

January 21, 2003

Kenneth E. May, Mine Manager
Canyon Fuel Company, LLC
397 South 800 West
Salina, Utah 84654

Re: Approval of Link Canyon Portal Amendment, Canyon Fuel Company, LLC., SUFCO Mine, C/041/002-AM02E, Outgoing File

The Division has completed our review of the above-referenced amendment including information received through January 7, 2003 and the amendment is hereby approved. A stamped incorporated copy is enclosed for your copy of the Mining and Reclamation Plan. A copy of our technical analysis is also enclosed for your records.

Those federal agencies that have already received the amendment can simply incorporate it into their existing copy of the Mining and Reclamation Plan.

Prior to construction at the site, you should install the appropriate identification and disturbed area markers and sediment control features. We also remind you of the commitments you have made in your plan for protection of this area.

Thank you for your help in completing this permitting action. If you have any questions, please feel free to call me at (801) 538-5325 or Dave Darby at (801) 538-5341.

Sincerely,

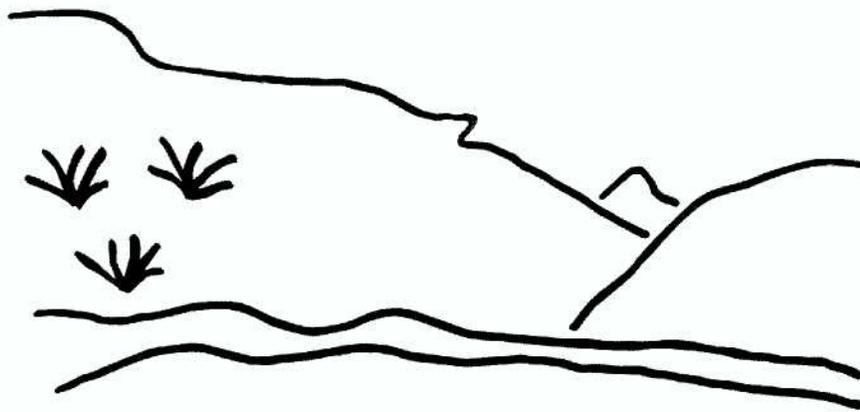
Daron R. Haddock
Permit Supervisor

Enclosure

cc: Ranvir Singh, OSM
Pat Gubbins, BLM w/o
Elaine Zieroth, USFS
Rob Mrowka, USFS w/o
Mark Page, Water Rights, w/o
Dave Ariotti, DEQ, w/o
Derris Jones, DWR, w/o
Price Field Office w/o

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State of Utah



Utah Oil Gas and Mining

Coal Regulatory Program

SUFCO Mine
Link Canyon Portal
C/041/002-AM02E-2
Technical Analysis
January 21, 2003

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TECHNICAL ANALYSIS

The Division ensures compliance with the Surface Mining Control and Reclamation Act of 1977 (SMCRA). When mines submit a Permit Application Package or an amendment to their Mining and Reclamation Plan, the Division reviews the proposal for conformance to the R645-Coal Mining Rules. This Technical Analysis is such a review. Regardless of these analyses, the permittee must comply with the minimum regulatory requirements as established by SMCRA.

Readers of this document must be aware that the regulatory requirements are included by reference. A complete and current copy of these regulations and a copy of the Technical Analysis and Findings Review Guide can be found at <http://ogm.utah.gov/coal>

This Technical Analysis (TA) is written as part of the permit review process. It documents the Findings that the Division has made to date regarding the application for a permit and is the basis for permitting decisions with regard to the application. The TA is broken down into logical section headings which comprise the necessary components of an application. Each section is analyzed and specific findings are then provided which indicate whether or not the application is in compliance with the requirements.

Often the first technical review of an application finds that the application contains some deficiencies. The deficiencies are discussed in the body of the TA and are identified by a regulatory reference, which describes the minimum requirements. In this Technical Analysis we have summarized the deficiencies at the beginning of the document to aid in responding to them. Once all of the deficiencies have been adequately addressed, the TA will be considered final for the permitting action.

It may be that not every topic or regulatory requirement is discussed in this version of the TA. Generally only those sections are analyzed that pertain to a particular permitting action. TA's may have been completed previously and the revised information has not altered the original findings. Those sections that are not discussed in this document are generally considered to be in compliance.

INTRODUCTION

INTRODUCTION

This is a Technical Analysis of the Link Canyon Mine amendment to the Sufco Mine. The amendment was prepared by Canyon Fuel Company, Sufco Mine. Link Canyon Mine is located in Sevier County, Township 21 South, Range 5 East, Section 26, W1/2NW1/4SW1/4, (Plate 7-3 or Emery West 7.5 minute quadrangle).

The most recent updates, the third and fourth submittals, to the Link Canyon portal amendments were received on November 26, 2002 and January 6, 2003. The Division received the original amendment on April 8, 2002 to re-open and develop main entries in the abandoned Link Canyon mine. The Division completed the first Technical Analysis on July 18, 2002. The second submittal addressing deficiencies from the Division's first technical review was received August 12, 2002. A second review by the Division also found deficiencies for the applicant to address. Comments by the U.S. Forest Service was included in the Deficiency Document of the second technical review was completed on November 1, 2002. Prior to the Division making a findings of adequacy on the second amendment update (third submittal), Sufco submitted a third update (fourth submittal) to the Division, which included hydrologic information from a U.S. Geological Report and surveys from Mr. Eric Petersen, Hydrologist for Petersen Hydrologic, Inc.

Development of the portal will allow access to the existing SUFCO mine through the old Link Canyon mine workings. The portal is needed to provide intake ventilation, emergency escape, and power to the Pines Tract mining area. Power will be supplied from the electrical power substation located just opposite the road from the proposed portal. The Link Canyon Mine was closed in 1960. It was a pre-SMCRA site that had been sealed by collapsing the portals.

It is planned that the Lila Canyon Portal will be used over the next 8 to 10 years. The proposed new portal area will be 0.23 acre in size, with 0.14 acre of actual disturbance. The entire area is contained within the present approved Permit Area. The new disturbance will include a 120-foot road and a power line to the Link Canyon substation.

Link Canyon hydrologic system was previously evaluated as a part of the Pines Tract Lease. A hydrological evaluation for the Pines Tract Lease was conducted by Mayo and Associates in 1998. Their findings are presented in the Probable Hydrologic Consequences section in Appendix 7-18 of the MRP. Land use for the area is established for leaseable mineral development, Plate 4-1B, and high use deer and elk winter range, Plates 3-2 and 3-3.

The submittal of November 26 also contained information to address concerns expressed by the U.S. Forest Service. The Forest Service is the federal land surface management agency, because the proposed disturbance is within the Manti La-Sal National Forest.

INTRODUCTION

The Utah Division of Water Quality (UDWQ) has determined that, water flowing from the portal is not process wastewater, and since it has been flowing naturally for a number of years, no UPDES discharge point will be required even if the water is kept flowing.

GENERAL CONTENTS

GENERAL CONTENTS

IDENTIFICATION OF INTERESTS

Regulatory Reference: 30 CFR 773.22; 30 CFR 778.13; R645-301-112

Analysis:

Identification of Interests information is in the current Sufco Mine, MRP.

Findings:

The information provided in the application meets the minimum Identification of Interests requirement of the regulations.

VIOLATION INFORMATION

Regulatory Reference: 30 CFR 773.15(b); 30 CFR 773.23; 30 CFR 778.14; R645-300-132; R645-301-113

Analysis:

Update is not required by this submittal.

Findings:

The information provided in the application meets the minimum Violation Information requirement of the regulations.

RIGHT OF ENTRY

Regulatory Reference: 30 CFR 778.15; R645-301-114

Analysis:

The Bureau Land Management (BLM) is the mineral manager and the U.S. Forest Service (USFS) is the landowner and manager of the Link Canyon Portal Area.

The Link Canyon portals area is within the Pines Tract Lease, Sufco Mine permit area, approved June 16, 2000. Prior to Division approval, the BLM and USFS followed the NEPA process in and conducted an Environmental Impact Statement (EIS) of this area. The results of the EIS concluded that the BLM could issue a Coal Lease Permit. Their permit was issued to

Canyon Fuel Company, Sufco Mine on September 1, 1999 under lease number UTU-76195.

The U.S. Forest Service prepared a Record of Decision (ROD) on October 15, 2002 that documents the USFS's decision to consent to reopening the west portal of the Link Canyon Mine by Canyon Fuel Company, LLC on the Manti-La Sal National Forest. The consent decision is conditioned upon requirement needed to mitigate effects to non-coal interests completed an environmental analysis (not an Environmental Assessment) of the Link Canyon Portal Area amendment and have a provided a list of deficiencies that will be incorporated into this technical review. A copy of the Forest Service comments was e-mailed to Mike Davis on October 16, 2002.

Findings:

The information provided in the application meets the minimum Right of Entry requirement of the regulations.

PUBLIC NOTICE AND COMMENT

Regulatory References: 30 CFR 778.21; 30 CFR 773.13; R645-300-120; R645-301-117.200.

Analysis:

The construction connects to a public road and therefore is within 100 feet of a public road. The Operator has submitted copies of public announcements made in the Emery County Progress, a local newspaper in Castle Dale, UT. The advertisement ran on April 23 and 30, and May 7 and 14, 2002.

Findings:

Information provided in the application meets the minimum requirements of the regulations

REPORTING OF TECHNICAL DATA

Regulatory Reference: 30 CFR 777.13; R645-301-130.

Analysis:

An Order I Soil Survey was conducted of the proposed Link Canyon pad and portal area in December 2001 by Dan Larsen, Soil Scientist, Environmental Industrial Services, Inc., Helper, Utah. Mr. Larsen's credentials along with those of Mr. Keith Zobell and Dr. Patrick Collins are found in Appendix 2-9.

GENERAL CONTENTS

InterMountain Laboratories, Inc. of Sheridan, Wyoming analyzed the soil samples.

Findings:

Information provided in the application meets the minimum Technical Data Reporting requirements of the Regulations.

MAPS AND PLANS

Regulatory Reference: 30 CFR 777.14; R645-301-140.

Analysis:

The application references to previously disturbed areas in Section 2.3.1 and in Section 3.2.2.2. These areas are shown on Plate 5-2F. Plate 5-2F identifies the existence of structures. Plans also contain designs for silt fences, culverts, berms, percent slope of pad and drawing that shows the original and reclaimed topography of the portal access road and portal pad.

Findings:

The information provided in the amendment meets the minimum Maps and Plans requirement of the Regulations.

ENVIRONMENTAL RESOURCE INFORMATION

ENVIRONMENTAL RESOURCE INFORMATION

Regulatory Reference: Pub. L 95-87 Sections 507(b), 508(a), and 516(b); 30 CFR 783., et. al.

GENERAL

Regulatory Reference: 30 CFR 783.12; R645-301-411, -301-521, -301-721.

Analysis:

The Permittee submitted a map showing the previously mined area on Plate 5-2F.

Findings:

The information provided in the application meets the minimum General requirement of the regulations.

PERMIT AREA

Regulatory Requirements: 30 CFR 783.12; R645-301-521.

Analysis:

The permit area will not change. The Link Canyon Portals are already within the approved Sufco Mine permit area.

Findings

The information provided in the application meets the Permit Area requirement of the regulations.

HISTORIC AND ARCHEOLOGICAL RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.12; R645-301-411.

Analysis:

John Senulis of Senco-Phenix conducted a literature and file review of the Link Canyon Mine portals. He concluded that no cultural or paleontological resources are present. The review did consider the historical significance of the Link Canyon Mine. This review is sufficient for the portal development work.

Findings:

The information provided meets the minimum Historic and Archeological Resource Information requirements of the regulations.

CLIMATOLOGICAL RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.18; R645-301-724.

Analysis:

The Convulsion Canyon Mine site receives an average annual precipitation of approximately 12.51 inches. Precipitation in the form of rain peaks in August with 1.65 inches being received on the average for that month. Snow covers the ground from September through May. Appendix 7-5 provides detailed climatological information.

Findings:

The information reported meets the minimum Climatological requirements of the Regulations.

VEGETATION RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.19; R645-301-320.

Analysis:

The vegetation of the Link Canyon Portal consists of approximately one-third riparian (non-jurisdictional wetland) and two-thirds pinyon-juniper communities. The vegetation within the riparian area consists of coyote willow, dogwood, water birch, stinging nettle, rose, horsetail, wiregrass, and Sandberg's bluegrass (Appendix 2-9, Vegetation of the Link Canyon Portal Surface Facilities Area). Species dominant in the pinyon-juniper are pinyon pine, Utah juniper and Salina wildrye. A vegetation map is provided in the vegetation report (Appendix 2-9, Vegetation of the Link Canyon Portal Surface Facilities Area).

Keith Zobell conducted a threatened and endangered plant survey of the area in 1996 and no threatened or endangered plant species were found (Appendix 2-2). No threatened, endangered or Forest listed sensitive we found when surveyed by Patrick Collins on July 23, 2002 and September 5, 2002.

Findings:

The information provided meets the minimum Vegetation Resource Information requirements of the regulations.

FISH AND WILDLIFE RESOURCE INFORMATION

Regulatory Reference: 30 CFR 784.21; R645-301-322.

Analysis:

The Quitchupah Creek Road DEIS (2001) states that the Quitchupah Drainage is not likely to contain Mexican spotted owls and surveys are not necessary (page 3-8A). Link Canyon is a tributary to Quitchupah Drainage. The Link Canyon area is identified on the 1997 Willey model as potential breeding habitat. The Mexican spotted owl recovery team is in the process of revising the survey requirements for breeding habitat to include the 2000 model plus any canyons less than 1.2 miles wide and more than 1.2 miles long (2x2 rule) associated with the pixels (letter dated November 21, 2002 from USFWS). The model shows breeding habitat in the NW ¼ section below section 26 where the portals are located. The canyon meets the width and length criteria (2x2 rule) for survey. Additionally, during the Divisions and DWR's initial scoping of this project, Dr. Frank Howe (DWR and a member of the Mexican spotted owl recovery team) asked for this area to be surveyed.

The first of a two year Mexican spotted owl survey was conducted in 2002 for the Muddy Creek EIS Data Adequacy study. No Mexican spotted owls were found in this drought year. The Forest reported that a calling point for the survey was located at the Link Canyon portal. The application states that planned construction activities will not be conducted during critical nesting and rearing times, February 1 to August 31 for eagles. The breeding season begins for the Mexican spotted owl on March 1. Construction activities during the breeding season will require completion of the second year survey.

The Link Canyon portals should not affect the Mexican Spotted Owl because once constructed these facilities will primarily be accessed through the mine. Building the portal will allow SUFCO employees to check the existing substation through the mine instead of driving the road; this will also cause fewer disturbances. No mining materials will be brought into the mine or removed from the mine via this portal. The existing seep at the portal will be maintained in the drainage and reclaimed in eight to ten years. On December 16, 2002 a meeting was held with USFWS to discuss this issue and verbal concurrence was provided. The Division will seek written concurrence from USFWS.

ENVIRONMENTAL RESOURCE INFORMATION

Table 1. Habitat requirements of threatened and endangered species for Sevier County and potential occurrence in the project area.

Common Name		Habitat	Potential Occurance
Last Chance Townsendia	T	Salt desert shrub and PJ on clay or clay silt soils of Arapien and Mancos Shale.	No Arapien or Mancos derived soils.
Wright Fishhook Cactus	E	Salt desert shrub to Juniper on the Mancos Shale.	No habitat, project elevation to high.
Heliotrope Milkvetch	T	Alpine mixed grass-forb communities	No habitat, project elevation to low.
Bald Eagle	T	Nests in tall trees such as Cottonwoods.	No nests in project, may occasionally fly through project area.
Mexican Spotted Owl	T	Nests in areas with >40% slope. 1997 and 2000 models by D. Willey.	Project within ½ mile of prime canyon breeding habitat (2000 model). 1 st year of 2 year survey completed, no owls identified. Project completed prior to breeding times.
Western Yellow-billed Cuckoo	C	Occurs in riparian areas at least 30 feet wide.	Riparian area at project is isolated and does not continue down canyon. Not 30 feet wide on each side of the seep.
Southwestern Willow Flycatcher	E	Occurs in riparian areas at least 30 feet wide.	Riparian area at project is isolated and does not continue down canyon. Not 30 feet wide on each side of the seep.
Utah Prairie Dog	T	Open sagebrush/grass, salt desert shrub, grasslands	No habitat, steep slopes in project area.
Brown (Grizzly) Bear	T	Montane forest	Project in P-J, Extirpated from Utah
Canada Lynx	T	Montane forest, snowshoe hare prey base.	Project in P-J, Lynx could possibly pass through project area.

A survey was conducted in June 2002 at the portal for aquatic fauna, specifically Forest sensitive spotted frog and boreal toad and other mollusks and amphibians. A report, Survey Report Aquatic Fauna Link Canyon Portal Area, found no sensitive aquatic fauna. No amphibian or mollusks or their sign were observed (Appendix 2-9). Several species of macroinvertebrates were identified.

Golden eagle nests occur outside but close to the half mile radius and not within line of sight of the Link Canyon portals. Raptor surveys are conducted each spring. The application states that planned construction activities will not be conducted during critical breeding, nesting and rearing times, February 1 to August 31.

ENVIRONMENTAL RESOURCE INFORMATION

Findings:

The information provided meets the minimum Fish and Wildlife Resource Information requirements of the regulations if construction occurs outside of critical nesting and rearing times, March 1 to August 31.

HYDROLOGIC RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 701.5, 784.14; R645-100-200, -301-724.

Analysis:

Sampling and Analysis

The applicant identifies four springs at the head of Link Canyon. Springs 100, 101, 102 and GW-21. Spring GW-21 is a U.S. Geological Survey monitoring site, S.A.Thiros and G.E. Cordy, 1991. The site was monitored over a two year period from June 1979 to September 1980 and again during a two year period from July 1986 to September 1987. The applicant has supplied information from the USGS Report, which characterize the flows and quality of headwaters, Figures 3, 4 and 7 and Tables 2 and 3, Appendix 7-18 MRP. These springs are located in the Castlegate Sandstone.

Tritium dating of springs 100 and 103 in the Castlegate Sandstone identify the recharge source as less than 50 years old. Based on comparison of tritium and radiocarbon compositions in near-surface groundwaters, Mayo and Associates determined that a hydrologic disconnect exists. The cause of the disconnect is attributed to shale and mudstone in the Blackhawk Formation, which hinder the downward migration of water. The flux of water in the Castlegate Sandstone is strongly dependant on surface recharge events as indicated by isotopic and discharge hydrograph data. Without seasonal surface precipitation, discharge from the Castlegate Sandstone water sources would quickly be reduced.

The Link Canyon Mine is located in the lower Blackhawk Formation. There are two old collapsed portals, the west and east. Small volumes of water flow from both portals. The applicant proposes to enter the west portal. The U.S. Geological Survey monitored the flow from the proposed portal site nine times from July 15, 1986 to September 8, 1987. The site is identified as GW-22. Measured flows did not exceed 2.2 gpm. Field parameters were analyzed with each collection. One complete chemical analysis was conducted on a sample taken July 15, 1986. Another water sample was collected from the western portal, Site GW-22, on September 19, 1998 by Mayo and Associates during the Pines Tract EIS procedure. Field parameters showed the flow to be about one gallon per minute, the pH was 7.3, the conductivity was 880 mmhos and the water temperature 12.8 degrees Celsius, Table 1, Appendix 7-18.

The U.S. Forest Service requested additional sampling prior to portal development. Sufco collected six samples (each) at both portals during September, October and November,

2002, one sample from each portal was obtained and analyzed. Chemical analyses were conducted on the samples, Appendix 7-4. They are provided in the Petersen Hydrologic report in Table 1 and Table 2. There are no wells in the Link Canyon amendment area.

Baseline Information

Sufco presents baseline water quantity and quality data for springs and mine discharge from the Link Canyon Drainage. They have identified segments of the channel within the drainage showing the types of flows, vegetation types, slope and ecosystems. The hydrologic information mentioned above is sufficient to characterize the drainage. The drainage is typically ephemeral with segments of perennial flow below spring sources at the base of the Castlegate Sandstone and mine water discharge at the Link Canyon Portals. Data shows the flows from the springs and portal are low, ranging mostly below 5 gallons per minute. Water quality is relatively good with moderate elevated levels of total dissolved solids, sulfate and magnesium. Most metals are very low and no oil or grease observed. Bicarbonates are moderately high and act as a buffering agent to keep pH near 7. A redish-orange algae is present in some of the discharge, which is not uncommon to low flowing surface waters.

Baseline Cumulative Impact Area Information

The impact area is established by the regulations, limiting physical impacts from mining to the permit area. The cumulative impact area is established to include impacts from all coal mining operations in a major drainage or designated area. A Cumulative Hydrologic Impact Assessment has been completed already for the Quitchupah and Pines Tract Leases. The Link Canyon amendment lies within the Pines Tract Lease. A cumulative impact area has been established in the CHIA to include potential impacts of the Link Canyon Portals as well as Sufco Mine operation, See Quitchupah and Muddy Creeks CHIA, June 14, 2002.

Modeling

No modeling has been conducted. Hydrologic structure design is however, based on the empirical formulas the Soil Conservation Service, now the Natural Resources Conservation Service, established for runoff and erosion volumes.

Probable Hydrologic Consequences Determination

The Link Canyon Mine probable hydrologic consequences, PHCs, are described in Chapter 7 of the MRP. Mayo and Associates, Appendix 7-18 of the MRP supplied most information used to establish the PHC in a report. Information specific to the Link Canyon Mine was submitted as part of the amendment. Baseline information shows two main sources of water in Link Canyon. Four springs at the headwaters emanate from the base of the Castlegate Sandstone, all yield low flow rates, Table 2, Appendix 7-18. One has a water right and is developed for cattle watering. The other source is the low flows that come from the mine portals. The channel eventually empties into Quitchupah Creek in south of the town of Emery.

ENVIRONMENTAL RESOURCE INFORMATION

Flow from the springs saturate an area 300 to 750 feet in length below the source depending on the season, supporting riparian vegetation. The flows disappear from evapotranspiration and infiltration along the channel. Below the riparian area, the channel becomes ephemeral, flowing only in response to snowmelt or rainfall. The channel is steep and exhibits cliffs and overhangs. There is no riparian vegetation along this section of the channel.

The Link Canyon Mine supplies another water source to the channel, from small discharges from the two portals. Flow from each portal sustains small riparian areas along the channel. The channel only flows as a result of snowmelt or rainfall. The applicant provides information to characterize the channels by supplying information defining the slope of the channel, wildlife inhabitants and vegetation types along the channel, which are consistent with an ephemeral drainage. Depending on the time of year and rate of precipitation the flows can extend down no more than 500 feet, riparian vegetation ranges to about 800 feet below the mine. The flows gradually disappear as a result of evapotranspiration or infiltration. The remainder of the channel from the riparian area to Quitchupah Creek changes to ephemeral again, which the operator has identified by the vegetation types.

No fishery is associated with any of the riparian areas. A recent amphibian study revealed no inhabitants. The groundwater flows mainly support the riparian vegetation, which is a shelter for some small animal species, mainly birds. The flow likely supplies a drinking water source for some species.

The applicant identifies no impacts as a result of mining. The springs at the head of Link Canyon will not be impacted, since no mining is planned beneath the springs. Flow from the portal to the riparian area will be interrupted as the entries are developed through the Link Canyon Mine and the recovery period of the mine inflow. The interruption is planned for the winter months while the riparian zone is dormant. The eastern half of the Link Canyon Mine will be sealed with the development of the Link Canyon Mine entries.

Water levels will be reestablished in the eastern half of the Link Canyon Mine. The applicant states in the amendment that if recharge is slow, then the eastern half of the mine will be refilled to almost an overflow level. No mine water discharges will occur from pumping, however, it is planned that water entering the mine naturally will overflow. There will be commingling of water that refills the mine naturally with water pumped in to refill the mine void. The water that will be pumped into the mine will be the same water that would be discharged from the UPDES discharge point in Quitchupah Creek. The renewed discharges from the Link Canyon portals should not be degraded.

The above information was discussed with Mike Herkimer on January 13, 2003. The operator had met with the UDWQ almost a year ago to describe the procedure. UDWQ stated that a UPDES discharge point would not be necessary if no mine water was discharged from the site or that water quality was diminished. Water will free flow from both portals. The applicant will place a drain into the east section that provide flow to the western portal and reestablish

drainage to the creek. Both discharges are planned for quarterly monitoring. The creek will also be monitored above and below the portal area, at 001 and 002.

At reclamation, flows from the western half of the Link Canyon Mine will be restored to the riparian area. The mine will be sealed at the surface and at the connection with the main mine. The applicant has submitted typical sealing plans in Chapter 5 of the MRP. The seals will be built by cutting a keyway into the sides of the entry, then pumping a concrete grout into 4' thick forms. Then the seals will be backfilled with 25 feet of material fill. A drain will be inserted into the seal at the surface.

The applicant has submitted hydrologic design plans to control runoff from the undisturbed area above the disturbed area and contain and treat runoff at the disturbed area. The area is small, so large sediment control structures, such as a sedimentation pond, is not needed. The applicant plans to contain sediment on site with silt fences and berms. Undisturbed runoff will be diverted away from the disturbed area by two ditches. Sizing calculation for the ditches are presented in Appendix 7-12. It will be directed into the channel and flow under the disturbed area via two 36 inch culverts. The designs have been checked to ensure they meet regulatory requirements. The use of these hydrologic structures will prevent downstream impacts from mining operations.

Groundwater Monitoring Plan

The applicant has submitted water monitoring information collected by the U.S. Geological Survey for one spring at the head of Link Canyon and at the west Link Canyon portal., Water-Resources Investigations Report 90-4084. The data was collected a various intervals. Data from one spring (GW-21) in the upper reaches of Link Canyon was collected in 1979 and 1980, and again in 1986 and 1987. Data from the Link Canyon Mine (GW-22) was collected in 1986 and 1987. Additional information was presented showing the portal was monitored again in September 1992, and recently, in October and November of 2002.

The springs in the headwaters of Link Canyon emanate from the Castlegate Sandstone, whereas the water flowing from the mine portal area emanate from the Blackhawk Formation. All data indicated that flows are low at GW-21 ranging between 0.2 to 1.1 gpm. In recent years GW-21 has been developed for cattle watering. The cattlemen have piped the flows to a trough and installed a fence around the spring.

The applicant plans to continue the water monitoring during the operational and reclamation phases of mining. Since water flows from both portals, the operator believes that the mine is flooded. The applicant drilled a 2 inch vertical borehole to test the water level in the Link Canyon Mine on October 15, 2002. The hole extended from the Pines East Mains, crosscut #24, into the Link Canyon Mine. The hole was drilled 3 feet off the ground, at an upward angle. The drill should have raised 8 feet when it contacted the Link Canyon Mine. No water was contacted. The applicant registered an oxygen content of 18 percent, indicating that air is moving into the mine, possibly from fractures near the caved entrances. This does not mean that

ENVIRONMENTAL RESOURCE INFORMATION

the mined is not flooded, but it does mean that the mine is not completely flooded. The drill hole could have entered near the roof of the mine.

Surface-Water Monitoring Plan

Water monitoring data has been submitted to characterize the seasonal flows at the springs and portal discharges, Appendix 7-4. The applicant has submitted a plan to continue monitoring flows on a quarterly basis for some of the springs and the portal discharges. The applicant will also monitor the channel above and below the disturbed area.

Findings:

The information provided in the application is adequate to meet the minimum Hydrologic Information requirements of the regulations.

SOILS RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.21; 30 CFR 817.22; 30 CFR 817.200(c); 30 CFR 823; R645-301-220; R645-301-411.

Analysis:

The proposed disturbance will affect 0.14 acre, with 0.05 acre being riparian in nature. The proposed mine facility is between 7,660 to 7,690 feet elevation. The average annual precipitation recorded at the mine site has been 12.59 inches with the majority of the precipitation falling as snow. The soil resources within the Link Canyon mine portal area are discussed in Section 2.1.3 and Appendix 2-9 of the PAP. The soils include steep side slopes and riparian areas in the drainages supported by mine water discharge.

Mr. Daniel Larsen, Professional Soil Scientist with Environmental Industrial Services conducted an Order I soil survey of the disturbed area in December 2001. His report is located in Appendix 2-9. The survey contains five soil profile descriptions (Appendix A), laboratory analysis of nine soil samples (Appendix B), soil and landscape photographs (Appendix D), and soils maps (Appendix E).

Soil Identification and Description and Productivity

The soils of the site were identified to their subgroup as either Typic or Calcic Ustocrepts, ranging from coarse silty to loamy-skeletal and are calcareous to carbonatic. The soil taxonomic classification was modified by Mr. Larsen in a letter dated July 15, 2002. According to the letter, the soils at the site are classified as

Order: Inceptisols (young, little horizonation; little pedogenesis)
Suborder: Ustepts (inceptisols that have a ustic soil moisture regime).
Great Group: Haplustepts (other Ustepts)

Subgroup: Typic or Calcic
Family: coarse silty to loamy-skeletal, mixed, frigid
Phases: calcareous to carbonatic

The soils were mapped using the following designations:

WC Waste Coal
DR Disturbed
CU Calcic Ustochrepts, now classified as Calcic Haplustepts
TUE Typic Ustochrepts, eroded carbonic, now classified as Typic Haplustepts
TUL Typic Ustochrepts, light surface, now classified as Typic Haplustepts
VS very stony bouldery areas
RP riparian sites

The field sheets in Appendix A and the soils maps of Appendix E, describe soils supporting pinyon pine, juniper, rabbitbrush, ephedra, serviceberry, sagebrush and bunchgrass. (During a site visit on December 6, 2001, the Division noted extensive colonies of *Mahonia repens*, Creeping *Mahonia*).

Soil Characterization

The soil horizons were sampled and analyzed according to DOGM guidelines for topsoil and overburden. Soil texture, rock fragment content (percent by volume), and Munsell color were determined in the field. Available Water Holding Capacity was estimated based upon texture and verified by saturation percent. Percent surface boulders and stones were noted on the field sheets as between 20 and 85%.

The Soil Description Location map in Appendix 2-9 shows seven sample locations.

Soil samples were sent to InterMountain Laboratories, Inc. Sheridan, Wyoming, for analysis. Appendix B of Appendix 2-9 contains the laboratory data. Appendix C provides a comparison of the soil test results with the Division's soil suitability criteria.

Overall, soil laboratory test results show a good rating for soil chemistry and fair rating for soil water holding capacity after correction for coarse fragments except as noted below:

Site #2, along the access road, 12 –24" depth, Electrical Conductivity (EC) equal 18.1 and Sodium Adsorption Ration (SAR) equal 9.18 and 0.26ppm Selenium
Site #5, along the access road, 0 – 25" depth, EC equal 8.37 and carbonates equal 45%.

Although concretions of carbonate were noted at site #5, there was no calcic horizon formed. As would be expected in a zone of carbonate precipitation, soluble magnesium is more abundant than soluble calcium at this depth. Roots were noted to a depth of 25 inches. Division photos of the site taken on June 5,2002 show a plant community that does not appear to be

ENVIRONMENTAL RESOURCE INFORMATION

affected by the elevated EC or the carbonate content of the soil.

These soils are developing on weathered coal and presently have an "A" horizon that is between 4-6 inches in depth and a B or C horizon extending to 20 to 40 inches. The surface soils ("A" and "B" horizons represented by sample sites 1, 2 and 5) are very fertile with Nitrate Nitrogen between 8.54 and 50.8 ppm, Phosphorus ppm between 0.92 and 3.45, and Potassium between 62.3 and 224 ppm. (The weathered coal is likewise rich in nitrate nitrogen.) This provides an interesting baseline for fertilization during reclamation of the site.

Sample site #6 represents the TUL map unit. This location had shallow topsoil 0-6 inches deep overlying a shallow (to 13 inches) C horizon. The soil was described as very stony and bouldery with 60% of the surface being rock.

A small riparian area (0.05 acre) represented by site #7 has very stony sandy loam soils to a depth of six inches deep. The riparian soils will be salvaged.

In accordance with R645-301-232.200, since the A horizon is less than six inches deep, the topsoil recovered will be a mix of both the A and B horizon soils. Depths of salvage range from 6 to 18 inches over the site (see Available Soil Resources table in Section 232.100). Large stones, 36 inches or less, are considered part of the soil layer and are included in the topsoil volume estimates.

Findings:

The information provided in the application meets the minimum Environmental Soil Resource requirement of the Regulations.

MAPS, PLANS, AND CROSS SECTIONS OF RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.24, 783.25; R645-301-323, -301-411, -301-521, -301-622, -301-722, -301-731.

Analysis:**Affected Area Boundary Maps**

There will be no change to the affected area, since underground mining will be minimal and no second mining in this area will be done. Subsidence impacts have been analyzed. The potential of subsidence impacts are very low.

Coal Resource and Geologic Information Maps

No mining of support structures will take place. The operator will clean a mining pathway through already developed rooms within the Link Canyon Mine. The entries will be sealed along the sides. The geologic map will not have to be updated. All entries have been

developed. Minor amounts of mining may take place to connect the SUFCO mine with the Link Canyon mine.

Existing Structures and Facilities Maps

The Link Canyon Portal area does not have any existing structures.

Existing Surface Configuration Maps

The Permittee has submitted existing contours of the Link Canyon Portal area. This information is on Plate 5-2F. The existing surface configuration map does not show the contours 100 feet outside the disturbed area boundary. Also the cross-sections are not clearly labeled pre-mining and post-mining topography.

Mine Workings Maps

The Permittee has given underground mine workings of the old Link Canyon Mine and the immediate area of the SUFCO Mine. This information is on Plate 5-2F.

Permit Area Boundary Maps

The application makes reference to previously disturbed areas in Section 2.3.1, page 2-11 and in Section 3.2.2.2, page 3-22. The Permittee indicates that these areas are shown on Plate 5-2F. The previously disturbed area is clearly outlined on this plate.

Contour Maps

Plate 5-2 shows the pre-mining and post-mining contours of the Link Canyon Portal area.

Findings:

The information provided meets the minimum Maps and Plans requirement of the Regulations.

OPERATION PLAN

OPERATION PLAN

MINING OPERATIONS AND FACILITIES

Regulatory Reference: 30 CFR 784.2, 784.11; R645-301-231, -301-526, -301-528.

Analysis:

Facilities and Structures

There will be no buildings at the Link Canyon Portal. This area will be used for mine ventilation, emergency escape way, and to access the Link Canyon substation.

Hydrologic structures, an electrical power line and topsoil stockpile will be constructed in this area.

The electrical power line will run from the Link Canyon substation to the Link Canyon Portal.

Findings:

The information provided in the application meets the Mining and Operations Facilities requirement of the regulations.

EXISTING STRUCTURES:

Regulatory Reference: 30 CFR 784.12; R645-301-526.

Analysis:

There are no existing structures at the Link Canyon Portal area. The Permittee will reopen one of the two caved portals.

Findings:

The information provided in the application meets the minimum Existing Structures requirement of the regulations.

RELOCATION OR USE OF PUBLIC ROADS

Regulatory Reference: 30 CFR 784.18; R645-301-521, -301-526.

Analysis:

The Permittee addresses measures to be employed, Page 5-10, to protect the public during construction and during operations. During construction the applicant will post warning signs and a temporary chain link fence will be installed to prevent access to the portal site. During operations the portal area will be gated and locked. Inspections will be conducted of the road and portal area by mine personnel to ensure erosion does not become a problem.

Findings:

The information provided in the application meets the minimum Relocation or Use of Public Roads requirement of the regulations.

AIR POLLUTION CONTROL PLAN

Regulatory Reference: 30 CFR 784.26, 817.95; R645-301-244, 301-420.

Analysis:

The operator will control fugitive dust by application of water to areas where needed (Section 4.2.2, page 4-17). The Convulsion Canyon Mine operates under Division of Air Quality approval order DAQE-714-98 dated October 28, 1998 found in Appendix 4-4.

Findings:

The information provided in the MRP is adequate for the Air Pollution Control Plan requirements of the Regulations.

SUBSIDENCE CONTROL PLAN

Regulatory Reference: 30 CFR 784.20, 817.121, 817.122; R645-301-521, -301-525, -301-724.

Analysis:

Subsidence Control Plan

There will be a small amount of mining to connect the Link Canyon Mine to the SUFCO mine. There will be no second mining within the area of the Link Canyon Mine. Therefore, no subsidence should take place. The subsidence plan for the MRP does not need to be changed to incorporate the Link Canyon amendment.

OPERATION PLAN

Findings:

The information provided in the application meets the minimum Subsidence Control Plan requirement of the regulations.

FISH AND WILDLIFE INFORMATION

Regulatory Reference: 30 CFR 784.21, 817.97; R645-301-322, -301-333, -301-342, -301-358.

Analysis:

Golden eagles are sensitive to human disturbance during the nesting period. The Fish and Wildlife Service recommends a one-half mile buffer zone with no disturbance be maintained from January 1 to August 31. After the facilities are in place, very little mining activity will occur in the area.

Link Canyon is in a high priority deer and elk winter range. The current plan says surface activities will be minimized from December 1 through April 15 (page 3-43) and the Operator will get concurrence from DWR and USFWS for construction January 1 to August 15 referring to nest buffer zones. Leroy Mead (DWR Biologist) stated that DWR would like to be notified prior to construction for concurrence so that current weather conditions can be taken into consideration for their decision (phone call with Leroy Mead and Susan White on December 16, 2002). A conversation with the Division, Mine and DWR was held on January 13, 2003 about construction beginning in the next two weeks for a three week period.

The mine will improve the Link Canyon spring above the mine portal as part of a required Forest Service mitigation. The spring improvement will provide a trough for cattle and prevent livestock from trampling the riparian vegetation which includes the sensitive Link Trail columbine.

Electrical lines are wrapped and coated upon leaving the substation to the underground (personal communication with Mike Davis on October 28, 2002). No phase to phase or phase to ground contact of bare wires is possible making the lines raptor safe.

Findings:

The information provided meets the minimum Fish and Wildlife Information requirements of the regulations.

TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR 817.22; R645-301-230.

Analysis:

Removal and Storage

Regulation 645-301-232.100 requires topsoil removal from all disturbed areas. The disturbed area boundary encompasses 0.23 acre. The boundary has been drawn wider than the expected area of disturbance. Topsoil will be removed along the portal access road and at the portal pad, approximately 0.14 acre of new disturbance, but not from beneath the proposed power distribution structures. Therefore, there will be 0.09 acre of undisturbed ground within the disturbed area. Should the area of disturbance expand to the disturbed area boundary and encompass the additional 0.09 acre topsoil must be removed from those 0.09 acre prior to disturbance.

Soils will be removed from all disturbed areas with the exception of the power pole disturbance and from undisturbed islands within the disturbed area. The area of topsoil removal will be flagged, according to the cover letter attached with this submittal (dated August 6, 2002).

The Permittee will have a qualified person on site during construction and reclamation phases (Section 2.3.1.1, page 2-13). Soil types and estimations of salvage depth and area are related in a table in Section 2.3.1.1, page 2-13. In this table, the area of salvage sums to 0.1 acre and the recovery depth of six inches will be used on the riparian areas (RP), the Calcic Haplustepts (CU), and the Typic Haplustepts, light colored (TUL). Less soil recovery is expected in the Typic Haplustepts eroded, carbonatic (TUE) soils. The Permittee has noted on page 2-20 Section 2.3.2.3 of the MRP that all soil will be salvaged to a depth of six inches where the topsoil is less than six inches in depth.

Soil handling will be done at a moisture level of at least 15% (page 2-14, Section 2.3.1.1). A tracked vehicle will be used for topsoil removal (page 2-13, Section 2.3.1.1). A rubber tired vehicle may be used after the topsoil is salvaged.

The plan indicates in Section 2.3.1.1 page 2-11 that topsoil will be carefully separated from the subsoil since most of the subsoils are not suitable as substitute topsoil or growth media, due to high carbonates in the subsoils.

Approximately 80 yards of topsoil will be stockpiled. Page 2-13 Section 2.3.1.1 indicates that the actual volume of soil salvaged and dimensions of the stockpile will be shown on an as-built map.

Berms (and/or silt fences) and a three-strand barbed wire fence will be used to protect stored topsoil (Section 2.3.1.4, page 2-18). The stockpile will be vegetated (Section 2.3.4.2, page 2-23), with the forbs and grasses outlined in the seed mix described on page 3-47 (Section

OPERATION PLAN

3.4.1.2), revised with this submittal.

The surface of the stockpile will be pitted to retain moisture and reduce erosion (Section 2.3.1.4, page 2-19). In addition the pile will be mulched with grubbed vegetation. This practice is described in the Practical Guide to Reclamation (DOGM, 2000), available at <http://dogm.nr.state.ut.us>.

An attempt to reestablish colonies of *Mahonia repens* (Creeping Oregon Grape) will be made by scooping the surface layer of soil from the TUE soils and temporarily storing the soils until topsoil pile construction is complete. The TUE soils and *Mahonia* roots will then be placed on top of the topsoil pile (Section 2.3.1.1, page 2-14). Care in transplanting these plants will help provide immediate protection and erosion control on the topsoil pile. The surface layer of soil carried with the transplanting operation is valuable for it contains seeds, microorganisms, organic matter, elevated levels of nitrogen and phosphorus.

The topsoil stockpile location is shown on Plate 5-2F. This location is out of the drainage and provides protection from flooding.

Findings:

The information provided meets the minimum Operation Plan Topsoil and Subsoil requirements of the Regulations.

VEGETATION

Regulatory Reference: R645-301-330, -301-331, -301-332.

Analysis:

A plan for interim revegetation is found in Section 3.5.3 of the MRP.

Findings:

The information provided meets the minimum Vegetation requirements of the regulations.

ROAD SYSTEMS AND OTHER TRANSPORTATION FACILITIES

Regulatory Reference: 30 CFR 784.24, 817.150, 817.151; R645-301-521, -301-527, -301-534, -301-732.

Analysis:

Road Classification System

The Permittee will construct a road from the Link Canyon Road to the Link Canyon Portal. This road has been classified as an ancillary road. There will be no frequent travel on this road. The road will be reclaimed during reclamation of this area.

Findings:

The information provided in the application meets the minimum Road Systems and Other Transportation Facilities requirement of the regulations.

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR 773.17, 774.13, 784.14, 784.16, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-300-140, -300-141, -300-142, -300-143, -300-144, -300-145, -300-146, -300-147, -300-147, -300-148, -301-512, -301-514, -301-521, -301-531, -301-532, -301-533, -301-536, -301-542, -301-720, -301-731, -301-732, -301-733, -301-742, -301-743, -301-750, -301-761, -301-764.

Analysis:

General

The proposed new portal area is 0.23 acre in size, with an estimated 0.14 acre actually to be disturbed and needing reclamation. The entire area is contained within the presently approved Pines Tract Permit Area. The access road to the pad and portal area branches off the Link Canyon Road for a maximum distance of about 200 feet. Link Canyon Road is a public road. The road and portal will be constructed by simple cut and fill methods. There is a small riparian area below at the old portal, about 40 feet by 50 feet or 0.05 acre. The source of this water is believed to originate from two possible sources. It may be spill over water that is percolating into the old Link Canyon Mine from overlying strata, groundwater infiltration. This is believed most likely. The second possible source is a spring located at the portal. Opening the portal may reveal the water source. Water flows to the riparian areas range have been shown to flow no more than 2.2 gallons per minute. During the mid to late summer of 2002, the flows from the mine were not visible.

Surface-Water Monitoring

The applicant has submitted plans to monitor the channel in Link Canyon during the operational phase above, monitoring site Link 001, and below, monitoring site Link 002, and the disturbed area, Plate 7-3.

OPERATION PLAN

Discharges into an Underground Mine

Water is believed to have filled the old Link Canyon Mine to a point where it overflows. The Operator proposes to remove this water during rehabilitation of the entryway. Water will be removed by draining it into the Sufco Mine, then discharging it via UPDES site 003, which is an existing discharge point from the SUFCO workings. UPDES site 003 discharges into Quitchupah Creek. During rehabilitation of the mine entryway, seals will be placed in the mine, which will separate the eastern half of the mine from the working area. The sealed area will contain and restore the reservoir that supplies the mine discharge to the eastern riparian area. Some water may have to be pumped from the operating mine to replenish the water level in the east Link Canyon Mine.

Underground water is expected to continue flowing from the Link Canyon mine after construction. The applicant wants to implement construction of the Link Canyon entry during the winter months when the riparian vegetation is more dormant and the depletion of water will have less impact on the riparian area. After the entry is complete, the applicant proposes to implement a water collection system that will allow water collecting in the Link Canyon mine to drain the old portal site. It is worth noting that when the Pines Tract lease was evaluated for mining, the U.S. Forest Service developed an Environmental Impact Statement. That EIS anticipated a larger mine in this area. Further, that new minesite was assumed to completely destroy the riparian areas below the portal area. This would have meant no water flows for the life of the new mine. The proposed plans will keep the riparian areas, and the flows will be maintained during the operation of the mine and will be restored at reclamation.

Diversions

Plate 5-2F shows two undisturbed drainage diversion ditches, Channel 1 and Channel 2, leading to silt fences then to the main undisturbed drainage channel. These ditches have been designed with consideration of the runoff of the road and pad areas, each about 0.04 acre respectively. The resulting flows of 0.02 cfs are minimal. During the previous review it was found that the undisturbed channels were not designed to include some of the undisturbed drainage originating outside the disturbed area, contributing water to these ditches. The ditches have been redesigned to accommodate these undisturbed drainage contribution. The ditches were designed using a 10-year, 6-hour design storm, which is appropriate for a temporary diversion on an intermittent stream. The diversion ditches have 0.3 foot of freeboard, which is adequate design.

The operator plans to install two 36 inch culverts under the disturbed area to convey undisturbed area storm runoff under the area. The culverts are designed for the 25-year, 6-hour storm and the design used the 776-acre drainage area above the inlet to the culvert. During the first technical review, some concerns were expressed about the values used in calculating flow. Since the culvert is designed for the 25 yr.-24 hr. precipitation event, and will likely be used for at least a 10 year period, the probability that the design standards will be equaled is greatly reduced. Although there is no threat to life or property, the Division wanted a larger culvert to

ensure a higher confidence factor in protecting the pad and ensuring the design condition is not exceeded, given the steep terrain and paucity of ground cover. The USFS has also (independently) determined that a culvert designed to transmit flows of a 25 yr.- 24 hr. precipitation event should be installed under the portal pad. They have identified this as a deficiency that has been remedied.

Stream Buffer Zones

Measured from a point just above the Link Canyon Mine, the drainage area above the new portal is 776 acres, just larger than one square mile. The area of one square mile automatically classifies the channel as an intermittent drainage according to the coal mining regulation. Regulation R645-301-600 requires a 100 foot buffer zone adjacent to perennial or intermittent stream, unless the Division specifically authorizes coal mining and reclamation operations closer to, or through such a stream if no water quality standards will be adversely affected. The Division will require that the reaches of this drainage be protected from adverse coal mining impacts.

The applicant has presented information in the MRP and PHC to identify potential impacts to the stream channel and springs from subsidence, and to protect water quality from runoff at the disturbed area of the Link Canyon Mine pad. Plate 5-7 shows the mining plan for the Pines Tract Lease, Sufco Mine. The map also shows the Pines East Mains north of the old Link Canyon mine, plus the gate roads accessing the panels. Plate 7-2 identifies the water rights. The U.S. Forest Service holds the water rights to the springs in Link Canyon. The springs are located 800 feet above the Pines East Mains, Plate 5-11. The mains will not be second mined. The rest of the area surrounding the Link Canyon Mine will not be mined and will remain solid rock.

The applicant plans to establish a 100 foot buffer zone along the stream channel near the disturbed area. Other than the development and installation of the culvert, no disturbance to the rest of the channel will be allowed. Stream buffer zones signs will be installed to inform personnel not to disturb the channel.

The Division finds sufficient information has been presented by the applicant to show there will be no impact or degradation of water resources as a result of developing the Link Canyon Mine as a portal and entryway. The Division hereby finds that the applicant can mine within 100 feet of Link Canyon intermittent/perennial stream channel in accordance with Regulation R645-301-600.

Sediment Control Measures

The slope adjacent to the Link Canyon Portal access road will be disturbed and excavated to create the roadway. Plate 5-2F indicates that a cut approximately six feet deep and 15 feet high will be made on the slope.

OPERATION PLAN

Several areas of the road and pad construction are below the road and pad. Berms at the lower end of the pad construction will protect these areas. The Plate 5-2F shows the location of silt fences. Further, the plate needs to show the direction of drainage across the road and pad to the diversion ditches. The Alternate Sediment Control Areas (ASCA) areas also need to be shown on the plate. Calculations for the ASCA areas are provided and show the silt fences should be adequate to contain sediment from the areas.

Discharge Structures

There is indication of riprap or other channel erosion protection at the outlet of the culvert, drawing in Appendix 5-2F.

Findings:

The information provided in the application meet the minimum Hydrologic Information requirements of the regulations

SIGNS AND MARKERS

Regulatory Reference: 30 CFR 817.11; R645-301-521.

Analysis:

The plan indicates that the disturbed area is 0.23 acre, but that the alternate sediment control area and the actual area to be disturbed and reclaimed is only 0.14 acre (page 1-37). The requirement for placement of signs and markers is to delineate the perimeter of all affected areas. The plan describes placement of signs to delineate the affected area boundary in Section 5.2.1.2 page 5-16. Plate 5-2F indicates marker placement along the disturbed area boundary (0.23 acre).

Findings:

The information provided in the application meets the minimum Signs and Markers requirements of the Regulations.

MAPS, PLANS, AND CROSS SECTIONS OF MINING OPERATIONS

Regulatory Reference: 30 CFR 784.23; R645-301-512, -301-521, -301-542, -301-632, -301-731, -302-323.

Analysis:

Affected Area Maps

Affected area map will not be required because no second mining will take place.

Mining Facilities Maps

The mine facility is on Plate 5-2F. This map is P.E. certified. The permittee will need to show the utility corridor on Plate 5-2F as a requirement of R645-301-521.161.

Bonded Area Map

Plate 5-2F shows the disturbed area boundaries, which are considered the bonded area boundaries. The location of the disturbed area is not shown in relation with other known points such as township and range or UTM coordinates.

Mine Workings Maps

The permittee has submitted a mine-working map showing the SUFCO and the old Link Canyon Mines see Plate 5-2F. The permittee has shown the powerline corridor from the Link Canyon substation to the Link Canyon portals.

Findings:

The information provided in the application meets the minimum Maps, Plans and Cross-sections of Mining Operations requirements of the Regulations.

RECLAMATION PLAN

RECLAMATION PLAN

POSTMINING LAND USES

Regulatory Reference: 30 CFR 784.15, 784.200, 785.16, 817.133; R645-301-412, -301-413, -301-414, -302-270, -302-271, -302-272, -302-273, -302-274, -302-275.

Analysis:

No changes to the postmining land use are proposed, and the reclamation plan appears to be in compliance with the management plan of the Forest Service.

Findings:

Information provided in the amendment is considered adequate to meet the requirements of this section of the regulations.

APPROXIMATE ORIGINAL CONTOUR RESTORATION

Regulatory Reference: 30 CFR 784.15, 785.16, 817.102, 817.107, 817.133; R645-301-234, -301-412, -301-413, -301-512, -301-531, -301-533, -301-553, -301-536, -301-542, -301-731, -301-732, -301-733, -301-764.

Analysis:

The permittee will restore the Link Canyon Portal area to the approximate original contour. This is indicated on Plate 5-2F. The permittee has added the cost of removal of the power poles during reclamation.

Findings:

The information provided in the application meets the Approximate Original Contour Restoration requirement of the regulations.

BACKFILLING AND GRADING

Regulatory Reference: 30 CFR 785.15, 817.102, 817.107; R645-301-234, -301-537, -301-552, -301-553, -302-230, -302-231, -302-232, -302-233.

Analysis:

General

The Permittee has submitted backfilling and grading information for the reclamation of the Link Canyon Portal area. This information is on Plate 5-2F. The Permittee will cut 234.83 cubic yards and fill 278.20 cubic yards.

Findings:

The information provided in the application meets the minimum Backfilling and Grading requirement of the regulations.

MINE OPENINGS

Regulatory Reference: 30 CFR 817.13, 817.14, 817.15; R645-301-513, -301-529, -301-551, -301-631, -301-748, -301-765, -301-748.

Analysis:

The Permittee has given information on sealing the portal. The plan is to seal the mine opening at least 25 ft. inside the mine. The seal will be constructed of solid concrete blocks using mortar. Also, MSHA regulation requires a 4-inch hitch into solid ribs, floor, and roof. The Permittee has committed to 16-inch hitch into solid ribs, floor, and roof.

Findings:

The information provided in the application meets the minimum Mine Openings requirement of the regulations.

TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR 817.22; R645-301-240.

Analysis:

Redistribution

Topsoil will be transported with wheel mounted equipment, but spread with track-mounted equipment (Section 2.4.2.1). Topsoil will be redistributed over the area to an approximate thickness of six inches (Section 2.4.2.1 page 2-25).

RECLAMATION PLAN

The MRP indicates in Section 2.4.3 that stored topsoil will be tested for levels of nitrate nitrogen, phosphorus and potassium at the time of reclamation. Application rates should attempt to re-establish baseline conditions.

Findings:

The information provided in the application is adequate for the purposes of the Regulations.

ROAD SYSTEMS AND OTHER TRANSPORTATION FACILITIES

Regulatory Reference: 30 CFR 701.5, 784.24, 817.150, 817.151; R645-100-200, -301-513, -301-521, -301-527, -301-534, -301-537, -301-732.

Analysis:

Reclamation

The road will be reclaimed during reclamation.

Findings:

The information provided in the application meets the Road Systems and other Transportation Facilities requirement of the regulations.

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR 784.14, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-301-512, -301-513, -301-514, -301-515, -301-532, -301-533, -301-542, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-733, -301-742, -301-743, -301-750, -301-751, -301-760, -301-761.

Analysis:

Gravity Discharges

The applicant has identified plans for restoration of the water flows to the existing riparian area. The applicant plans to seal the area of water recharge into the mine. Some of the areas will be sealed during entry development, which will keep flows at the eastern portal. Water will be piped from the sealed area to keep flow in the western channel below the access portal. The applicant plans to seal the mine at reclamation to prevent drainage flowing down dip as water backs up in the mine it will flow from the portals. The applicant states that the mine may have to be filled with good quality water from another part of the Sufco Mine to initiate the spill over effect, since recharge occurs at such a slow rate. By implementing this method the riparian area will not be deprived of a water source for a long time period. The applicant states

that they will work with the Division of Water Quality to ensure no conflicts with UPDES standards.

The applicant states that water monitoring of the spring, mine portals and disturbed area, will continue through reclamation on a quarterly basis.

There are no expected impacts to water rights, since there will be no subsidence of springs or water that seeps into the Link Canyon Mine. The springs are located above an area that will not be second mined and are by barrier pillars. The recharge area for the springs has to come from the Castlegate Sandstone. Recharge to spring 102 is from a small area west and southwest of the spring. Recharge to springs 101, 102 and GW-21 is from the east and southeast, of the springs. Those areas have not been undermined, and will not be mined according to the submitted plans. The springs actually lie outside the area where Link Canyon Mining activities will take place. They are located in the approved Pines Tract Lease.

Findings:

The information provided in the application is considered adequate to meet the minimum Reclamation Hydrology requirements of the regulations

REVEGETATION

Regulatory Reference: 30 CFR 785.18, 817.111, 817.113, 817.114, 817.116; R645-301-244, -301-353, -301-354, -301-355, -301-356, -302-280, -302-281, -302-282, -302-283, -302-284.

Analysis:

The general pinyon-juniper seed mixture and plantings for the SUFCO mine and riparian area of the Link Canyon Mine portal are given in section 3.4.1.2. Oregon grape a dominant soil stabilizer in the area immediately surrounding the portal access road will be transplanted to the topsoil pile and then returned to the reclaimed area.

The riparian area will be planted with willow, red osier dogwood, woods rose and alder. Shrubs will be planted in late August through early October (page 3-46). The NRCS Plant Materials Centers at <http://plant-materials.nrcs.usda.gov/idpmc/> provide excellent instructions for restoring riparian or wetland areas. Plugs of sedges from the adjacent portal wet area could also be transplanted.

A pinyon-juniper and riparian reference area was established for the Link Canyon Portals and are shown on Vegetation Map, Link Canyon Portal Area in Appendix 2-9, Vegetation of the Link Canyon Portal Surface Facilities Area. At the time of bond release the vegetation of the disturbed area will be compare to the corresponding reference area.

RECLAMATION PLAN

Link Canyon is used to trail cattle to the top of the plateau, and it is anticipated they would graze on vegetation in the reclaimed area. This could reduce vegetation establishment and success, so the Permittee has committed to placing a fence around the reclaimed area.

Findings:

The information provided meets the minimum Revegetation requirements of the regulations.

STABILIZATION OF SURFACE AREAS

Regulatory Reference: 30 CFR 817.95; R645-301-244.

Analysis:

The final surface will be pitted (Section 2.4.2.1). All areas will be mulched (Section 2.4.4.1).

Placement of large rocks and boulders and slash is described on page 2-28.

In accordance with R645-301-244.300, rills and gullies that contribute to a violation of water quality or that disrupt the post-mining land use will be filled, regraded or stabilized (Section 2.4.4.3).

Findings:

The information in the meets the requirements of the Regulations with regard to stabilization of the soil surface and control of erosion and air pollution attendant to erosion.

BONDING AND INSURANCE REQUIREMENTS

Regulatory Reference: 30 CFR 800; R645-301-800, et seq.

Analysis:

The Division reviewed the bond calculations submitted for the Link Canyon portal and incorporated the information into the reclamation cost estimate. The Link Canyon project is small and only requires \$12,185 in direct cost for reclamation in 2002 dollars.

The total amount of the bond is for \$4,439,000 in 2001 dollars. The Division has made other recalculations of the reclamation costs and determined the amount to be \$2,864,000 in 2006 dollars. Because the current bond amount is in excess of the reclamation cost estimate, no additional bond is needed. See summary of reclamation costs for details.

Findings:

The Permittee has met the minimum regulatory requirements for the bonding and insurance requirements section of the regulations.

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