pads. Seems like this impact should have been analyzed as well especially given the significance of the Mt. Tenabo area in general.

E-016-1

When is the short sighted greed for gold transformed into long-term sustainable thinking? The area could easily be exploited in 20 years from now hopefully with less brutal, inhumane operations than today. Please, please take a moment and think about the impacts for the people involved, and the nature that can not be restored after the operation.

Sincerely,

Lars Jørgen Sørfonn
PO 637
1432 ÅS
Ås, ot 1432
no

Responses

E-016-1 Potential project-related impacts to the natural environment, human environment, and Native American traditional values, as well as an the Cortez Hills Expansion Project Final EIS (BLM 2008a). Also see the response to comment I-021-4 regarding BLM's responsibility relative to authorization of mineral leasing. In addition, please see the responses to comment letter E-001.



Edwin Stein
<ted@totalspeed.com>

09/27/2010 07:53 PM

Please respond to
ted@totalspeed.com

To CortezHills_DSEIS@blm.gov

cc

bcc

Subject Protect what makes Mt. Tenabo's springs sacred

Dear Mr. Worthington -

E-017-1

I am shocked that the BLM could be so lax and fail so completely to understand its mission in the case of the Shoshone sacred place, Mt. Tenebo, whose holy springs a judge ordered you to protect. Surely, with your deep experience, you know more than to allow what you have allowed in the planning for the gold mine project at the foot of this mountain.

I therefore appreciate the opportunity to comment on the Cortez Hills Expansion Project Draft Supplementary Environmental Impact Statement (dSEIS). But I'm devastated to find that we who feel it a necessity to honor Shoshone spiritual traditions must urge the Bureau of Land Management (BLM) to deliberate with greater consideration and understanding on this very controversial project.

The permanent impacts of the project on the cultural and spiritual practices of the Western Shoshone are undeniable. Mt. Tenabo has been, and continues to be, used by Western Shoshone people as a central part of their religious practices and world view. Western Shoshone visit the mountain and the valley below (the location of the mine pit) for prayer ceremonies, gathering of sacred plants, fasting, and vision quests, among other uses. The Mountain also contains Western Shoshone gravesites. All of these values and uses will be destroyed by the Project. In addition, the massive pumping of groundwater will likely dry-up culturally significant and sacred springs and streams on and around Mt. Tenabo.

I have read the draft Supplementary Environmental Impact Statement for the Cortez Hills Expansion project and I do not feel that the analysis is adequate in terms of the impacts from pumping the groundwater. I understand from the plan that the water table will not recover completely. But I didn't see any discussion of that centrally important matter. Is the BLM planning to maintain a water replacement procedure indefinitely? What happens when the mine is closed up? Who will be responsible for maintaining those springs that will not recover on their own?

E-017-2

Most seriously, I also do not agree that the mitigation plan of replacement of water from another well is the right thing to do or in any way reaches the decision of the judge in this case. No spring, especially when it has special significance from a religious perspective, can be protected by just putting water into it from another source. And from my experience in talking with Shoshone people this is their view as well. The source of the water is important, because it carries a spiritual significance, not just a scientific one. But even there the plan is lacking: Will the water quality be the same? How will the "different" water affect the plants, animals, and microbes that use that water? I didn't see any analysis of this in the document. The BLM should have analyzed other mitigation strategies that would prevent the sources of the springs from being affected in the first place.

E-017-3

Responses

- E-017-1 Please see the response to comment O-001-3 for clarification relative to the related court orders. Section 3.9 of the Cortez Hills Expansion Project Final EIS (BLM 2008a) addressed potential impacts, including cumulative impacts, of the Cortez Hills Expansion Project on Native American traditional values, including water resources. The Final EIS (page 3.9-50) addressed the importance of water in general, and specific springs in particular, to some Western Shoshone. Mount Tenabo, the Shoshone Wells camp area, and other places and resources of importance to some Native Americans also were addressed in Section 3.9 of the Final EIS. Please see the response to comment O-001-5 regarding the extensive analysis of potential impacts to Western Shoshone spiritual, religious, and cultural values, including potential impacts from mine dewatering, in Appendix F1 of the Cortez Hills Expansion Project Final EIS (BLM 2008a). In addition, please see the responses to comment letter E-001.
- E-017-2 Please see the response to comment O-001-3 for clarification relative to the related court orders. Also see the response to comment O-001-6 regarding the proposed source of mitigation water.
- E-017-3 Please see the response to comment O-001-6 regarding the proposed source of mitigation water.

Responses

E-017-4 Please see the response to comment O-001-16 regarding mercury emissions from the project facilities. Also see the response to comment E-017-1.

I was also alarmed at how much mercury would be released into the air as a result of this project - almost 1,800 pounds over the course of the mine. The SEIS states, "The fraction of the maximum annual mercury emissions associated with the processing of Cortez refractory ore at Goldstrike would not contribute significantly to near-field mercury deposition," but it does not say how much this actually is. The SEIS should state how much mercury this would be from year to year and explain why this amount is not significant. It must, if it is to be credible. Mercury is too toxic to omit a more complete discussion of amounts. It accumulates in the environment. In looking over information about mercury I see that it can be released from other parts of the mine like the waste rock piles of heap leach pads. This impact should have been analyzed as well, especially given the significance of the Mt. Tenabo area in general--a significance you need to address and preserve directly.

E-017-4

Sincerely,

Edwin Stein
40 Conger St., Apt 712A
Bloomfield, NJ 07003-3325
US



Dana Thompson
<thompsonb@aol.com>

09/27/2010 11:47 AM

Please respond to
thompsonb@aol.com

To CortezHills_DSEIS@blm.gov

cc

bcc

Subject Protect what makes Mt. Tenabo's springs sacred

Dear Mr. Worthington -

I appreciate the opportunity to comment on the Cortez Hills Expansion Project Draft Supplementary Environmental Impact Statement (dSEIS), and urge the Bureau of Land Management (BLM) to deliberate with great consideration on this very controversial project.

The permanent impacts of the project to the cultural and spiritual practices of the Western Shoshone are undeniable. Western Shoshone visit the mountain and the valley below (the location of the mine pit) for prayer ceremonies, gathering of sacred plants, fasting, and vision quests, among other uses. The Mountain also contains Western Shoshone gravesites. All of these values and uses will be destroyed by the Project. In addition, the massive pumping of groundwater will likely dry-up culturally significant and sacred springs and streams on and around Mt. Tenabo.

The draft Supplementary Environmental Impact Statement for the Cortez Hills Expansion project is not adequate in terms of the impacts from pumping the groundwater. The water table will not recover completely, but there is no discussion of that. Is the BLM planning to maintain a water replacement procedure indefinitely? What happens when the mine is closed up? Who will be responsible for maintaining those springs that will not recover on their own?

E-018-1

I do not agree that the mitigation plan of replacement of water from another well is the right thing to do. This is still a loss of the total capacity of the spring. It seems to me that any spring, especially when it has special significance from a cultural perspective, cannot be protected by just putting water into it from another source. My understanding is that the source of the water is important. Will the water quality be the same? How will the "different" water affect the plants, animals, and microbes that use that water. I didn't see any analysis of this in the document.

E-018-2

The BLM should have an analysis of other mitigation strategies that would prevent the sources of the springs from being affected in the first place. Water sources in this part of the country are not unlimited and should be protected.

Sincerely,

Dana Thompson
23060 Evergreen Ln
Los Gatos, CA 95033-9219
us

Responses

E-018-1 As discussed in the response to comment O-001-2, all of the proposed mitigation measures meet the definition of "mitigation" under NEPA. The effectiveness of the mitigation measures was evaluated in Table 3.2-1 and under the "Mitigation Effectiveness" heading on page 3-13 and 3-14 in the Draft SEIS based on the functions and uses of the seep or spring. The environmental functionality of seeps and springs is inherently tied to the presence of water. If the supply of water is diminished, resupply of that water is the only measure that preserves environmental functionality. Also see the responses to comment letter E-001.

E-018-2 Please see the responses to comments O-001-23 and I-023-1 regarding mitigation strategies.

Responses



Jeri Treppard
<jamkt1966@yahoo.com>

10/04/2010 09:14 AM

Please respond to
jamkt1966@yahoo.com

To CortezHills_DSEIS@blm.gov

cc

bcc

Subject Protect what makes Mt. Tenabo's springs sacred

Dear Mr. Worthington -

I appreciate the opportunity to comment on the Cortez Hills Expansion Project Draft Supplementary Environmental Impact Statement (dSEIS), and urge the Bureau of Land Management (BLM) to deliberate with great consideration on this very controversial project.

The permanent impacts of the project to the cultural and spiritual practices of the Western Shoshone is undeniable. Mt. Tenabo has been, and continues to be, used by Western Shoshone people as a central part of their religious practices and world view. Western Shoshone visit the mountain and the valley below (the location of the mine pit) for prayer ceremonies, gathering of sacred plants, fasting, and vision quests, among other uses. The Mountain also contains Western Shoshone gravesites. All of these values and uses will be destroyed by the Project. In addition, the massive pumping of groundwater will likely dry-up culturally significant and sacred springs and streams on and around Mt. Tenabo.

I have read the draft Supplementary Environmental Impact Statement for the Cortez Hills Expansion project and I do not feel that the analysis is adequate in terms of the impacts from pumping the groundwater. I understand that the water table will not recover completely, but I didn't see any discussion of that. Is the BLM planning to maintain a water replacement procedure indefinitely? What happens when the mine is closed up? Who will be responsible for maintaining those springs that will not recover on their own?

I also do not agree that the mitigation plan of replacement of water from another well is the right thing to do. It seems to me that any spring, especially when it has special significance from a cultural perspective, cannot be protected by just putting water into it from another source. And from my experience in talking with Shoshone people this is their view as well. My understanding is that the source of the water is important. Will the water quality be the same? How will the "different" water affect the plants, animals, and microbes that use that water. I didn't see any analysis of this in the document. The BLM should have an analysis of other mitigation strategies that would prevent the sources of the springs from being affected in the first place.

I was also alarmed at how much mercury would be released into the air as a result of this project - almost 1,800 pounds over the course of the mine. The SEIS states, "The fraction of the maximum annual mercury emissions associated with the processing of Cortez refractory ore at Goldstrike would not contribute significantly to near-field mercury deposition," but it does not say how much this actually is. The SEIS should state how much mercury this would be from year to year and explain why this amount is not significant. Mercury is so toxic I think there should be a more complete discussion of amounts. Can't mercury accumulate in the environment? In looking over information about mercury I see where mercury can be released from other parts

of the mine like the waste rock piles of heap leach pads. Seems like this impact should have been analyzed as well especially given the significance of the Mt. Tenabo area in general.

E-019-1 Since the above-mentioned articles or documents were not provided previously, would you please respond to all questions? To say that releasing heavy metals into the environment is detrimental is an understatement. I am sure your company will find a way to mine without destroying the natural resources? The eco system as you know is fragile and needs your attention to details. In this day and age, consumers and big corporations are working together to maintain a greener sustainable lifestyle. Companies worldwide are doing their part to protect and preserve the environment; I am asking that your company please do the same in this matter.

With all do respect, please help preserve our environment as well as the future for the next generation. I know my family, friends, and colleagues do appreciate doing business with companies who do promote sustainability and are taking responsibility for their actions in doing the right thing.

Thank you for our time and consideration.

Jerri Treppard
1279 SW 114th Way
Davie, FL 33325
US

Responses

E-019-1 The BLM notes this concern. Please see the responses to comment letter E-001.



"Neil Walton"
 <neil.walton@allpetspost.org>
 10/01/2010 05:15 PM
 Please respond to
 <neil.walton@allpetspost.org>

To <CortezHills_DSEIS@blm.gov>
 cc
 bcc
 Subject Sir.....in regards to the (dSEIS) for Mt. Tenabo

Dear Mr. Worthington,

I appreciate the opportunity to comment on the Cortez Hills Expansion Project Draft Supplementary Environmental Impact Statement (dSEIS), and urge the Bureau of Land Management (BLM) to deliberate with great consideration on this very controversial project.

The permanent impacts of the project to the cultural and spiritual practices of the Western Shoshone is undeniable. Mt. Tenabo has been, and continues to be, used by Western Shoshone people as a central part of their religious practices and world view. Western Shoshone visit the mountain and the valley below (the location of the mine pit) for prayer ceremonies, gathering of sacred plants, fasting, and vision quests, among other uses. The Mountain also contains Western Shoshone gravesites. All of these values and uses will be destroyed by the Project.

In addition, the massive pumping of groundwater will likely dry-up culturally significant and sacred springs and streams on and around Mt. Tenabo. Replacing them with another aquifer is the antithesis of Native American beliefs and religion, and I can't believe that it would even be contemplated.

E-020-1

Mr. Worthington, quite frankly, as an American, don't you feel the Shoshone, as well as the other tribes in Indian Country, who at one time roamed this entire country unfettered, have suffered enough? Do we have to CONTINUE to renege on treaties and agreements that were supposedly made in good faith when the United States first came into being? Must we continue to deny these true and First Americans the basic right to freedom of religion, just to serve some short term financial gains? I won't attempt to get into everything else they have lost, because this email will become a treatise.

Plus, in addition to just the moral and ethical considerations, there is also the serious problem of mercury, which persists in the environment for extended periods. The SEIS states, "The fraction of the maximum annual mercury emission associated with the processing of Cortez refractory ore at Goldstrike would not contribute significantly to near-field mercury deposition," but it does not say how much this actually is. The SEIS should state how much mercury this would be from year to year and explain why this amount is not significant. Mercury is so toxic it stands to reason that this should be more thoroughly investigated. Can't mercury accumulate in the environment? In looking over information about mercury I see where mercury can be released from other parts of the mine like the waste rock piles of heap leach pads. Seems like this impact should have been analyzed as well especially given the significance of the Mt. Tenabo area in general.

Sincerely, and thank you for your time. As an American citizen I want to make sure the do the

Responses

E-020-1 As clarification, the methods identified in the contingency mitigation plans for restoring baseflow to seeps or springs potentially affected by mine-related groundwater drawdown, and as described in Section 3.2.4 of the SEIS, do not include the use of water from a different source. Rather, the proposed source for water replacement is the local aquifer system that currently discharges at the seep or spring. Please see the response to comment O-001-6 for additional information.

As discussed in the response to comment O-001-5, potential impacts to Western Shoshone spiritual, religious, and cultural values, including potential impacts from mine dewatering, were extensively evaluated and discussed in Section 3.9 and responses to related comments (e.g., response to comment O-003-004) in Appendix F1 of the Cortez Hills Expansion Project Final EIS (BLM 2008a). Also, as discussed in Section 3.9 and summarized in the response to comment O-003-004 in Appendix F1 of the Final EIS, the BLM conducted ethnographic studies and has consulted with local federally-recognized tribes and Western Shoshone elders regarding tribal concerns about the project since 1992 in compliance with the NHPA and Executive Orders. A summary of ongoing consultation since the issuance of the Final EIS is presented in Section 4.2 of the SEIS. Please see the response to comment O-001-4 relative to the documented use of the project vicinity based on BLM's previous ethnographic studies and previous and ongoing Native American consultation. In addition, please see the responses to comment letter E-001.

right thing for the first citizens of this continent.

Nell Walton

Founder and Managing Editor

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Henrietta Wise
<buffalohenny@hvi.net>

10/01/2010 12:17 PM

Please respond to
buffalohenny@hvi.net

To CortezHills_DSEIS@blm.gov

cc

bcc

Subject Protect what makes Mt. Tenabo's springs sacred

Dear Mr. Worthington -

I appreciate the opportunity to comment on the Cortez Hills Expansion Project Draft Supplementary Environmental Impact Statement (dSEIS), and urge the Bureau of Land Management (BLM) to deliberate with great consideration on this very controversial project.

The permanent impacts of the project to the cultural and spiritual practices of the Western Shoshone is undeniable. Mt. Tenabo has been, and continues to be, used by Western Shoshone people as a central part of their religious practices and world view. These practices are thousands of years old. Western Shoshone visit the mountain and the valley below (the location of the mine pit) for prayer ceremonies, gathering of sacred plants, fasting, and vision quests, among other uses. The Mountain also contains Western Shoshone gravesites. ALL OF THESE VALUES AND USES WILL BE DESTROYED BY THE PROJECT! In addition, the massive pumping of groundwater will likely dry-up culturally significant and sacred springs and streams on and around Mt. Tenabo.

E-021-1 | IT IS A QUESTION OF GOLD VS. ANCIENT HERITAGE, SACRED WATER AND HEALTH OF THE PEOPLE AND THE LAND. To me there is no contest.

Studying the draft Supplementary Environmental Impact Statement for the Cortez Hills Expansion project, it is clear that the analysis is adequate in terms of the impacts from pumping the groundwater. I understand that the water table will not recover completely, but I didn't see any discussion of that. Is the BLM planning to maintain a water replacement procedure indefinitely? What happens when the mine is closed up? Who will be responsible for maintaining those springs that will not recover on their own?

The mitigation plan of replacement of water from another well is the right thing to do. It seems to me that any spring, especially when it has special significance from a cultural perspective, cannot be protected by just putting water into it from another source. And from my experience in talking with Shoshone people this is their view as well. My understanding is that the source of the water is important. Will the water quality be the same? How will the "different" water affect the plants, animals, and microbes that use that water. I didn't see any analysis of this in the document. The BLM should have an analysis of other mitigation strategies that would prevent the sources of the springs from being affected in the first place.

It is alarming at how much mercury is to be released into the air as a result of this project - nearly 1,800 pounds over the course of the mine! The SEIS states, "The fraction of the maximum annual mercury emissions associated with the processing of Cortez refractory ore at Goldstrike would not contribute significantly to near-field mercury deposition," but it does not say how much this actually is.

E-021-2 | The SEIS must state how much mercury this would be from year to year . As has

Responses

E-021-1 | BLM notes the expressed point of view of the commenter. Please see the responses to comment letter E-001.

E-021-2 | Potential project-related mercury emissions and deposition associated with operations and processing at the Cortez Gold Mines Operations Area were analyzed in Section 3.10 of the Cortez Hills Expansion Project Final EIS (BLM 2008a); potential water quality impacts were addressed in Section 3.2 of the Final EIS. Potential mercury emissions and deposition associated with processing of Cortez refractory ore at Goldstrike are discussed in Section 3.10.2 of the SEIS. Please see the responses to comments O-001-12 through O-001-16 for additional information relative to mercury emissions and deposition, and the response to comment O-001-17 relative to established airborne mercury limits for the protection of human health. Additional language regarding mercury emissions and deposition has been added to the text of the Final SEIS; see Section 3.10.2.1.

Responses

E-021-2
(cont'd)

been shown by the NRDC and many other environmentally scientific studies, this amount is extremely significant and must be completely accurate in order to properly evaluate and weigh whether gold is worth the toxicity of the pollution necessary to mine it. Mercury is so toxic there is no question that further discussion must be held between all parties regarding it. Mercury will certainly be released from other parts of the mine like the waste rock piles of heap leach pads. Mercury will be leached out by the water used. All these impacts must be analyzed as well-- especially given the significance of the Mt. Tenabo area in general.

Sincerely,

Henrietta Wise
208 Krumville Road
Olivebridge, NY 12461
US



Michael Mauer
 <michael.mauer@canyons.edu>

To CortezHills_DSEIS@blm.gov

cc

bcc

09/29/2010 07:11 PM

Please respond to
 michael.mauer@canyons.edu

Subject Protect what makes Mt. Tenabo's springs sacred

Dear Mr. Worthington -

I appreciate the opportunity to comment on the Cortez Hills Expansion Project Draft Supplementary Environmental Impact Statement (dSEIS), and urge the Bureau of Land Management (BLM) to deliberate with great consideration on this very controversial project. I am an anthropologist, and have long been concerned about the plight of Native American citizens and the various threats to their own sacred ground. Mt. Tenabo's springs are a perfect example of these threats.

The permanent impacts of the project to the cultural and spiritual practices of the Western Shoshone is undeniable. Mt. Tenabo has been, and continues to be, used by Western Shoshone people as a central part of their religious practices and world view. Western Shoshone visit the mountain and the valley below (the location of the mine pit) for prayer ceremonies, gathering of sacred plants, fasting, and vision quests, among other uses. The Mountain also contains Western Shoshone gravesites. All of these values and uses will be destroyed by the Project. In addition, the massive pumping of groundwater will likely dry-up culturally significant and sacred springs and streams on and around Mt. Tenabo.

I have read the draft Supplementary Environmental Impact Statement for the Cortez Hills Expansion project and I do not feel that the analysis is adequate in terms of the impacts from pumping the groundwater. I understand that the water table will not recover completely, but I didn't see any discussion of that. Is the BLM planning to maintain a water replacement procedure indefinitely? What happens when the mine is closed up? Who will be responsible for maintaining those springs that will not recover on their own?

I also do not agree that the mitigation plan of replacement of water from another well is the right thing to do. It seems to me that any spring, especially when it has special significance from a cultural perspective, cannot be protected by just putting water into it from another source. And from my experience in talking with Shoshone people this is their view as well. My understanding is that the source of the water is important. Will the water quality be the same? How will the "different" water affect the plants, animals, and microbes that use that water. I didn't see any analysis of this in the document. The BLM should have an analysis of other mitigation strategies that would prevent the sources of the springs from being affected in the first place.

I was also alarmed at how much mercury would be released into the air as a result of this project - almost 1,800 pounds over the course of the mine. The SEIS states, "The fraction of the maximum annual mercury emissions associated with the processing of Cortez refractory ore at Goldstrike would not contribute significantly to near-field mercury deposition," but it does not say how much this actually is. The SEIS should state how much mercury this would be from year to year and explain why this amount is not significant.

Responses

E-022-1 The BLM considered Mount Tenabo and its associated spiritual importance to certain Native Americans in Section 3.9.1.4 of the Cortez Hills Expansion Project Final EIS (BLM 2008a); Section 3.9.2.1 of that document addressed potential impacts to resources of concern to Native Americans, including Mount Tenabo. Also, a regional analysis of potential cumulative impacts to Native American traditional values was presented in Section 3.9.3 of the Final EIS. In addition, please see the responses to comment letter E-001.

E-022-1

Responses

Mercury is so toxic I think there should be a more complete discussion of amounts. Can't mercury accumulate in the environment? In looking over information about mercury I see where mercury can be released from other parts of the mine like the waste rock piles of heap leach pads. Seems like this impact should have been analyzed as well especially given the significance of the Mt. Tenabo area in general.

Sincerely,

Michael Mauer
932 Rome Dr.
Los Angeles, CA 90065



Donna McKee
 <vzaccount01@verizon.net>
 09/29/2010 03:49 PM
 Please respond to
 vzaccount01@verizon.net

To CortezHills_DSEIS@blm.gov
 cc
 bcc
 Subject Protect what makes Mt. Tenabo's springs sacred

Dear Mr. Worthington -

I appreciate the opportunity to comment on the Cortez Hills Expansion Project Draft Supplementary Environmental Impact Statement (dSEIS), and urge the Bureau of Land Management (BLM) to deliberate with great consideration on this very controversial project.

The permanent impacts of this project to the cultural and spiritual practices of the Western Shoshone is undeniable and immense. Mt. Tenabo has been, and continues to be, used by Western Shoshone people as a central part of their religious practices and world view. Western Shoshone visit the mountain and the valley below (the location of the mine pit) for prayer ceremonies, gathering of sacred plants, fasting, and vision quests, among other uses. The Mountain also contains Western Shoshone gravesites, sacred to all. All of these values and uses will be destroyed by this Project. This is appalling and unacceptable. In addition, the massive pumping of groundwater will likely dry-up culturally significant and sacred springs and streams on and around Mt. Tenabo. This is also unacceptable.

I have read the draft Supplementary Environmental Impact Statement for the Cortez Hills Expansion project and I do not feel that the analysis is adequate in terms of the impacts from pumping the groundwater. The water table will not recover completely from these impacts, but I didn't see any discussion of that. Is the BLM planning to maintain a water replacement procedure indefinitely? What happens when the mine is closed up? Who will be responsible for maintaining those springs that will not recover on their own?

I also strongly disagree that the mitigation plan of replacement of water from another well is the right thing to do. Any spring, especially when it has special significance from a cultural perspective, cannot be protected by just putting water into it from another source. The quality and purity of the water source will be degraded and not even close to the original. And from my understanding in speaking with Shoshone people this is also their view. They are very much opposed to this. The source of the water is very important to them. Can you assure that the water quality be the same? How will the "different" water affect the plants, animals, and microbes that use that water. I didn't see any analysis of this in the document. The BLM should have an analysis and comparison of other mitigation strategies that would prevent the sources of the springs from being affected in the first place.

I am especially alarmed at how much mercury would be released into the air as a result of this project - almost 1,800 pounds over the course of the mine! The SEIS states, "The fraction of the maximum annual mercury emissions associated with the processing of Cortez refractory ore at Goldstrike would not contribute significantly to near-field mercury deposition," but it does not say how much this actually is. The SEIS should state how much mercury this would be from year to year and explain why this amount is not significant. These claims must be substantiated, not merely asserted. The

Responses

E-023-1 Potential impacts to surface water and groundwater quality as a result of the project were analyzed in Section 3.2.2 of the Cortez Hills Expansion Project Final EIS (BLM 2008a). Based on that analysis, no project-related impacts to surface water or groundwater quality were identified. Please see the response to comment O-002-4 regarding the source and quality of proposed mitigation water. Also see the responses to comment letter E-001.

E-023-2 Potential project-related mercury emissions and deposition associated with operations and processing at the Cortez Gold Mines Operations Area were analyzed in Section 3.10 of the Cortez Hills Expansion Project Final EIS (BLM 2008a). Potential mercury emissions and deposition associated with processing of Cortez refractory ore at Goldstrike are discussed in Section 3.10.2 of the SEIS. Please see the responses to comments O-001-12 through O-001-16 for additional information relative to mercury emissions and deposition, and the response to comment O-001-17 relative to established airborne mercury limits for the protection of human health.

E-023-1

E-023-2

Responses

E-023-2
(cont'd)

burden of proof is on the BLM. Mercury is so toxic that there should be a more complete discussion of amounts and toxicities. Mercury accumulates in the environment and in animal tissues, including humans. In looking over information about mercury I see where mercury can be released from other parts of the mine like the waste rock piles of heap leach pads. This impact should have been analyzed, as well, especially given the significance of the Mt. Tenabo area in general. I urge you to see that a rigorous analysis is undertaken with the findings clearly stated, recommendations well substantiated and acted upon in a responsible and scientifically valid manner.

Sincerely,

Mrs. Donna McKee

Donna McKee
P.O. Box 129
Lederach, PA 19450
US



Anita Pozsgay
 <anita.pozsgay@softhome.net>

To CortezHills_DSEIS@blm.gov

cc

bcc

09/27/2010 07:06 PM

Please respond to
 anita.pozsgay@softhome.net

Subject Protect what makes Mt. Tenabo's springs sacred

Dear Mr. Worthington -

My name is Anita Pozsgay. Although I'm now living on the East Coast, my roots are in the West and Midwest where I imbibed the sense of "place" as sacred. Carl Jung, a European psychiatrist, when visiting America said he became aware of a spirit here that he did not find in Europe; and he attributed that spirit to the Natives who lived here centuries before the Europeans arrived. I treasure that spirit and believe we, as a nation, should honor our ancestors for sustaining a land so rich in resources from which we have drawn life.

I appreciate the opportunity to comment on the Cortez Hills Expansion Project Draft Supplementary Environmental Impact Statement (dSEIS), and urge the Bureau of Land Management (BLM) to deliberate with great consideration on this very controversial project.

The permanent impacts of the project to the cultural and spiritual practices of the Western Shoshone is undeniable. Mt. Tenabo has been, and continues to be, used by Western Shoshone people as a central part of their religious practices and world view. Western Shoshone visit the mountain and the valley below (the location of the mine pit) for prayer ceremonies, gathering of sacred plants, fasting, and vision quests, among other uses. The Mountain also contains Western Shoshone gravesites. All of these values and uses will be destroyed by the Project. In addition, the massive pumping of groundwater will likely dry-up culturally significant and sacred springs and streams on and around Mt. Tenabo.

I have read the draft Supplementary Environmental Impact Statement for the Cortez Hills Expansion project and I do not feel that the analysis is adequate in terms of the impacts from pumping the groundwater. I understand that the water table will not recover completely, but I didn't see any discussion of that. Is the BLM planning to maintain a water replacement procedure indefinitely? What happens when the mine is closed up? Who will be responsible for maintaining those springs that will not recover on their own?

I also do not agree that the mitigation plan of replacement of water from another well is the right thing to do. It seems to me that any spring, especially when it has special significance from a cultural perspective, cannot be protected by just putting water into it from another source. My understanding is that the source of the water is important. Will the water quality be the same? How will the "different" water affect the plants, animals, and microbes that use that water. I didn't see any analysis of this in the document. The BLM should have an analysis of other mitigation strategies that would prevent the sources of the springs from being affected in the first place.

I was also alarmed at how much mercury would be released into the air as a result of this project - almost 1,800 pounds over the course of the mine. The SEIS states, "The fraction of the maximum annual mercury emissions associated

Responses

E-024-1 Comment noted. Potential impacts to Western Shoshone spiritual, religious, and cultural values, including potential impacts from mine dewatering, were evaluated and discussed in Section 3.9 of the Cortez Hills Expansion Project Final EIS (BLM 2008a). Also see the response to comment O-024-2 relative to the ethnographic studies and consultation conducted by BLM since 1992 with local federally-recognized tribes and Western Shoshone elders regarding tribal concerns about the project. Also see the responses to comment letter E-001.

E-024-1

Responses

with the processing of Cortez refractory ore at Goldstrike would not contribute significantly to near-field mercury deposition," but it does not say how much this actually is. The SEIS should state how much mercury this would be from year to year and explain why this amount is not significant. Mercury is so toxic I think there should be a more complete discussion of amounts. Can't mercury accumulate in the environment? Seems like this impact should have been analyzed as well especially given the significance of the Mt. Tenabo area in general.

Sincerely,

Anita Pozsgay
135 Fiona Way
Knoxville, MD 21758-8911
US

**Table A-2
List of Names Submitting Form Letter**

A., Jude	Ashley, Carole	Belisle, Joseph
Aaron, Frank	Aslam, Nayeem	Bell, Jim
Acevedo, N.K.	Atkinson, Martha	Bell, Logan
Ackerman, Judith	Attas, Mo	Belleau, Cindy
Adams, Holly	Austin, Emily	Belloso-Curiel, Jorge
Adler, Ellen	Avery, Thomas	Belulovich, Roberta
Agro, Donna	Avila, Ron	Bender, Donna
Aguilar, Melissa	Babbey, Lori	Bender, Ed
Ahern, Judy	Babiak, Katherine	Bennett, LeeAnn
Akelian, Lorraine	Backus, Vanessa	Bennett, Maris
Albano, Louis G.	Baechle, Mary	Bennett, Matthew
Alberico, Tony	Bagatta, Joanna	Benoit, Ken
Albert, Anthony	Baiano, Angela	Benton, Coralie
Albertini, John	Bailey, Annette	Bentz, Susan
Aldecoa Davies, José Jorge	Bailey, Sharon	Berg, Ricardo U.
Alexander, Mary	Balboa, Alex	Berman, Marcia
Alexander, Valerian	Baldan Badia, Nelly	Berman, Spencer
Alfano, Joseph	Balder, James	Bernard, John
Alfred, Lynda	Ballou, Stephen	Beschler, Marc
Alicandu-Thurman, Maria	Banse, Liz	Bescript, Linda
Alioto, Linda	Baranski, Jack	Bescript, Ruth
Allen, Keegan	Barbell, Sharon	Bessett, Teresa
Alvarez, María Fernanda R.	Bardy, Gina	Bettwy, Erica
Alvarez, Pocho	Barfield, Bonnie	Bhavsar, Ami
Alzuro, Hernan	Barfield, John	Biederer, Carole
Amdahl, Erv	Bario, Anna	Biedron, Aleksandra
Ammon, Cara	Barker, Rebecca	Bignell, Rachel
Anderholm, Jon	Barnett, Val	Billeaud, Theresa
Anderson, Bradley William	Baron, Dolores	Billeness, Simon
Anderson, Gray	Barr, Deb	Bingham, Donald
Anderson, John H.	Barrington, Tim	Bishop, Lorene
Anderson, Margaret	Bartels, John	Bishop, Vikki
Anderson, Michael	Bartholomew, Annie	Black, Martha
Anderson, Peter	Barton, Debby	Blackman, Terry
Andrews, Lauren	Barton, William	Blair, Clara
Angelus, Joshua	Baskins, Jill	Blair, Mary
Anthony, Paul R.W.	Batsios, Athena	Blake, Matt
Antrim, Craig	Batson, Scott	Blanchard, Annette
Aqua, Bobbi	Baud, Annick	Blanchett, Rick
Archard, Lee	Bauer, Kim	Blarr-Phillips, Patricia
Archuleta, Jeff	Beadman, Hannah	Blier, Robin
Ares, Michael	Beal, Chris	Blitzblau, Paul
Arevalo, Eric	Beal, Richard	Bloomer, Jerry
Arkema, Carroll	Beard, Lara	Blumen, Gina
Armillas, Mercedes	Beavers, Nancy	Blumenfeld, Jacob
Arribas, Raul	Beeche, Eric	Blumenthal-Sheats, Esther
Artzi, Yael	Bejnar, Darlene	Blunk, Ellen
Artzt, Alice	Belding, Raymond	Bobko, Brian

Table A-2 (Continued)

Bock, Jane	Broin, Steven O.	Carl, Juanita
Bodane, Rich	Brower, Diane	Carman, Andy
Boelke, Tim	Brown, Melissa	Carney, Michael
Boesl, Fred	Brown, Tina	Carr, Gaile
Bohler, Judith	Brown, Vera	Carroll, Glen
Bolman, Diane	Brownell, Deirdre	Carter, Amanda
Boltz, Gina	Brush, Debbie	Carter, Carl
Bonatti, Marco	Bruyn, Nelleke	Carter, Helen
Bonetti, Donna	Bryant, Ben	Carter, Jeff
Bonge, Dale	Bryner, Dale	Carter, Laura
Bonilla-Jones, Carmen	Bryner, John	Carter, Marian
Bonner, Patrick	Buck, David	Cascio, Lynn
Bonney, Patty	Buckingham, Hillary G.	Casel, Luca Rossetto
Boone, Judy	Bull, Barbara and Henrik	Casey, Mary Ellen
Boorman, Sheila	Bunin, Jane	Cassebaum, Anne
Booth, Richard	Burgess, Margaret	Cassilly, Helena
Booth, Robert	Burke, Adrienne	Cauble, Pamela
Boren, Gary	Burke, Paul	Centner, Randy
Borgeson, Dean	Burkhardt, Kerry	Chaffin, Claudia
Boruta, Matthew	Burlew, Jessica	Chalker, Mikki
Bosworth, Donald	Burnett, Barbara	Chambers, Donald
Bottorff, Ron	Burnett, Bonnie-Ann	Champagne, Jenette
Boucher, Michael	Burns, Cecilia	Champagne, Jessica
Boulter, Wyndham	Burson, Grace	Chapek, S.
Bourgeois, Paula	Burton, Stephen	Cheeseman, Ted
Bowman, Jason	Burton, Vic	Chenderlin, Katie
Bowyer, Sallye	Butler, Elizabeth	Cheraskin, Jeri
Boyce, Josh	Butler, James	Chernok, Andrew
Boyd, P.W.	Bynum, Sheila	Cheshier, Andy
Boyd, Rosalind	Byrnes, Cecelia	Chew, Ron
Brahmer, Virginia	C., T.	Chiang, Ben
Branch, Peter	Cabezas, Maritza	Chipli, Akhilesh
Brandariz, Anita	Cabiati, Paul	Chitwood, Melissa
Brandler, Barbara	Cadora, Eric	Chonofsky, Mark
Brandt, Lyle	Caiola, Gail	Chorostecki, Gene
Brandt, Vicky	Caisse-Aloise, Devin	Christian, Steven
Bratvold, Gretchen	Calhoun, Charles	Church, Gary
Braun, Clait	Calhoun, Jerry	Cimino, Andrea
Brazil, Michael	Cali, Lee	Clark, Donna
Brebner, Linda	Calzadilla, Anita	Clark, James
Breiding, Joan	Cameron, Denise	Clark, Lorelee
Brennan, Denise	Camhi, Gail	Clark, Yvonne
Brewer, Molly	Campbell, Christina	Clarke, Tim
Brickell, Julie	Campbell, Dudley and Candace	Clarke, Toby
Brinton, Richard	Cannata-Nowell, Anita	Clausen, Suzan
Briswalter, Janet	Canton, Jonathan	Clemens-LeBlanc, Elsa
Brittain, Susan	Caolo, Rosemary	Cleveland, Patrick
Brizzi, Paul	Capobianco, Anthony	Coane, Donna
Broder, Ronald	Cardella, Richard	Cobb, Dean
Brogan, Loretta	Cardella, Sylvia	Cobb, Sandra

Table A-2 (Continued)

Cockrell, C.	Curia, Peter	Deshayes, Thierry
Coco, Joseph	Curran, Claire	Desjardins, Elyse
Cogburn, Heather G.	Current, Jon	Devin, Nora
Cohen, Dan	Curtis, Marnelle	Deweese, Fred
Cohn, Debra	Cuviello, Pat	Diamond, Lily
Cohn, Rae	D., P.	Diana, Patty
Colburn, Matt	Dailey, Christa	Dickerson, Mel
Colledge, Jeffrey	Dale, Barbara and Jim	Dickey, Kelley
Collins, Brenda	Damato, Susan	DiFiore, Maria
Collis, John	Dambrosi, Anthony Martin	Dillard, Gavin
Conaghan, Jessica	Danese, Robert	Dirnbach, Boris
Conner, Lisa	Daniels, Joan	Dirnberger, Beverly Braun
Connor, Janet	Dannett, Wendy	Dixon, Beverly
Connor, Thomas	Dare, Cheryl	Dixon, Donna
Connor-McKee, Katherine	Darovic, Elizabeth	Dobson, Carol
Conrad, William G.	Darrow, Delana	Dodd, Elizabeth
Conroy, Thomas	Darrow, George	Doinakis, Dimitrios
Cook, Dana	Das, Anita	Dolney, Renee
Cook, David W. Jr. and Sara D.	Daugherty, Randall	Dolowitz, Alexander
Cook, Geoffrey	Davie, Stephen	Doman, Geoffrey
Coolidge, Joanna	Davies, Rhonda	Dombrowski, France
Coons, Mitzi	Davin, Terri	Dominiak, Adam
Cooper, Richard	Davis, James	Donegan, Chuck
Corrales, Ricardo	Davis, Phil	Doner, Leslee
Cosgriff, Mark	Davis, Russell	Donian, Mitchell
Costa, Demelza	Davy, Barbara	Donnell, Bruce
Costa, Francisco	Dawkins, Randal	Donofrio, Deborah
Coumans, Catherine	Dawson, Rebecca	Donohue, Thomas R. and Lori (Zielen)
Countryman, Chuck	de Groot, Judy	Donovan, Elaine
Cox, John	de la Garza, Nancy	Dooney, Gerard T.
Cox, Sharon	De Nicola, Franco	Dorchin, Susan
Craig, Edward	De Sart, Marci	Dos Santos, James
Craig, Peter	De Simone, Louise	Doucet, Lisha
Crampton, Vicky	De Villa, Debbie	Dougall, Tabby
Cresseveur, Jessica	de Vitry, Camille	Douglas, Virginia
Cressman, Kara	Debler, Kristen	Downard, Eileen
Creswell, Richard	Decker, Eleanor	Doyle, Laurance
Crews, Kayleigh	DeFino, Mary Lou	Drescher, Linda
Cronin, Jim	DeGrace, Val	Driver, Georgeanna
Crosby, Christina	Deitch, John	Drumright, Chris
Crosby, Pat	Delgado Fenoy, Antonio	Drwinga, Helen
Crotty, John	Dell'Italia, Patrick	Dubin, Ben
Crowell, Sandra	DeMartin, Renee	Duckett, Delores
Crowley, Joyce	Dengel, Julia	Duckworth, Marlene
Crummett, Diane	Denison, James	Duda, Karen
Cruze, Deborah	Dennis, Eileen	Duda, Tim
Cucuzza, Drew	Dennis, Gudrun	Dudley, Julie
Cullen, Rob	Denny, Rachael	Dufey, Anna
Culver, Jake	Dent, Bessie	Duke, Kathy
Cupples, David	DePaso, Virginia	Dulberg, Joan

Table A-2 (Continued)

Dumitru, Judith	Fazzari, Angela	Freeman, Andrea
Dunkleberger, David	Fecko, Albert	Frees, Kurt
Dunn, Matthew	Fedorov, Karen	Freid, David
Duplissis, Evelyn	Fedorov, Kristina	French, Ness
Duran, Gonzalo	Fee, Audrey	Frewin, Terry
Durham, Wilson	Feeley, Mike	Frey, Robert
Dvorsky, Sandy	Feichtinger, Dennis	Friberg, Twila
Dyrszka, Larysa	Feinstein, Joe	Friedler, Tamara
Eadie, Frank	Feldman, Mark	Friedman, Mitchell
Eagle, Diane	Feldstein, Barbara Fae	Friedrich, Fariha
Eastwood, Stephanie	Femmer, John	Frohn, Joyce
Eaton, Pat	Fennessy, Ed	Frusteri, Marianne
Edelheit, Martha	Fenster, Steven	Frye, Janet
Egger, Mark	Fernow, James	Fuentes CanarÃ, Benigno Angel
Eisenberg, Adrienne	Ferri, Sara	Fuller, Jen
Eisenberg, David	Field, Barbara	Fuller, Roy
Eisenberg, Paul	Field, Christy	Fullerton, Kayhy
Eister-Hargrave, Leah	Files, Heather	Fulmer, Amanda
Elias, Michael	Fink, Brian	Fulwiler, Fran
Ellis, Erika	Finn, Dennis	Funk, Ilse
Ellis, John	Fiorentini, Fulvio	Fusco, Carol Anne
Ellis, Shelley	Fischer, Elaine	Fynn, Andrew
Elmore, Laura	Fishman, Ted	Gaede, Marnie
Elterman, Ron	Fitzgibbons, Matt	Gairo, Regina
Eno, Sean	Flewitt, Claire	Gakeler, Debra
Eppinger, Sandra	Florence, Jozon	Galat, Glenn
Epstein, Philip	Flores, Brian	Gallagher, Dan
Erickson, Karen	Flowers, Evelyn Sr.	Gallagher, John
Ericson, Judy	Foley, Catherine	Gallagher, Phyllis
Eriksson, Peter	Foley, Mary	Gallagher, Sandra
Erwin, Jeffrey	Forbes, Keith	Galloway, Pamela
Evans, Corrin	Ford, Julie C.	Gambocorto, M. Sharon
Evans, Pam	Ford, Mary Ann	Ganey, Michael
Evans, Will	Ford, Stanley	Gannon, Ellen
Everett, Theresa	Forester, Lynne	Gannon, Michele
Evron, Lois	Forget, Lyne	Garber, Marc
Ewaskey, April	Forti, Jean	Garcia, Jeffery
Ewing, Jim	Fortino, Gabriele	Gardani, Romana
Eyges, Jeffrey	Foster, Lorraine	Gardner, Gabriel
Faerber, Jeff	Fotos, Janet	Garey, Jenene G.
Faith-Smith, Bonnie	Fowler, Andrea	Garibay, Irene
Farber, Joan	Fowlie, Bill	Garner, Michael
Faria, Adriana	Fox, Eleanor	Gaslner, L.
Farrar-Dixon, Amelia	Fox, Ellen	Gasperoni, John
Farrington, Raymond	Frachtman, Brianna	Gassman, Jay
Fascione, Diane	Franck, Matthew	Gatenby, Jane
Fass, Stephen	Frankel, Leroy	Gauthier, Catherine
Fawell, Thomas	Franklin, Sandra	Gazzola, Linda
Fay, Bob	Frantz, Mary	Gedicks, Al
Faye, Yvonne	Fredericks, Misha	Gendvil, Derek

Table A-2 (Continued)

Genin, Merideth	Greenwood, Jim	Hansen, Arbie
Gentry, Rita	Greer, Amy	Hansen, Jens
Geraldes, Filipa	Gregory, Chilton	Hanson, Jodi
Gertig, Linda	Gribben, Arthur	Hanson, Natalie
Gestring, Bonnie	Grice, Gary	Hanta, Hashi
Giannone, Mario	Griffin, Dawn	Harkins, Hugh
Gibbons, Brian	Griffin, Evelyn	Harlow, Linda
Gibbons, Patricia	Griffith, Jennifer	Harris, Jennifer
Gibbs-Halm, Deborah	Grignon, Eugenia	Harris, Leslie
Giblin, Thomas	Grillo Vicioso, Francina	Harrison, Gwen
Gibson, Jody	Grillot, Charlotte	Harrison, Paige
Gilardi, Gary	Grindle, Russell	Harrison, Randy
Gilbreath, Shirley	Gripp, Gary	Harrison, Stuart
Gillett, Julia Marie	Griswold, Shondene	Hart, Margaret
Gilmour, Ken	Griswold, Tracy	Hart, Michael
Ginsburg, Samantha	Grogan, Maeve	Hartsfield, Joyce
Giovanna, Massimo Dalla	Grover, Ravi	Hartwell, Richard
Giusti, Lisa	Grubb, Karen	Hartzell, Carol
Gleason, Melinda	Guay, Anthony	Harvey, Richard
Gleeson, Jill	Guise, Elizabeth	Hauck, Molly
Glover, Tim	Gunn, Angela	Havens, Susan
Goenner, Emily	Gutkowski, Marie	Hay, Peter
Goff, Rebecca	Gutman, Carl	Hayes, Debra Xiangjun
Golden, Jerry	Guyot, Jack	Hayes, Maureen
Goller, Betty	Guzman, Peter	Hazelton, Judith
Gomez, Rose	Haapala, Anssi	Heagerty, Jillian
Gonzales, Greg	Habchi-Hanriot, Nausicaa	Heagy-Len, Linda
Gonzalez, Daniel	Haber, Arnold	Heath, Harrill
Gonzalez, Jorge	Haberman, Madelaine	Heavilin, Jennifer
Gonzalez, William G.	Hackmeister, Kyle	Hecht, Randy
Göransson, Sabina	Hadler, Dale	Hed, Scott
Gordon, Jon	Hafer, Sarah	Hedgecock, Betty
Gorrin, Eugene	Hagan Bloch, Julie	Hegeman, Elizabeth
Gorsline, Marie	Hagemeier, Gerhard	Heilman, June
Goschen, Karen	Haggard, Alan	Heinkel, Lisa
Gosker, Wendy	Haig, Jaimi	Heinold, Christian
Gould-Donath, Reisa	Haines, Kyle	Heinrich, Hans-Peter
Grady, Pat	Hakimbashi, Milad	Helfman, Laura
Graham, Stephen	Halboth, Karen	Helwig, Jan
Grajczyk, Joyce	Haley, Kim	Hemstreet, Steven
Gramstedt, Alfred	Hall, Katherine	Henderson, Brian
Grande, Paula	Hamilton, Diccon	Henneck Aguiar, Jessica
Grant, David	Hamilton, Mary	Henry, Christina
Graubner, Gabriel	Hamilton, Sarah	Henry, Kevin
Gray, Carolyn	Hammermeister, Lisa	Henry, Lillian
Gray, Gail	Hammond, Marcella	Henry, Mallika
Gray, Gayle	Hammond, Susan	Henzi, Mary
Gray, Karen	Hammond, Thomas	Herbert, William
Greco, Claudia	Hammons, Gertrude	Herbstrith, Tim
Greenberg, Lenore	Hanna, Helen	Herdman, Chris

Table A-2 (Continued)

Herman, Matthew	Hopper, Kevin	Jamison, Michele
Hermance, Thomas	Horowitz, Tina	Janowitz-Price, Beverly
Hermanns, David	Houghton, Natalie	Janusko, Robert
Hernandez, Robert	Houseworth, Bradley	Jaramillo, Nhelson
Hernandez-Kosche, Dena	Hovekamp, Larry	Jargon, Frank
Herndon, Laura	Howard, Kristin	Jayne, Alissa
Herten, Margaret	Howell, Ken	Jergivic, Nicole
Hertz, Michele	Howes, Alithea	Jessler, Darynne
Hess, Edward	Howse, Jo Ann	Jimenez, Taylor
Hess, John	Hubert, Ron	Jind, Daphna
Hetherington, Alyce	Huberty, Patricia	Joenk, Christine
Hetrick, Nathan	Hudgins, Janet	Johns, Julia
Heugel, Andrew	Hudson, David	Johnson, Elizabeth
Hewitt, Claire	Hudson, H.	Johnson, Sarah
Hibshman, Steve	Huerta, Ernest	Johnson, Vicki
Hickey, P.	Hughes, Bonita	Johnston, Bob
Hidinger, Michael	Hughes, Elaine	Johnston, James
Hiestand, Nancy	Hult, Philip	Jonas, Robert J.
High, Mari Helen	Humerickhouse, Matthew	Jones, Jeffrey
Hildebrand, Valerie	Hummel, Steve	Jones, Laura
Hiley, Edwin	Humphrey, Barbara	Jones, Mary Robbins
Hill, Anna	Humphrey, Jay (2)	Jones, Ruth
Hill, Joann	Hundt, Heather	Jones, Terri
Hillery, Karie	Hunt, Erika	Jones-Ford, Jacqueline A.
Hiner Kasten, Christine	Hunt, Leah	Jordan, Susan
Hinze, Willie	Hunt, Otto	Jorge, Thora
Hittel, Kenneth	Hunter, Elizabeth	Jorgensen, Eric
Hittel, Susan	Hunter, Kay	Jorgensen, James H.
Hlat, Mike	Hupp, Carol	Joseph, Nancy
Hochberg, Adrienne	Hutchinson, George B.	Joy, Kimberly
Hochderffer, Robbie	Hydeman, Jinx	Joyner, Phil
Hochheiser, Harry	Iannone, Andrea	Julian, Lucy
Hodes, Harold T.	Iltzsche, William	Jurczewski, Carol
Hodges, Elizabeth	Impola, Paul	Justis, Bob
Hodges, Suzanne	Ingliss, Robert	Kaehn, Max
Hoefs, Carole	InLove, Rich	Kahney, Pauline
Holcomb, Connie	Inouye, Laura	Kalovsky, Robert
Holder, Alan	Insley, Claire	Kammerer, Lacey
Holland, Katherine	Irish, L.	Kampa, Jan
Holland, Martha	Ivan, Maria	Kaneko, Masayo
Hollingsworth, Beverly	Iverson, Steve	Kaseluris, Vangeli
Holloway, Richard	Iwankiw, Pilar	Kassis, Dora
Holmes, Brigid	J., Alan	Katsetos, Andrew
Holt, Amy	Jacobs, David	Kautz, Katherine
Holt, Rhonda	Jacobs, Patricia	Kavanaugh, Karla
Holz, Andres	Jacobs, S. Christopher	Kay, Karl
Holzweiler, Deirdre	Jacobson, Robert	Kayser, Gabrielle
Hood, Byron C.	Jalbert, Diane	Kazak, Ilene
Hoodwin, Marcia	Jamati, Edna	Kazanjian, Rosanna
Hoover, Susan	Jame, Cassandra	Keech, Donnelle

Table A-2 (Continued)

Keith, Colleen	Kolesar, Lynda	Lawson, Joseph
Kellar, Joanne	Korman, Scott	Layman, Tom
Keller, Drew	Kortsch, Karen	Le Fevre, Dale
Kelley, Timothy	Koster, Tom	Le Rose, Tisha
Kelly, Alice	Koulish, Laura	Leader, James
Kelly, John	Kovachevich, Elenor	Leahy, Katherine
Kelly, Norman	Kovich, Jenni	Leahy, Martha and Edward
Kelly, Wayne	Krach, Judy	LeBaron, Pat
Kelsonpetit, Ross	Kranz, Nicholas	LeBlanc, Candy
Kemple, Jason	Krause, Karen	Lee, Brendan
Kennan, Eden	Kreiss, Kevin	Lee, Brian Patrick
Kennedy, Kathryn	Kriegler, Bertha	Lee, Jinny
Kerkhofs, Rita	Krikourian, Robert	Legare, Chiari
Kesselman, Barry	Kroll, Kathy	Lehmann, Janine
Kessler, Elizabeth	Kuhne, Gordon	Leigh, Tahoe
Kethler, Dorothy	Kuhns, Betty	Leighton, Milbrey
Keys, Sharon	Kurey, Peter	Leikam, Bill
Khalsa, Mha Atma S.	Kurz, Don	Leithauser, David
Kibler, J.K.	Kusner, Josie	Lenk, Vivienne
Kilmer, Kathy	Kwit, Tracy	Lensu, Wayne
Kimber, Greg	L., Carver	Leonard, Elizabeth
Kimbro, Robert	La Cognata, Dale	Lepage, Colette
King, Thomas	La Torre, Jaime	Lepage, Keith
Kingsley, Susan	Labay, Alice	Lerner, Kenny
Kinney, Carleton	Lafond, David J.	Lettieri, Tammy
Kinney, Liz	LaFreniere, C. Louise	Levin, Francee
Kinney, Mary	LaFreniere, Joanne	Levin, Jon
Kirby, Jim	Lagasse, Brennan	Levine, Julie
Kirkhart, Jo Ann	Laieski, Caleb	Levine, Lark
Kirkwood, Kaye	Lakatos, Lys	Levine, Richard
Kirsch, Alicia	Lamborn, Ruth	Levy, Andrea
Kirschbaum, Saran	Lancaster, Bryan	Lewis, Jane
Kleeb, Kenneth	Landers, Anna Th.	Lewis, Larry
Klein, Daniel	Landress, Judy	Lewis, Mary
Klein, James	Lane, Dennis	Libbares, Georgia
Kleinschmidt, Carol and Klaus	Lang, Lynn	Liddle, Bill
Kline, Patrick	Langerman, John	Linarez, Karen
Klinke, David	Lapeyre, Olivier	Lind, Karen
Klugherz, Alice	Lapointe, Kenneth	Lindsay, Alissa
Knickerbocker, Deanna	Larson, Janet	Lippel, Wolfgang
Knutson, Monte	Lasahn, Jacqueline	Lisbin, A.
Koch, Joann	LaSchiava, Dona	Lish, Christopher
Kochmeister, Sharisa	Lasek, Patricia M.	Little, Tim
Koehl, Lisa	Latour, Kathryn	Livingston, James
Kofler, Peter	Lauchlan, Susan	Lloyd, Susan
Kohlberg, Douglas	Laughlin, Suzi	LoBalbo, Theresa
Kohler, William Lee	Lavery, Paul and Mary Grisco	Lobel, Sheila
Kohn, Carolyn	Lavy, Fred	Lochner, Jan
Koiv, Ulle	Lawrence, Carol	Loder, John
Kolb, Marcia	Lawrence, Sylvia	Loki, Reynard

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Lombardi, John	Markus, Mary	McLaughlin, Emily
Lombardo, Maria	Maroc, Susan	McLaughlin, Laurel
Lomber, Jonathan	Marshall, R.	McLaughlin, Lea
Lopez, Katherine	Martell, Jon	McLean, Bonnie
Lottes, Ilsa	Martin, Melodie	McMahon, Mary
Lovejoy, Nancy S.	Martin, Timothy	McManus, Michael
Lowde, Sean	Martinez de la Vega, Alvaro	McMaster, Dick
Lowry, Marsha	Martinez, Judith	McMullen, Gail
Loyd, Joy	Martinez-Guidos, Rosa	McNeill, Norma
Lubin, Hari	Masley, Michael	McTague, Melissa
Luciani, Giuseppe	Mason, Dawn	McWilliams, Cynthia
Ludolphi, Nicolette	Mastrangelo, Laura	Mead, Susan
Ludwig, Sweetbryar	Mastroserio, Dominick	Meek, Judith
Lunardi, Chiara	Matheny-White, Pat	Meier, Dan
Lurie-Janicki, Ellaine	Mathews, Carole	Meighen-Wise, Sara
Lynch, Sheila	Mathews, Mary	Mejides, Andres
Lynn, Sandra	Matles, Amanda	Melvin, Catherine
Lyons Kalmenson, Karen	Matlock, Dale	Melvin, David
Maas, Katherine	Matthews, Janet	Mendes, Ruth
MacArthur, Ronald	Matthews, Jonathan	Mendieta, Vince
MacCallum, Crawford	Matthews, Pamela	Menkes, B.
MacInnes, Diane	Matthiessen, Barbara	Menton, James
Mack, Carrie	Mattson, John	Mercado, Francisco
Mackenzie, K.	Mauney, Kimbrough	Merljak, Julija
Mackey, Bill	May, James	Messling, Gordon
Mackey, Brian	Mayer, Glenna	Metz, Stacey
MacPete, Julia	Mazik, Kim	Meyer, Twyla
MacPhail, Kristyn	McAdoo, Hosea	Michel, Thomas Andreas
Madrid, Lisa	McCann, Colleen	Micheli, Enea
Magnuson, Paul	McCartin, Mike	Michot, Beatrice
Maguire, Joel and Jane	McCollum, Nancy	Michot, Robert
Magureanu, Patricia	McConnell, Mim	Middlebrooks, Ethan
Mahar, Don	McCormack, Veronica	Mieyal, Timothy
Maizel, Joshua	McCreary, Jan	Mikalsen, Claire
Maleck, Dorothy	McDuffie, Holly	Milasius, Tiffany
Malecki, Jimmy	McFarland, Eve	Miles, J. D.
Mallett, Ian	McGee, Aaron	Miles, Jay
Malmuth, Sonja	McGinn, Christie	Millar, Maria
Malouf, Paul	McGinty, Alison	Miller, Dianne
Mang, J.D.	McGinty, Sean	Miller, Harriet
Mann, Jason	McGovern, Donlon	Miller, Jackie
Mann, Louise	McGovern, Thomas	Miller, Jennifer
Mannion, Cynthia	McHugh, Cornelius	Miller, Kris
Mannsfeld, Bjoern	McHugh, Rosemary	Miller, Marilyn
Mantas, Nicholas	McIntyre, Mary Lee	Miller, Michael
Marble, Kathy	McKay, Claire	Miller, Nancy (California)
Marco, Elizabeth	McKee, Laura	Miller, Nancy (Arizona)
Margie, Walter Jr.	McKenna, Maureen	Miller, Ruth
Margolis, Greg	McKeon, Renae	Miller, Sandra
Markovic, Robert	McKim, Marilyn	Miller, Suzanne

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Milliron, Margaret	Myers, Debra	O'Connor, Mary Beth
Milne, Martha	Myers, Robert	O'Connor, Meave
Miranda, Sophie	Naccari, Bruce E.	O'Donnell, Dawn
Missell, Michael	Nadelman, Fred	O'Donnell, Mary
Mitchell, Donna	Nagy, Patricia	Oehl, Celeste
Mitchell, Heather	Nahn, Anne	Ognjanovic, Michelle
Mitchell, Kristy	Nam, S.	O'Halloran, Sarah
Mitchell, Ronnie	Naples, Jean	O'Keefe, Kathy
Miter, Aimee	Nash, Jonathan	Okimow, Marlana
Mocke, Grant	Navarrete, Patty	Olander, Alan
Mocking, Fred	Navez, Ren	Olnas, Julie
Moeller, Elke	Needham, Meredith	Olsen, Corey E.
Moiseyev, Maya	Neff, Kim	Olsen, Pam
Monahan, Patricia	Nelson, Joseph	O'Malley, Polly
Monson, Ronald	Neral, David	O'Meara, Lauren
Monson, Todd	Neric, Goran	O'Meara, Marie
Monteiro, Sergio	Nesbit, Pamelal	O'Neil, Jenny
Montgomery, Pam	Neuhauser, Alice	O'Neil, Patrick
Moon, Bob	Neumann, Elizabeth	Oric, Rhet
Moore, Frances Killilea	Neumann, Ted	Orich, Suzanne
Moore, Howard	Newcomer, Barbara	Orlando, Robert
Moore, Kay	Newell, Brooke	Orlandoni, Aleta
Moore, Sharon	Newman, Timothy	Orlinski, Patricia
Morado, Carolyn	Newton, Roger	Oropeza, Carlos
Morales, Rosy	Niblack, Janice	Ortega, Melina Yáñez
Morandi, Lucilene	Nichols, Ambrey	Ortiz, C.
Moreland, Judith E.	Nicholson, Shamus	Ortiz, Ximena
Moreland, Teresa	Nigro, Patricia	Oser, Wendy
Moreno, Tirso	Niksic, Joyce	Osterman, Frank Jr.
Morrison, Dennis	Nissen, Ida	Ostoich, Julie
Morrison, Thomas	Noble, Ashley	O'Sullivan, Joseph
Morrisette, Mollie	Nolan, Dennis	Ott, Michael
Morrissey, Christine	Nolan, Mike	Ottenbrite, Shelley
Moscato Foxton, Marie	Noneman, Greg	Ouellette, Tracy
Moser, Janet	Nord, Jill	Owen, Ken
Mourant, Wanda	Nordhof, Pamela	Pacejka, Andrew
Mueller, Robert	Northrup, Betsy	Pacheco, Thomas
Mulas, Enzo	Norton, PI	Pagano, Miguel
Muller, MaryAnne	Norton, Susan	Page, Rick
Multer, Karen	Nottingham, Ashley	Pagel, Carolyn
Mumaw, Cheryl	Novak, Peter	Paglia, Vic
Mundy, Ken	Nowacki, D. Michael	Pagoulatos, Alexis
Munive, Magally Muedas	Nowikowski, Jeanette	Painter, Charlotte
Murphy, Diane	Nunez, Carlos	Paisley, Janet
Murphy, James	Nunez, Noris	Pakaki, Jordan
Murray, Bobbie	Nunn, Alexia	Palaia, Franc
Murray, Margaret	Nutaitis, Judy	Palcich, Elanne
Murti, Vasu	O'Buckley, Todd	Palmer, Howard T.
Musker, Catherine	Ochmanek, E.	Palmer, Paul
Mussini, Giuseppe	Ochs, Annette	Panetta, Anthony

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Pantelidou, Kiriaki	Potucek, Kimberly	Reindollar, Elizabeth
Paoluzzi, Sara	Pouliot-Harden, Robert J.	Reinman, Fred M.
Parana, John W.	Powers, Brendan	Reis, Jenni
Parke, Melinda	Powers, Charles	Reisman, Emil
Parker, Cindy	Powers, Mariko	Reiss, Brenda
Parlin, Nancy	Prescott, James	Replogle, Kirstin
Parnell, Denise	Preston, Lynne	Resnick-Silverman, Lois
Parr, Crawford	Preucil, Susan	Rex, Joy
Pascal, Vercknocke	Preuss, G.	Reynolds, Eve
Pasquini, Alberto	Price, Melissa	Reynolds, Priscilla
Patterson, Catherine	Prosperie, Johnnie	Rheder, Richard
Pavanello, Giovanni	Prowell, Judith	Rhoads, Kirk
Pavillard, Leo	Public, Jean	Rhodes, Louis
Pavlic, Gary	Puetz, Daniel	Rice, Jay
Pawlick, Victoria	Puggioni, Vincenzo	Rice, Katharine
Payne, Blake	Pugsley, Laken	Ricevuto, Chuck
Pease, William G.A.	Pulsifer, Diane	Richardson, Roberta
Pedroza, Donna	Purvis, James	Richey, Sylvia
Pelleg, Joshua	Pylypowycz, Christine	Rick, Margie
Peluso, Anthony R.	Quijano, Nancy	Rickenbach, Deborah
Pendergast, Betsy	R., Jessie	Ricupito, Enrico
Peralta, Sharon	Rabinovitch, Dalit	Riddle, Ron
Perez Nevarez, Monica	Rachmuth, Marc	Rider, Heather
Perotti, Jason	Raffensperger, Carolyn	Ridgeway, William
Peters, Michael	Rahm, Don	Riffle, Duane
Petersen, Elsa	Raider, Philip	Riley, Kelly
Petersen, Karen	Raley, Barbara J.	Rippy, Rachel
Peterson, Andrea	Ramos, Sigrid	Rittenhouse, Calvin
Peterson, Joel	Ramsden Scott, Sidney	Rivard, Michael
Peterson, Kathryn	Ranft, Ashleigh	Rivera, Eileen
Peterson, Kimberly	Ransom, Jill	Rivera, Juan
Petoskey, Rox	Rantala, Mervi	Rivera, Mario
Phillips, Roxanne	Rapalyea, Angela	Rivera-Shapiro, Mirian
Piantanida, Pierangelo	Rausch, Mary	Rizzo, Paul
Pierce, Paul	Rausis, Maria	Roark, Warren
Pihl, Eric	Ravine, Devon	Robbins, Allie
Pino, Manuel	Ray, Michael	Robbins, Peter
Pistarino, Massimo	Ray, Richard	Roberts, Earl
Pitkin, Lisa	Ream, Tarn	Roberts, Nancy
Pitt, Terry	Rechs, David	Robertson-Lorant, Laurie
Platter-Rieger, Mary F.	Reed, Audrey	Robinson, Bina
Plumeri, April	Reed, Mary	Robinson, Cathy
Pola, Jordan	Reeser, Alexander	Robinson, Erin
Pollack, Frederick	Reeves, Douglass	Robinson, Janet
Pommer, Jennifer	Rehfuss, Anette	Robinson, Kit
Poole, John	Rehn, Debra	Robinson, Rob
Poos, Sebastiaan	Reichert, Robyn	Robinson, Terry Ellen
Poplawski, Terry	Reilly, Duncan	Roby, Daniel
Popolizio, Carlo	Reilly, Jane	Roche, Peter
Post, Kere	Reilly, Jeffrey	Rodgers, Catherine and Robert

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Rodgers, Patricia	Sanchez, Daniel J. Sr.	Segal, Bob
Rodgers, Peter	Sanders, Joseph	Seeger, Kimberly
Rodney, Hyacinth	Sanderson, Diana	Seis, Mark
Rodriguez, Anabel	Sandoval, Gustavo	Selbin, Susan
Roemer, Megan	Sangineti, Alicia	Seltzer, Rob
Rojas, Jose	Sapia-Bosch, Gloria E.	Semrau, Peter Norbert
Rojeski, Mary	Sari, Mary	Sens, Brenda
Roland, Jelica	Sarovec, William E.	Septoff, Alan
Rolle, Gilbert	Saveri, Elizabeth	Septoff, Naomi
Roman, Nora	Saykaly, Frances	Sequichie-Kerchee, UsdiGadu
Roman, Roberto	Scales, Leslie	Shadrack, Roxann
Romans, Jennifer	Scanlon, Mary	Shafransky, Paula
Romer, Nancy	Schall, James	Shapiro, Denise
Ronchi, Nicola	Schatsky, Ronen	Shapiro, Vita
Rooney, Thomas	Schauwer, William	Sharber, Michael
Root, Charlene	Scheck, David	Shaw, Alison
Rorke-Davis, Shawn	Schenone, Marco	Sheffield, Carol
Rorvick, Shelley	Schilder, Mary	Shelly, Charles
Rose, Dana	Schinasi, Barbara	Shematek, Judith
Rose, Hans	Schleimer, Sylvia	Shenberger, Ronald
Rose, Kathryn	Schlemel, Pierre	Shepard Salzer, Linda
Rosen, Alan	Schlüpmann, Maike Monika	Shepard, D.
Rosen, Judith	Schmid, Jennifer	Shepard, Dodie
Rosen, Sig	Schmidt, Sara	Sherman, Vivian
Rosenfeld, Henry	Schnabel, Erik	Shinholser, Michael
Rosenstein, Carolyn and Richard	Schneider, Lucy	Shiple, Betty
Rosenthal, Bill	Schneller, Paul	Shomer, Forest
Ross, Margaret	Schoenberg, Marc	Shore, Irma
Rosstad, Kristine	Schoenberger, Patricia	Shorin, Robert
Rotramel, Ernest	Scholz, Ernest	Shorter, Rosemary
Rotter, Elizabeth	Schreffler, Marie	Shpiller, Natasha
Rough, Anna	Schreiber, Lori	Shrewsbury, George
Rouhana, Alexander	Schreiber, Steve	Shriver, Christina
Rousseau, David	Schropfer, Suzanne	Shulman, Joseph
Royer, Anabel	Schuessler, Betty	Sickafoose, Jim
Rozsics, Michael	Schulenberg, Richard	Siegel, Larry
Rubin, Marc	Schulsinger, Herb	Silan, Sheila
Rubio, Wonono	Schult, Abby	Sillars, Rodger James
Ruckdeschel, Jenny	Schumacher, Amy	Silveira, Luciano
Rudolph, Christian	Schutt, Whitney	Silver, David
Russell, C.S.	Schuyler, Jim	Silverberg, Ellen
Russo, Joe	Schwager, Kathy	SilverKnight, Deborah
Rutemoeller, Robert	Schwartz, Jack	Silverman, Ruth
Rutkowski, Robert	Schweninger, Dayle	Silverman, Seth
Safran, Claire	Scott, John J.	Simmons, George
Salazar, Kent	Scott, Thomas	Simpson, Sally
Salazar, Monica	Scott, Tim	Sinacore, Paul
Salmon, Jack D.	Scotton, Bruce	Sindelar, Geo
Salters, Richard	Scuder, Amanda	Singleton, Jonathon
Sams, James	Seay, Cathy	Siri, Patricia

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Sirk, Katie	Statz, Pamela	Taylor, Matthew
Sirotek, Jonathan	Stefani, Nancy	Taylor, Yvonne
Sitkin, Bill	Stein, Jennie	Tedesco-Kerrick, Terry
Skelton, Julie	Steinfeld, Debra	Teolis, Simon
Skidmore, Michael	Stephens, Susan	Terbot, Lee and Charlotte
Skirvin, Laurence	Sterin, David	Terry, Terelle
Skolnick, Kate	Stern, Rachael	Tetro, Barbara
Slade, Kenneth	Sterner, Elizabeth	Theden, Tiffany
Slater, Terry	Steuter, Don	Theelen, Aimee
Slingerland, Barb	Stewart, Dana	Thomas, Ben
Sloan, Adam	Stewart, Michael	Thomas, Dennis
Sloan, Rita	Stibitz, Susan	Thomas, Kat
Slominski, Jeanne	Stober, Paula	Thomas, Randy
Small, Sally	Stoehr, Alissa	Thompson, Byron
Smith, Caroline	Stoltenberg, John and Martha	Thompson, Carol
Smith, Frank	Stone, William	Thompson, Susan
Smith, Gaye	Stoneburner, Carol	Thompson-LaPerle, Kelly
Smith, Ian	Stover, Patricia	Thomsen, Douglas
Smith, Jason	Stracke, Barbara	Thorbjornsen, Brian
Smith, Jimmie	Strader, Dow	Thorkildsen, Erik
Smith, Julie	Stringer, Laura	Thornton, Edward
Smith, Kellie	Struzzi, Elisabetta	Thrantell, Mary
Smith, Mark E.	Stuart, Alan	Tice, Paula
Smith, Mary	Stuart, Michael	Tignanelli, Doreen
Smith, Sharon	Stuart, Paul	Tildes, Katherine
Smith, Shirley	Suda, Mary	Tilley, Kimberly
Smith, Stacey	Sudol, Laurie	Tilton-Jones, Carrie
Smith, Susan L.	Sullivan, Paul	Tinsley, Becky
Snedden, Lois	Summers, Carolyn	Tirotti, Fabrizio Maria
Snider, Ronda	Summers, Jr	Tobachnik, Edgar
Snyder, KT	Summers, Steve (2)	Tobachnik, Rita
Snyder, Sally	Sun, Jane	Tobin, Paul
Soer, Gert	Suzuki, Hiroshi	Tohe, Robert
Sorin, Marni	Swafford, Leilani	Tolpin, Jami
Sorrell, Patricia	Swartz, Lisa	Tomassetti, Bonnie
Sosrensen, Elaine	Sweeney, Kathleen	Tomczyszyn, Michael
Southworth, Franklin	Sweitzer, Alexandra	Toner, David
Souza, Michael	Swierkosz, Joe	Toobert, Michael
Speed, Nancy	Swinford, Peter	Toto, Michael
Spiegelman, Robin	Swyers, Matthew	Toush, Lawrence
Spies, Robert	Szymanowski, Paul	Townsend, Patricia (Amherst, NY)
Spilsbury, Delaine	Tabler, Natashia	Townsend, Patricia (Hopewell Junction, NY)
Spotts, Richard	Taft, Robert	Tracy, Christopher
Stacey Esq., Kelly	Takagi, Richard	Tracy, Kyle
Stahl, Charlotte	Takatsch, Julie	Trammel, W.M.S.
Stallard, Carolyn	Tan, Frances	Tran, Thuha
Stamp, Barbara	Tate, Laurel	Treece, Ed
Stanley, Edh	Tate, Pamela	Tringali, Peter
Stanley, Lisa	Tatum, Beth	Troyano, Paul
Stark, Carol	Taylor, Imogen	Truax, Wayne

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Trypaluk, Barbara	Walker, Lynn	Whitmore, Andy
Tucker, Kathleen	Walker, Matt	Whitney, Vernon
Tuninetti, Luis	Walker, Nancy	Wichman, Michael
Turner, David	Wallach, Gale	Wieland, Loren
Turnoy, David	Wallon, Linda	Wilcox, Mary Jane
Tyler, Steve	Walsh, Kara	Wilde, Marika
Tyler, Tobi	Walsh, James	Wilder, Lillian
Tyndall, Carl	Waltasti, Marilyn	Wiley, Carol
Tytko, Mary Jane	Walters, Betty	Willard, Monica
Uccello, M	Walther, Marcus	Williams, Beverly
Ujpétery, Sandra	Walton, Peggy	Williams, Charlie
Ulmer, Gene	Wanner, Gabrielle	Williams, James
Ulrich, Belinda	Warner, Paula	Williams, Janet
Ulrich, Julia	Warren, Pauline	Williams, John
Urechiatu, Diana	Warwick, Catherine	Williams, Joseph and Diane
Uribe, Pedro	Warwick, Michael	Williams, T.
Valentine, Jeffrey	Wasfi, Ellen	Williams, Terrie C.
Valentine, Jennifer	Washington, Chris	Williams, Tom
Valle Tetkowski, Olga	Washington, Leslie	Willing, Elizabeth
Vallone, Cheryl	Washington, Melina	Willis, David
Van Der Leest, Felieke	Watson, Fran	Willis, Lisa
Van Doren, Harold	Watson, Laurel	Willits, Debra and Patrick
Van Horne, John	Watts, Elizabeth	Willmann, Joachim
Van Riper, Michael	Watts, Susan	Wilson, Dina
Van Sant, Julie	Waugh, Dave	Wilson, John
Van, Gail	Weaver, Torraine	Wilson, Michael
VanEtten, Margot	Webb Schrader, Wanda	Wilson, Patricia
Vargas, Roberto Angarita	Webb, Dean	Wiltshire, Katrin
Vazquez-D'Amico, Ezra	Webber, Patricia	Windberg, Thomas
Vega, Alejandra	Wechsler, Susan	Winget, Jean
Vesely, Sakura	Weiland, Sherry	Winholtz, Betty
Vetter, Janet	Weinberg, Norman	Winkel, Marguerite
Viacrucis, John	Weiner, Judi	Winston, Leslie
Villarreal, Liz	Weinstock, Jerry	Winter, Susan
Vinci, Tammi	Weishaar, Jennifer M.	Wirth, Charles
Visedo, Gabriela	Weiss, Wendy	Wittenstein, Andreas
Vlasopolos, Anca	Welborn, Paige	Wittman, Charles
Vo, Jackie	Welde, Logan	Wittman, Charley
Vogelman, Diane	Wells, Greeley	Wojtalik, Alan
Volk, Deborah	West, Alice	Wojtalik, Nikki
Vosburg, Robin	West, Angela	Wolf, Joe
Voss, Barbara	Weston-Roberts, Gail	Wolf, Rachel
Wagner, Carol	Wheller, Noreen	Wolfe, Ellen
Wagner, Jim and Virginia	Whitcomb, Paulette	Wolk, Esther
Wagner, Joanne	White, A.E.	Wolske, Michael
Wagner, Sandra	White, Karen	Womble, Jeffrey
Walder, E. Gail	Whitehead, Carole	Wood, Gordon
Waldner, Carol	Whitehill, Drew	Wood, Keith
Walker, Brad	Whiteley, Walter	Wood, Louise
Walker, Jessie	Whitman, Fran	WoodConstable, Mary

Table A-2 (Continued)

Woolford, Ronald		
Woollard, Deidre		
Wootan, Cathy		
Word, Vicki		
Wornum, Claudia		
Wright, Dian		
Wright, Donald		
Wright, Richard		
Wyatt, Aimee		
Wyke, Kimberly		
Yarrobino, Erin		
Yeager, Will		
Yeuel, Kay		
Yoder, Paul		
York, Sandra		
Young, Don		
Young, Jane		
Young, Ryan		
Young, Vincent		
Yourke, Oliver		
Yuslum, Peter		
Zawada, Stanley J.		
Zawaski, Joan		
Zebin, Alizium		
Zephier, Robin		
Zierikzee, R.		
Ziesemer, Gerald		
Zimmerman, Craig		
Zitner, Rosalind		
Zlotnick, Jan		
Zoghi, Masrour		
Zorrilla, Carlos		
Zucchi, Beatriz		
Zucchi, Carlo		
Zurcher, Naomi		
Zurweller, Bradley		