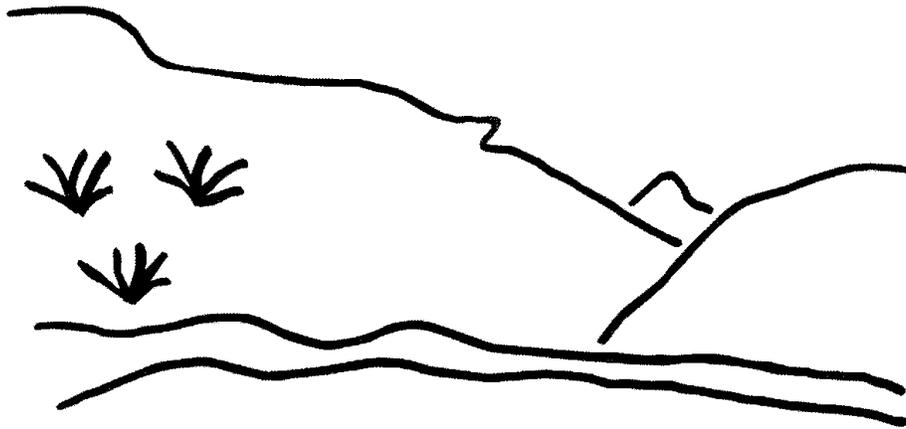


State of Utah



Utah Oil Gas and Mining

Coal Regulatory Program

Consolidation Coal Company
Emery Deep Mine
C/015/0015

348-Acres Permit Modification ~~Technical Analysis~~
May 27, 2005 ~~April 22, 2005~~

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TECHNICAL ANALYSIS DESCRIPTION

TECHNICAL ANALYSIS DESCRIPTION

The Division ensures that coal mining and reclamation operations in the State of Utah are consistent with the Coal Mining Reclamation Act of 1979 (Utah Code Annotated 40-10) and the Surface Mining Control and Reclamation Act of 1977 (Public Law 95-87). The Utah R645 Coal Mining Rules are the procedures to implement the Act. The Division reviews each permit or application for permit change, renewal, transfer, assignment, or sale of permit right for conformance to the R645-Coal Mining Rules. The Applicant/Permittee must comply with all the minimum regulatory requirements as established by the R645 Coal Mining Rules.

The regulatory requirements for obtaining a Utah Coal Mining Permit are included in the section headings of the Technical Analysis (TA) for reference. A complete and current copy of the coal rules can be found at <http://ogm.utah.gov>

The Division writes a TA as part of the review process. The TA is organized into section headings following the organization of the R645-Coal Mining Rules. The Division analyzes each section and writes findings to indicate whether or not the application is in compliance with the requirements of that section of the R645-Coal Mining Rules.

TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

GENERAL CONTENTS

The Division received an application for an incidental boundary change from Consolidation Coal Company's (Consol), which will add 348 acres to the existing permit area. Addition of the area known as the 1st North addendum will allow Consol to develop additional coal reserves in the area without the need for new surface disturbance. The area is within the current cumulative impact area (CIA).

IDENTIFICATION OF INTERESTS

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

Analysis:

The permittee has submitted an updated copy of officers and directors of Consolidation Coal Company. This information can be seen in appendix I-1.

The permittee has submitted in appendix I-3 a list of SMCRA permits which Consolidation Coal has throughout the United States.

Findings:

The permittee has met the minimum requirements of this section.

MAPS AND PLANS

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

Analysis:

Included in Appendix XII-2 are vegetation and wildlife maps for the proposed permit area expansion. The maps also include a portion of the current permit boundary and the location of the 4th East portal. These maps are adequate for the proposed IBC. However the Mining and Reclamation plan needs to include vegetation and wildlife maps that accurately depict the vegetation and wildlife communities, the permit boundary and the disturbed area boundaries for the Emery Deep and 4th East mining operations.

Findings

The information provided is adequate to meet the requirements of this section of the regulations. The information required to update the MRP prior to extraction or second mining must be submitted to the Division by no later than sixty days after the approval of this incidental boundary change.

VIOLATION INFORMATION

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

Analysis:

The Division does not require permittees to submit this information for amendments.

Findings:

The permittee has met the minimum requirements of this section.

RIGHT OF ENTRY

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

Analysis:

The Consolidation Coal Company owns the surface property to the 4th East Portals. The Ownership and Leasehold Interest Map (Plate I-1) comparing this information with Plate III-1 of the amendment verifies surface ownership.

The underground coal rights at the 4th East Portal breakout on Plate IV-1 in the MRP shows no Federal Coal Lease. Consolidation Coal Company owns the coal rights as shown on Plate I-1 in the MRP.

The 348-acre permit modification is located in Township 22 South, Range 6 East. Consol is the ownership of all coal to be mined under this IBC. The surface is owned by Consol

GENERAL CONTENTS

except for 19 acres. Kenneth L and Earlene Christiansen own the non-Consol surface land. Consol knows of no pending litigation concerning their right to mine coal within the IBC area. The permittee has submitted deed information giving Consol the coal rights. The information presented will comply with statement (2) or R645-301-114.230.

Findings:

The permittee has met the minimum requirements of this section.

LEGAL DESCRIPTION AND STATUS OF UNSUITABILITY CLAIMS

Regulatory Reference: 30 CFR 778.16; 30 CFR 779.12(a); 30 CFR 779.24(a)(b)(c); R645-300-121.120; R645-301-112.800; R645-300-141; R645-301-115.

Analysis:

The location of the 4th East Portal will not change from the original approved amendment. Comparing Plate III-5 in the Mining and Reclamation Plan and Plate III-1 in this submittal verifies the same location. Therefore, there will be no change in permit and disturbed area.

The disturbed area is located beginning at a point which is 5.0 feet West of the Center of Section 27, Township 22 South, Range 6 East, SML; thence North, 850.0 feet; thence West, 820.0 feet; thence South, 1195.0 feet; thence East, 820.0 feet; thence North, 345.0 to the point of beginning. The permit area is 5,408~~180~~ acres for Emery Deep Mine, of this only 247 acres are disturbed. This is reflected in the MRP.

[Legal Descriptions of Emery Deep Mine is in Chapter 1 of the Mining and Reclamation Plan.](#)

Findings:

The permittee has met the minimum requirements of this section.

PUBLIC NOTICE AND COMMENT

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

Analysis:

The Division does not require permittees to give public notice for amendments.

Findings:

The permittee has met the minimum requirements of this section.

FILING FEE

Regulatory Reference: 30 CFR 777.17; R645-301-118.

Analysis:

Filing fees are not required for amendments.

Findings:

The permittee has met the minimum requirements of this section.

PERMIT APPLICATION FORMAT AND CONTENTS

Regulatory Reference: 30 CFR 777.11; R645-301-120.

Analysis:

The application indicates on page 15, Chapter III that there will be one proposed portal at the Emery Mine. This is a reference to the 4th East portal that is actually three entries. Page III-15 describes reclamation of the three portal entries at the 4th East Portal.

The disturbance at the 4th E. Portal on page IV-16 and in Table III-2 is correctly referred to in this revision of the submittal.

Findings:

The information provided meets the minimum requirements for Permit Application Format and Contents.

GENERAL CONTENTS

REPORTING OF TECHNICAL DATA

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

Analysis:

The qualifications and ARCPACS certification of the consulting soil scientist are disclosed in Appendix VII-3.

Findings:

The information provided meets the minimum requirements for Reporting of Technical Data.

ENVIRONMENTAL RESOURCES 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 environmental resource information mainly deals with baseline information that the Division needs to make finds about suitability of the land for mining and also for reclamability. How the Permittee meet the specific requirements will be addressed in the individual sections of the TA.

The Permittee states that coal will be extracted from the I-J coal zones in the Ferron Sandstone using room and pillar mining methods. The overlying strata is relatively shallow ranging from 80 to 400 feet. There will be no pillar extraction planned for this amendment as proposed, and thus no planned subsidence. This review evaluates the hydrology sections of incidental boundary change (IBC) application. There will be no planned subsidence.

Findings:

Information submitted by the Permittee meets the minimum requirements of the General regulation of the Environmental Resource Information section. ~~The Permittee met the minimum regulatory requirements for the general section of the environmental resource information section of the regulations.~~

PERMIT AREA

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

Analysis:

No additions or subtractions to the permit area will be made as part of the construction of the 4th East Portal facility. Plate VI-12 shows the location of the disturbed area and permit boundaries for the 4th East Portal facility. Plate I-1 shows the entire permit boundary. [The permit area is 5,408 acres.](#)

Findings:

The Permittee has met the minimum regulatory requirements for the permit area section of the TA.

CLIMATOLOGICAL RESOURCE INFORMATION

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

Analysis:

Climatological information is provided in Chapter X Part B of the MRP. Precipitation records have been kept at the Emery weather station since 1901. The MRP summarizes the data from 1901 to 1978 as follows:

- 7.55 inches of precipitation annually
- 2.97 inches during “winter,” October through March
- 4.58 inches during “summer,” April through September.
- 75% of the precipitation enters the soil
- 66% of the soil moisture is lost due to evapotranspiration.

The wettest months of the year are August and September.

The town of Emery (elevation 6,220 ft) stopped collecting weather data in 1978. The weather station was moved (between 1978 – 86) northwest to an elevation of 7,600 ft (personal communication between Mr. Tim Kirschbaum and Ms. Priscilla Burton on November 25, 2002). There it recorded a mean annual rainfall of 15.6. Another nearby weather collection station at Salina (elevation 7,560) has collected data from 1986 to the present, mean annual rainfall of 14 inches. The town of Ferron also has collected weather data for the period 7/1/48 to 12/31/01. The average annual precipitation during this time was 8.47 inches with the highest precipitation seen during the months of July through October. The average annual snowfall was 27 inches with an average snow depth of one inch. These statistics from the Western Regional Climatological Center (www.wrcc.dri.edu/cgi) suggest that the best time for seeding at this semi-desert site is in July through October, depending upon the seasonality of the species to be seeded.

The Permittee plans to install a weather station at the main Emery Mine facilities by January 2003 (Chap.X, page 5). This weather station will collect rainfall, snowfall and record wind speed and direction as well as barometric pressure and temperature.

ENVIRONMENTAL RESOURCES INFORMATION

Climatological resource information is addressed in the MRP. The average annual precipitation at the site is about 8 inches per year. The Permittee has calculated the 10 yr-24 hr precipitation event to be 1.7 inches.

Findings:

The information provided meets the minimum requirements for climatological reporting information requirements of the regulations.

VEGETATION RESOURCE INFORMATION

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

Analysis:

Vegetation information is described on page two and included in Appendix XII-2 of the application. Species include shadscale, greasewood and saltgrass. According to the information in Appendix XII-2 there are no threatened or endangered plant species located in the proposed permit boundary expansion. The appendix does include a list of T & E plant species for Emery County and species that may be located in the vicinity of the proposed permit boundary expansion.

Findings

The information provided is adequate to meet the requirements of this section of the regulations.

FISH AND WILDLIFE RESOURCE INFORMATION

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

Analysis:

The 4th East Portal area drains into an ephemeral wash and then into Christiansen Wash. Macroinvertebrate and fish inventories were done in late September 2002 in Quitchupah Creek, Christiansen Wash and then immediately below the confluence of Quitchupah Creek with Christiansen Wash. JBR Environmental Consultants conducted the study. At station QC-2 (Quitchupah above the confluence) no fish were collected and only a single sludge worm was found during macroinvertebrate sampling. JBR suggested that this could be a result of varying

flows (controlled by the mine) and agricultural run-off but most likely were due to the low gradient stream and alluvium substrate geomorphic conditions. QC-1 (below the confluence) was the most diverse site sampled for fish and macroinvertebrates; 23 fish were collected in a 0.1-mile stretch. Leathersided chub, a Utah listed sensitive species, was found at this site (Appendix IX-2). The macroinvertebrate surveys will be conducted again in September 2003 and then every third year after that (Chapter IV Page 7a). These studies were sent to Louis Berg and Leroy Mead, DWR, on December 3, 2002 for their review and recommendations. Results of baseline studies done in the early 1980's should be compared to current survey results, providing that the two data sets contain comparable parameters.

Louis Berg, DWR, stated that Ivie Creek contains flannelmouth suckers, bluehead suckers, leatherside chubs, speckled dace, and fathead minnows. The first three of these species are on Utah's sensitive species list. Quitchupah Creek is a tributary to Ivie Creek.

The application includes the current list of T & E wildlife species for Emery County. These species are not common to the proposed permit area expansion due to the lack of habitat required to sustain them.

Findings:

Information provided in the application meets the minimum Fish and Wildlife Resource 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:

James P. Walsh & Associates, Inc. of Boulder Colorado conducted a soil survey of the 22.5-acre proposed 4th East Portal site in March 1981 by (MRP Section VII.A.1). The soils map is Plate VII-1. Soils mapped by the survey were the Castle Valley extremely stony very fine sandy loam, Persayo-Chipeta Complex, Killpack silty clay loam, Ferron silt loam and Rock Land.

~~The submittal refers to Appendix VII-3, received May 17, 2002 in response to Division Order dated May 4, 2002. Appendix VII-3 is~~ contains a May 2002 report prepared by Mt. Nebo Scientific, Inc, entitled, "Soil Resources Report at the 4th East Portal Area." This report summarizes the information in the plan for the 4th East portal and suggests that the rock land and

ENVIRONMENTAL RESOURCES INFORMATION

Persayo-Chipeta complex dominate acreage proposed for disturbance. The report states that within the 22 acre disturbed area, 15 acres are proposed for disturbance, and approximately 13,000 cubic yards of topsoil could be salvaged.

~~The report was followed by a site visit~~A subsequent field report on May 31, 2002 by a Jim Nyenhuis (ARCPACS certification #2753), a certified soil scientist. ~~Mr. Nyenhuis contacted the Division following the site visit with the following information,~~ describes 38 backhoe pits ~~were~~ dug on the proposed 15 acres of disturbance. As a result, the area mapped as rock outcrop (RY) was reduced and the area covered by Castle Valley soils was enlarged and two inclusions were outlined: Montwel and Begay soils. Castle Valley series has been renamed Hideout by the Natural Resources Conservation Service (NRCS). Contrary to the suggestion in the 1981 soil survey, there was no evidence of excessive sodium. ~~Mr. Nyenhuis made the recommendation that all soil could be salvaged down to the sandstone in sequence from the northwest to the southeast of the proposed disturbed area.~~

~~The following soil series were mapped by Mr. Nyenhuis:~~

~~Hideout Soil Series = Loamy, mixed, superactive, calcareous, mesic Lithic Ustic Torriorthents;
Montwel Soil Series = Fine loamy, mixed, superactive, calcareous, mesic Typic Torriorthents;
Begay Soil Series = Coarse loamy, mixed, superactive, mesic Ustic Haplocambids;
Persayo Soil Series = Loamy, mixed, calcareous, mesic, shallow Typic Torriorthents;
Chipeta Soil Series = Clayey, mixed, active, calcareous, mesic, shallow Typic Torriorthents.~~

———A summary of Mr. Nyenhuis' May 31, 2002 site visit, field notes, discussion, conclusions and revised soils map have been included in Appendix III of Appendix VII-3 of the submittal.

In May 2005, Order III soils information was provided for the 348 acre IBC area. The MRP does not indicate any surface disturbance in the IBC area and no further soils information was submitted beyond the initial reconnaissance information. Lands to be undermined in T. 22 S., R. 6 E., SLBM Sec 22 SE1/4NW1/4 are prime farmland, irrigated Penoyer Loam soils. The NRCS letter of determination (expected imminently) will be placed in Appendix XII-2. No further survey information has been provided, because there will be no surface disturbance to these soils. [05/27/2005]

HISTORIC AND ARCHEOLOGICAL RESOURCE INFORMATION

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

Analysis:

The application includes an order one Archeological survey for the permit area expansion prepared by Montgomery Archaeological Consultants. Order one surveys are typically conducted for permit boundary expansions that do not include surface disturbances. Their review resulted

in the identification of four cultural resource inventories and eleven previously documented sites most of which be eligible under the (NRHP). None of the sites were located within Consol's permit boundary expansion area. According to the conclusion in the survey "it is predicted that similar site densities and site types would be found in the proposed IBC". Since the application is for development or first mining only and there is no surface disturbance the order one survey is adequate to meet the requirements of this section of the regulations. However prior to extraction or second mining an order three or on the ground archaeological survey must be completed for the IBC and submitted to the Division.

Findings

The information provided is adequate to meet the requirements of this section of the regulations. Prior to extraction or second mining an order three or on the ground archaeological survey must be completed for the IBC and submitted to the Division. Concurrence from the State Historic Preservation Office is also required. The information required to update the MRP prior to extraction or second mining must be submitted to the Division by no later than sixty days after the approval of this incidental boundary change.

Findings:

The information provided meets the minimum requirements for ~~soils resource information section~~ environmental ~~soil~~ resource requirements of the ~~regulations~~ Regulations.

ALLUVIAL VALLEY FLOORS

Regulatory Reference: 30 CFR 785.19; 30 CFR 822; R645-302-320.

Analysis:

Alluvial Valley Floor Determination

Alluvial Valley Floor information is discussed in Chapter XI of the MRP and illustrated on Plate 2 Alluvial Deposits and Soils Map of Appendix XI-1 and on Plate XI Potential Alluvial Valley Floor Along Upper Quitcupah Creek.

The following quote comes from the February 25, 1985 TA for the Emery Deep Mine:

ENVIRONMENTAL RESOURCES INFORMATION

In determining the potential for Alluvial Valley floors (AVF's) on and adjacent to Consolidation Coal Company's Emery Deep Mine, the regulatory authority evaluated areas along Quitchupah Creek and Christiansen Wash in sections 19 – 22, 28 – 30, 32 and 33 of T22S, R6E Salt Lake Meridian.

Section 510(b)(5) of the Surface Mining Control and Reclamation Act (SMCRA) provides specific protection for AVF's. A proviso in Section 510(b)(5) of SMCRA exempts from the requirements of Section 510(b)(5) those surface coal mining operations which in a year preceeding the enactment of the Act (August 3, 1977) produced coal in commercial quantities and were located within or adjacent to AVF's or had specific permit approval from the State regulatory authority to conduct surface coal mining operations on AVF's.

Consol meets the requirements provided in this proviso for land sections 28, 29, 32, and 33 since a state permit was in affect and they were mining commercial quantities of coal prior to August 3, 1976.

Consol will be required to provide mitigating measures to areas within the exempted area where subsidence from mining operation occurs.....

The regulatory authority determined that AVF's do not exist along Christiansen Wash. Information provided by the applicant points out that the flow in Christiansen Wash is produced mainly by flood irrigation return from fields that are initially supplied by Muddy Creek, a stream in an adjacent drainage basin.....

The regulatory authority has determined that AVF's exist in sections 19 and 30 of the 5 year permit area which must be protected according to the established regulations governing AVF's. The applicant has committed to protecting that area known as Jack Lewis field shown as area III in Figure 1 (March 2, 1984 submittal) and has supplied the necessary information for its protection as an AVF. The regulatory authority has determined that the hatched area outlined in the accompanying map must be protected as AVF. Historically irrigation water has been diverted from Quitchupah Creek and there exists the potential that area II as well as other areas outlined in the accompanying map could be flood irrigated and subirrigated with waters from Quitchupah Creek. Since no mining will occur in Area II, no adverse impacts should effect the delineated alluvial valley floor.

Area III and area II referred to in the above quotation, are outlined on Plate XI-1 of the MRP. Area I is actively flood irrigated and lies in the "grandfathered" zone, above existing workings in Section 29. Area II falls in Section 30. Area III is active flood irrigated Quitchupah Creek water in sections 19 and 30.

The 4th East Portals lie in the NE1/4 of Section 27, T. 22 S. R. 6 E. Salt Lake Meridian, on land that drains to Christiansen Wash.

An ephemeral channel with a drainage area of 310.4 acres drains across the site. Most of the channel is cut in bedrock and alluvial soils are very thin. There is no subirrigation in the stream channel that crosses the portal site. The site is very dry. There are no alluvial valley floors on the proposed portal site.

Findings:

The Division determined in 1985 that an AVF exists in Sections 19 and 30 T. 22 S. R. 6 E. Salt Lake Meridian. There is not an AVF in the NE1/4 of Section 27, T. 22 S. R. 6 E. Salt Lake Meridian, where the 4th East Portals will be developed. Therefore, the minimum requirements of determining if AVF exist has been met.

PRIME FARMLAND

Regulatory Reference: 30 CFR 785.16, 823; R645-301-221, -302-270.

Analysis:

Plate 7-8 included with the 1988 Annual Report indicates areas of flood irrigated and specially managed agricultural land in Sections 8 - 11, 13 - 17, 19 - 23, and 28 - 32 of T. 22 S. R. 6 E. Salt Lake Meridian. Diversion structures shown on this map are on the western boundary of the permit area. Plate XI-1 indicates three areas of active flood irrigation within the southwest portion of the permit area. Plate VIII-1 confirms the prevalence of pastureland and hayland within the permit area.

The 1985 TA for the Emery Mine states:

The areas of prime farmland within the Detailed Mapping Area are shown on Plate 8-3.... The potential exists that prime farmland may be impacted by subsidence in the future (see subsidence section in this TA). Prime farmland that may be impacted is located in T. 22 S., R. 6 E.; Secs 20, 22, 29, 30 and 31. These areas were identified by matching areas of prime farmland to areas of present or future underground mining.

Plate IV-1 shows the mine progression underneath the irrigated pasture lands. The Permittee commits to notifying landowners six months prior to mining beneath their property (Chap V page 39). The notification will include information on measures to prevent, minimize or control subsidence. Mitigation is discussed in Chapter V page 41.

Appendix VII-3 (~~submitted May 17, 2002 in response to Division Order 02A~~), indicates that there are no prime farmlands or important farmlands at the site of the 4th East Portal Area development, Section 27, T. 22 S. R. 6 E. Salt Lake Meridian. **However, lands**

ENVIRONMENTAL RESOURCES INFORMATION

within the adjacent 1st North Main IBC area are shown as Prime Farmland in Important Farmlands of Parts of Carbon, Emery, Grand, and Sevier Counties. 1981. Utah Ag Exp Sta Res Rpt No. 76. The prime farmland status of nineteen acres of private ground owned by Kenneth L. and Earlene Christiansen was confirmed through maps of agricultural land acquired from the United States Farm Service Agency and through discussions with the Natural Resources Conservation Service. NRCS reconnaissance of the prime farmland confirmed that the acreage is a grass pasture and is currently being irrigated. [05/27/2005]

Surface disturbance is not planned or expected when using a continuous miner for room and pillar operation (Sections XII.A, XII.C.6.1, XII.D.1, and XII.D.4). A pre-subsidence survey will be made of the prime farmland area prior to developing any panels in the IBC (Section XII.C.2). In addition, Consol will locate a subsidence monitoring point within the designated prime farmland in the IBC in consultation with the landowner (Section X.C.2). This point will be designated on Plate XII-1 of the MRP. [05/27/2005]

Findings:

The Division finds that there are prime farmlands within the permit area, specifically flood irrigated and specially managed agricultural land in Sections 8 - 11, 13 - 17, 19 - 23, and 28 - 32 of T. 22 S. R. 6 E. Salt Lake Meridian, but not within the area of 4th East Portal development, NE1/4 of Section 27, T. 22 S. R. 6 E. Salt Lake Meridian. The Division finds that nineteen acres of private ground, owned by Kenneth L. and Earlene Christiansen in T. 22 S., R. 6 E., SLBM, Sec 22 SE1/4NW1/4, are prime farmland and are within the First North Main, 348 acre Incidental Boundary Change to the permit area. No surface disturbance to these lands is proposed.

GEOLOGIC RESOURCE INFORMATION

Regulatory Reference: 30 CFR 784.22; R645-301-623, -301-724.

Analysis:

Geology is described in Chapter 5 of the MRP. Plate VI-2 shows the geology of the general mine area. The 4th East Portal area is developed in the Ferron Sandstone Member of the Mancos Shale. The surface is between 50 to 70 feet above the coal bed.

There are several drill holes in the area of the proposed amendment, Plate V-6. Plate V-19 shows the coal thickness for the J seam to be approximately 5 to 7 feet thick. Where as Plate V-13A shows the J Seam to be about 3 ft thick at Drill Hole FC-159 (in the 1st North area. Plate

V-13A does not show an I Seam. Plate does show a J Seam (3ft), UI Seam (5ft) and a L10 Seam (11.9ft). The seams appear close together giving rise to the question, which seams will be mined? What percent of the coal will be mined, and how much coal will be left in place? On May 18, Mr. John Gefferth, Environmental Coordinator for Consolidation Coal Company, came into the office to update the IBC. He addressed the question about the coal seams to be mined. Only the I and J coal seams will be mined for this IBC. The L coal seam will not be mined because it is of pore quality, the quality is not within the standards the company requires sales. The Permittee will conduct first mining only, leaving pillars in place so no immediate subsidence takes place. Mr. Gefferth mentioned there would be new plans forthcoming that updated the mineplan including the IBC.

Findings:

The Permittee has submitted sufficient information to address the Coal Resource Information section of the Regulations. See stipulation under Hydrologic Resource Section. ~~The Permittee has submitted the minimum requirements for the Geologic section.~~

HYDROLOGIC RESOURCE INFORMATION

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

Analysis:

Sampling and Analysis

Consol has conducted sampling over the Emery Deep minesite, at planned sampling stations for the past 20 years. The drainage on and adjacent to the 4th East Portal site is identified as ephemeral. The drainage is a tributary to Christiansen Wash. No samples sites are located on the drainage. Any discharges from the disturbed area will be monitored according to UPDES requirements. Retention basins are planned for the topsoil stockpile and the excavated material Stockpile. The basins are designed for total containment of the 100 yr-24 hr precipitation event.

Baseline Information

Baseline information is presented in the MRP. No hydrologic baseline information has been collected on drainage area the 4th East Portal area, because the site is ephemeral and no surface or ground-waters are identified for the portal site. The 100 yr- 6 hr precipitation event was calculated for the ephemeral channel crossing the portal site and the 10 yr-24 hr storms were calculated for hydrologic structure designs on site.

Plate V-3 shows the natural drainage and irrigation ditches, but the boundaries do not extend to the proposed 1st North mining area. Surface drainage for the proposed site should flows southwest, however there are no maps showing the flow pattern or no information describing the flow pattern, type of flow or water resources.

Baseline information was collected over 25 years from springs and wells that show ground water levels in the mine. The information was used to establish a model of the groundwater impacts. Updated information was submitted with the 4th East mine portal proposal. The PHC was updated to include changes of groundwater flow, effects and changes during periods when the mine was not operating.

Modeling

The Permittee has supplied an early model showing the draw down of the groundwater as coal is mined and the mine water is pumped from the mine to Quitchupah Creek. ~~No modeling has been conducted for the 4th East Portal site.~~

Groundwater Monitoring Plan

The Permittee is currently conducting a groundwater monitoring plan, which includes measuring and sampling springs, wells and mine water discharges (UPDES point source discharge) on and adjacent to the permit area. The information is input into the DOGM Coal Mining database.

They are two identifiable groundwater or recharge sources on the 4th East permit area. Monitoring Well SM1-2 monitors quality and water level in the Blue Gate Shale. The site is just southeast of the permit area. No groundwater will be discharged from the 4th East Portal site.

Surface-Water Monitoring Plan

The Permittee is currently conducting a surface water monitoring plan, which includes measuring and sampling streams and ponds (UPDES) on and adjacent to the permit area. The information is input into the DOGM Coal Mining database.

There are no perennial or intermittent surface water sources on the 4th East Portal site. Runoff calculations have been completed to establish design flows over the site and for the undisturbed drainage area. Hydrologic structures have been designed to divert, control and contain all runoff from design storms.

The sedimentation Pond is designed to contain the runoff from the disturbed areas. The applicant has calculated the runoff and sedimentation production from the 10 yr.-24 hr. design

storm. Prior to any discharges from Sedimentation Pond #9, the discharged material has to meet the water quality of the UPDES permit, UT0022616.

Several hydrologic structures will reduce the disturbed area of the 4th East Portal by capturing flows that would have gone to the sedimentation pond. The box-cut ramp and ROM, and catch basins on the rock storage and topsoil stockpiles will capture and retain runoff. The bermed undisturbed area will also keep runoff from entering the pond. This results in a smaller pond for the site.

Alternative Water Source Information

With the development of the ramp and ROM stockpile precipitation that will be intercepted and diverted into the mine. An average (based on average annual precipitation) of 1.33 ac-ft per year will be diverted into the mine. The Permittee has contacted Mark Page of the Division of Water Rights to determine if a water right has to be filed on the water diverted into the mine. Mark Page stated in a telephone conversation that obtaining a water right for this small area was not required. Consul requested a statement in writing from the Division of Water Rights on October 21, 2002. They responded with a letter on October 30, 2002 indicating that a water right for surface water interception would not be required, because any water discharged into the mine would be a small amount and that water would be treated and discharged again.

No water rights are held at any sites on the 4th East permit area. This has been verified by evaluating Point of Diversion Plots created Wednesday, December 4, 2002 using "on-line" Internet services provided by the Utah Division of Water Rights, plot of Township 22S, Range 6 East, Salt Lake Baseline and Meridian.

Probable Hydrologic Consequences Determination

Determination of probable hydrologic consequences for the mine is described under VI.A.7.1 of the MRP. Development of the 4th East Portal does not require changes to the PHC, because no surface or ground waters resources will be impacted by operating those facilities.

There is no specific mention of the consequences the 4th East Portal could present. The Permittee describes several methods to be used to mitigate hydrologic impacts. The permittee plans to construct an undisturbed drainage channel around the site. In addition, the Permittee will construct berms, diversions, catch basins and a sedimentation pond and use silt fences and culverts to control runoff and sediment on the disturbed area.

Findings:

~~The information provided in the application is adequate to meet the minimum Hydrologic Resource Information section requirements of the regulations.~~ The Permittee has supplied sufficient information to describe the amount of coal that will be mined from the seams J, UI and

ENVIRONMENTAL RESOURCES INFORMATION

L10 Plate V-20 (personal communication with John Gefferth on May 20, 2005), the L coal seam will not be mined because the quality of coal cannot be used by their customers. The total thickness of coal is shown to be range from 20 feet to 8 feet. More information is needed if second or full extraction mining takes place in the future

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

The Division usually considers the affected area to be the same as the permit area. There are several maps the show the location of the permit area. ~~for the 4th East Portal project.~~

The affected area boundary ~~area is shown for the 4th East Portal is shown~~ on several plates, including Plate III-1, IV-10a and VI-12.

Coal resource and Geologic Information Maps

Plates V-19, V-20 and V-21 show the geology and structure of the area and coal isopach for the J, IU and L11 seams. Coal resource and geological maps are submitted in Chapter 6 of the MRP for the old permit area. Some of the coal resource maps cover the proposed IBC, such as Plate V-19, V-20 and V-21. There are coal resources or geological units provided in Plate VI-2 for the IBC.

The plans for the 4th East Portal describe the facilities area to gain access to the coal, seam. ~~The coal seam is 50 to 7070 feet below the facilities. The plans show a ramp to gain access to the coal seam. No coal resource maps are supplies since the plans are for a facilities site.~~

Existing Structures and Facilities Maps

The only existing structure that is shown on the maps in the 4th East Portal area is the County road, Cowboy Mine Road No. 915. In the text the Permittee states that there are not structures in the 4th East Portal area with the exception of the a subsidence monitoring monument.

Existing Surface Configuration Maps

The pre-existing topography is located on Plate III-5, 4th East Portal Site Pre & Postmining Topography Plan View. The pre-existing topography is shown overlapping the proposed postmining topography. The maps is at a scale of 1" = 100' and was certified by and registered professional engineer.

The current structural geological maps are provided in Chapter 6 of the MRP. Plates V-19, V-20 and V-21 show the geology and structure of the area and coal isopach for the J, IU and L11 seams.

Mine Workings Maps

Plate XII-1 shows the proposed mine plan and timing sequence of mining.

Permit Area Boundary Maps

The permit boundary will not change with the construction of the 4th East Portal area. Plate VI-12 shows the location of the 4th East Portal disturbed area boundary and the permit boundary. Several maps in Chapters 6 and 7 show the existing surface configuration of the IBC, however the IBC is not outlined the any of the maps. The new permit are is 5,408 acres.

Surface and Subsurface Ownership Maps

Surface and Subsurface ownership is shown on Plate I-1 in the MRP.

Cultural Resource Maps

An updated cultural resource map that identifies the proposed permit area expansion is included in the application as appendix XII-3 figure one.

ENVIRONMENTAL RESOURCES INFORMATION

Area Boundary Maps

Permit boundary, which includes the IBC, is shown on Plate XII-1. All geology and hydrology maps should be updated to show the IBC in relationship to those features.

Subsurface Water Resource Maps

The Permittee has updated the potentiometric surface map for the IBC area within the Upper Ferron aquifer. The last map submitted identified the potentiometric surface in 1979.

Surface and Subsurface Manmade Features Maps

There are no known manmade hydrologic features other than what has been mentioned under the Monitoring and Sampling locations map.

Surface Water Resource Maps

Plate VI-3 shows the monitoring and sampling locations for surface monitoring sites.

Well Maps

Plate VI-3 shows the monitoring and sampling locations for groundwater monitoring sites including wells.

Findings:

The information provided in the proposed amendment meets the minimum requirements for the maps, plans and cross-sections of resources information section.

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MINING OPERATIONS AND FACILITIES

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

Analysis:

The mining operations at the Emery Mine will be room-and-pillar mining methods. Plate IV-1 shows the layout, existing workings and proposed workings. The Permittee proposes to access the coal resources through the 4th East Portals.

The portal excavation is designed to access three 8 foot by 14 foot entries located at the southeast end of the 4 East mining section. The purpose of these entries is to provide intake air and access the north and east sections of the mine. The excavation is designed around a 0.5H: 1V slide slopes with a 5-foot safety berm, at approximately the halfway point, and a 60-foot bottom width. The ramp will have a grade of 10% to reach the entry level of the portals.

Before rock excavation, all topsoil will be removed and stockpiled for use in final reclamation. The topsoil stockpile will have a berm place around it. Seeding will stabilize the surface of the topsoil stockpile. The topsoil pile will be surveyed to determine the yardage and the average topsoil replacement depth. The Permittee does not anticipate a topsoil deficiency. However, if one exists following the survey of the stockpile, the Division will be notified and a plan will be developed.

Portal excavation will remove approximately 99,000 bank cubic yards of rock. The surrounding stockpile is designed to contain 128,000 loose cubic yards, at an approximate height of 20 feet. The excavation work will be performed by a licensed contractor who will be required by contract to comply with all applicable state and federal laws in the use of explosives. Coal removed from the bottom area will be hauled to the existing tipple area. An area at the top of the ramp will be graded to accommodate vehicle parking, storage of supplies, water tank and a rock dust storage bin. Entry to the mine will be restricted by a chain link fence and locked gates.

An airshaft is proposed to be located in the southwest portion of the 4th East Portal area. The 16-foot outside diameter shaft will be equipped with an exhaust fan. The airshaft is required to supply ventilation to the north and east sides of the mine. The shaft will be 70 feet deep. Construction of the airshaft will result in approximately 520 cubic yards of material that will need to be stored in the material stockpile.

The cut material from the portal ramp and airshaft will be placed in the excavation material stockpile. The material will be used to backfill the ramp and shaft during reclamation.

The proposed facilities and structures that will be associated with the 4th East Portal area include:

- A three-entry portal system that will be located at the bottom of an open cut located at the eastern edge of the permit area, along with a ramp. The portals will be used to allow access of rubber-tired vehicles and to serve as a coal haulage portal.
- Topsoil stockpile
- Excavation Material Stockpile
- Sediment Pond #9
- Coal Handling Facilities and Stockpiles
- Stream Diversion – Unaffected Drainage
- Storage Area
- Airshaft
- Rock Dust Bin
- County Road – Cowboy Mine Road No. 915.

Findings:

The information provided in the amendment is considered adequate to meet the requirements of the mining operations and facilities sections of the regulations.

EXISTING STRUCTURES:

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

Analysis:

An existing structure means a structure or facility used in connection with or to facilitate coal mining and reclamation operations for which construction began before January 21, 1981. There are no existing structures in the area with the exception of a subsidence monument that the Permittee will remove before construction. The Permittee committed to replace the subsidence monument after construction is completed.

Findings:

The information provided in the amendment is considered adequate to meet the requirements for existing structures requirements of the regulations.

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RELOCATION OR USE OF PUBLIC ROADS

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

Analysis:

The Permittee will be constructing fences and berms and installing culverts within 100 feet of the right-of-way line County road No. 915. The Permittee committed to use flagmen and place warning signs on the County road during construction activities that are within 100 feet of the County road. This method has been used by other permittees and shown to be effective

Findings:

The Permittee has met the minimum requirements for the relocation or use of public roads section of the regulations.

AIR POLLUTION CONTROL PLAN

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

Analysis:

The facility will include a 2,600 ton surge stockpile, a screening/crusher building, and a 10,000 ton processed coal stockpile along with associated conveyors. The facility will handle a capacity of approximately 2,000,000 tons of coal per year (page 17b, Chapter II).

Appendix X.C-2 contains the Air Quality Approval Order (AO) from the Division of Air Quality dated August 5, 2002. The AO itemizes the equipment located at the new portal site.

The AO indicates the following:

- The production limit of 1,300,000 tons/yr should not be exceeded
- The ROM surge pile may contain 1500 tons maximum.
- The maximum time period of operation for the 425 hp diesel generator should be 300 hours of operation /12 mo period (using #2 diesel fuel oil).
- Visible emissions from conveyor transfer points should not exceed 10% opacity and emissions from all other sources should not exceed 20% opacity. Observations of opacity are to be made in accordance with 40 CFR 60.11 (b) and 40 CFR 60, Appendix A, Method 9.

Item 9 of the General Conditions listed in the AO requires that Consolidation Coal Company “notify the Executive Secretary in writing when the installation of the equipment listed

under the new portal site has been completed and the equipment is operation, as an initial compliance inspection is required.”

The excavated material pile will cover 4.10 acres (see page VI.B.3-188a). The excavated material is angular sandstone. The pile will have many voids to collect loose grains. A berm has been created on the top of the pile and large rocks will be scattered across the surface of the pile to break the wind and prevent wind erosion of the pile.

Findings:

The information meets the minimum requirements for Air Pollution Control Plan.

COAL RECOVERY

Regulatory Reference: 30 CFR 817.59; R645-301-522.

Analysis:

The Division has reviewed the mining plan and found that the Permittee will extract the maximum amount of coal possible. The Division usually relies on information in the R2P2 for the analysis. The R2P2 was not approved by the BLM at the time this TA was completed. If the BLM finds that the Permittee is not maximizing coal recovery the Division will reevaluate the finding based on the new information.

The first and second south sections will have a projected total coal recovery of 75.3 percent from center of entry. The coal recovery can and will change depending on depth of cover and geological conditions.

The Permittee supplied sufficient information to describe the amount of coal that will be mined from the seams J, UI and L10 Plate V-20. The total thickness of coal is shown to be range from 20 feet to 8 feet. The permittee explained in a meeting held on May 18, 2005, only the J and I coal seams will be mined for this I BC. Mr. Gefferth stated that the coal in the L seam is of poor quality and will not me mined. The Permittee has stated that no subsidence is planned.

Findings:

The Permittee has submitte sufficient information to address the Coal Recovery Information section of the Regulations. ~~The Permittee has met the minimum requirements of the regulations.~~

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SUBSIDENCE CONTROL PLAN

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

Analysis:

The subsidence control plan is discussed in Chap. V. B. of the MRP. The permittee has modified the subsidence control plan to include a monthly walk over inspection of the surface area overlying 1st and 2nd South. A record of the inspection will be kept on site. This is additional to the requirements to the land survey in the MRP.

In the First North 348-acre IBC, surface disturbance is not planned or expected using a continuous miner room and pillar operation (Sections XII.A, XII.C.6.1, XII.D.1, and XII.D.4). A pre-subsidence survey will be made of the prime farmland area prior to developing any panels in the IBC (Section XII.C.2). In addition, Consol will locate a subsidence monitoring point within the designated prime farmland in the IBC in consultation with the landowner (Section X.C.2). This point will be designated on Plate XII-1 of the MRP. Subsidence mitigation plans are described in Chap. V, Section B. [05/27/2005]

Second mining will not be permitted in the First North 348 acre IBC. The permittee will need to submit another amendment for second mining approval. [05/27/2005]

Subsidence Control Plan

The permittee has modified the subsidence control plan to include a monthly walk over inspection of the surface area overlying 1st and 2nd South. A record of the inspection will be kept on site. This is additional to the requirements to the land survey in the MRP.

Performance Standards For Subsidence Control

By using "Pillar Design Safety Factor Calculations", the permittee has demonstrated that unplanned subsidence is not anticipated.

Notification

The ~~permittee~~ permittee has notified ~~is the~~ surface owners and Emery Water Conservancy District. ~~above First and Second South.~~

Findings:

The permittee has met the minimum requirements of this section.

TOPSOIL AND SUBSOIL

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

Analysis:

Topsoil Removal and Storage

Topsoil will be protected in-place beneath the topsoil storage pile and the excavated material storage pile (5.35 acres total, according to page VI.B.3-188a). As described in the submittal on page IV-7, the topsoil handling deviated from the norm in the location of the excavated material pile and the topsoil stockpile. The Division invoked R645-301-232.710 and allowed this practice based on the following information:

1. The Excavated material storage pile lies above rock land, Montwel and Castle Valley soils (now correlated to the Hideout Series). These are shallow soils over sandstone bedrock. Average depth to bedrock is twelve inches (page 9 Appendix VII-3). A typical profile of the Hideout Series is described by the NRCS (page C-5, App VII-3) as "A -- 0 – 2 inches; C--2 to 20 inches; R -- 10 inches."
2. The soils will be covered with excavated overburden only, no refuse from roof and floor will be deposited with the excavated material;
3. Minimal rainfall will limit any leaching of minerals from excavated material to native surface soils.
4. Cryptogams considered critical to the reclamation of the site would be buried with the in-place soils. Crushing the cryptogams in place seems preferable to removing them entirely from the site, especially since lichen spores would stay in place ready to germinate upon re-exposure to light and moisture (Biological Soil Crusts: Ecology and Management. U.S.D.I. BLM Tech Ref 1730-2. 2001. Sec 4.3.4).

The undisturbed topsoil remains underneath the excavated material stockpile and the topsoil stockpile (pp IV-7 and III-15a). The native ground was left intact and demarcated with four inch wide yellow plastic flagging which was laid down on a ten foot by ten foot grid (page IV-7).

The Permittee will ensure that excavated material placed on the topsoil does not fall into the category of underground development waste as defined by R645-100 (page IV-8). Storage of topsoil beneath the excavated material pile does not relieve the Permittee from the requirements to protect the topsoil from contaminants. To this end, the submittal describes analysis of the in-place topsoil, prior its use during reclamation (page III-20).

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Soil was removed from nine acres (page III-21) and stored as shown on as shown on Plate III-1. The storage pile lies on Persayo/Chipeta complex soils. The topsoil stockpile contains 10,600 cubic yards (page III-21). The topsoil stockpile covers one acre (page VI.B.3-188a).

As noted in Chapter II page 17a, approximately 1,400 cubic yards of topsoil was also stored in berms on the east and west perimeter of the site.

Soil was not removed from one acre of stream channel or the rock outcrop shown in the map created during Mr. Nyenhuis' May 31, 2002 site visit (see Appendix III of Appendix VII-3).

Protection of the stored topsoil is described on page IV-7. The submittal indicates that the topsoil pile was seeded on July 10, 2002 with the (cold season) interim mix #2 outlined in VIII C. 3 of the MRP, containing Russian Wild Rye, HighCrest Crested Wheatgrass, and Fourwing Saltbush. A warm season seed mix was seeded on the berms surrounding the pile. This berm mix consisted of the species listed in the interim mix #1 (outlined in VIII C. 3 of the MRP) and Castle Valley Clover (*Atriplex cuneata*) and Indian Ricegrass (*Oryzopsis hymenoides*) was used. A portion of the topsoil pile berm was irrigated where accessible on the southern side of the topsoil pile.

An as-built drawing of the topsoil stockpile is expected upon completion of construction at the site.

Findings:

The information provided meets the minimum requirements for Operations Topsoil Subsoil.

FISH AND WILDLIFE INFORMATION

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

Analysis:

Protection and Enhancement Plan

The only potential impacts to wildlife species would be from subsidence. As there is no subsidence anticipated with first or development mining in this case the applicant would not need to address this section of the regulations at this time. However prior to extraction or second mining the permittee will need to revise chapter nine of the Mining and Reclamation plan. That revision will need to include a narrative and or plan that describes how wildlife will be protected

and enhanced as a result of the potential impacts from subsidence. The information required to update the MRP prior to extraction or second mining must be submitted to the Division by no later than sixty days after the approval of this incidental boundary change.

Endangered and Threatened Species

Potential water depletions from mining operations may have an affect on endangered fish species identified in pertinent fish recovery programs. Volumes of water consumed in mining processes in excess of 100acre feet/year require mitigation with the U. S. Fish and Wildlife Service. Calculations for water depletions and gains from mining activities are provided for in the 2003 Midterm Review correspondence for the Emery Deep Mine. The correspondence from John Gefferth to Lowell Braxton dated November 26, 2003 describes the water consumed from mining consumption, (roof bolters, continuous miners, belt sprayers and miscellaneous dust suppression as received coal moisture at 6%. This is compared to the inherent coal moisture at 4% and the 2% difference is calculated in ac- ft per year, that is approximately 3.6 ac-ft per year. Water consumed from ventilation is approximately 25 ac-ft per year and mine water discharge is 420 ac-ft per year of water. Evaporation from the sediment pond would be negligible as there is a continuous inflow and discharge or outflow from the pond. The result is a net gain of 391.4 ac-ft per year of water. The information in the correspondence and explanation by way of personal communication are adequate for the proposed IBC. However the Mining and Reclamation plan needs to be updated to include these figures. The information required to update the MRP prior to extraction or second mining must be submitted to the Division by no later than sixty days after the approval of this incidental boundary change.

Bald and Golden Eagles

Bald Eagles do not nest in the area but are typically inhabitants during migration. The underground mining activities in this application will be limited to development mining only with little or no subsidence anticipated. As such impacts from development mining would be negligible. A raptor survey for the 4th East portal area was conducted in May of 2002. Survey results showed that there were one active, two inactive and one dilapidated Golden Eagle nests on the cliffs in the canyons to the East and Southwest of the proposed permit area expansion. There were no nests within ½ mile of the proposed permit area expansion. Prior to extraction or second mining the MRP must be updated to include a current Raptor Survey of the proposed permit area expansion.

Wetlands and Habitats of Unusually High Value for Fish and Wildlife

There are wetland areas within the proposed permit area expansion. However the underground mining activities in this application will be limited to development mining only with little or no subsidence anticipated. As such impacts from development mining would be negligible. According to the wildlife map 10-1, appendix A of chapter 9 of the

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approved MRP there are prairie dogs in the area that may provide nesting habitat for Burrowing owls. Prior to extraction or second mining the MRP must be updated to include a protection plan for wetlands from potential impacts due to subsidence and a burrowing owl survey for the permit area expansion.

VEGETATION

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

Analysis:

The topsoil pile at the 4th East Portal will be stabilized by seeding and mulching (Chapter IV, page 7). This is a standard practice. However, Emery Deep has never successfully revegetated any disturbance on the permit area using only seeding and mulching methods. Consequently, at the 4th East Portal, the top of the pile was gouged and the top and sides of the topsoil pile were hydroseeded with a cool season interim seed mixture. A warm season seed mixture was scattered by hand to the eastern 1/3 of the berm in July of 2002. To the seeded portion of the berm only, the Permittee applied 3.5 inches of water in 2 weeks (Chapter IV, page 7a). Following that, Mr. Seth McCourt, the mine engineer, stated that the town of Emery had three inches of rain in less than a week. Six and a half inches of water applied in 3 weeks seems like an excessive amount of water to apply. This procedure does not seem applicable for a large scale project. Techniques for irrigating should be refined.

As described on page 4b of Chapter III, the Permittee has agreed to follow a four-phase evaluation of final revegetation plans. In phase 1, the Permittee will investigate and summarize past reclamation sites and practices at the Emery Deep and Hidden Valley Mines. In phase 2, based on those investigations, and in consultation with the Division, the permittee will implement the best techniques demonstrated to be successful. In phase 3, the applied techniques will be evaluated qualitatively annually and quantitatively between the 4th and 6th year. These evaluations will be correlated to precipitation data results obtained from an on-site weather station and incorporated into the annual report. In Phase 4, the Permittee will revise the MRP to include the best technology for final revegetation. A full scope of work for this four phased evaluation will be submitted to the Division by the end of March 2003 (Chapter III, Page 4b).

Vegetation mapping for the permit area expansion was performed by Mt. Nebo Scientific and is included in the application as Appendix XII-2, "Plant Communities of the 1st North IBC Area". Community species include shadscale, greasewood and saltgrass. The underground mining activities in this application will be limited to development mining only with little or no subsidence anticipated. As such impacts from development mining would be negligible

Findings:

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

ROAD SYSTEMS AND OTHER TRANSPORTATION FACILITIES

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

Analysis:

Road Classification System

The Permittee classified all roads in the 4th East Portal disturbed area as primary. Those roads are the main coal haulage/loadout road and the ventilation portal access road.

Plans and Drawings

The plans for the roads are given in the submittal. The Division has reviewed the plans and found that they are adequate and meet all the requirements of the regulations.

Performance Standards

The Division will inspect the roads to insure that the performance standards are met. If not the Division will take corrective action.

Primary Road Certification

All road designs have been certified by a registered professional engineer.

Other Transportation Facilities

The Permittee will build four conveyors at the 4th East Portal area. They are as follows:

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- A 54-inch conveyor that transports coal from the mine site to the ROM stockpile.
- A 42-inch conveyor that takes coal from the ROM stockpile to the crusher building.
- A 42-inch conveyor that takes coal from the crusher to the coal stockpile
- A 42-inch conveyor that takes coal from the coal stockpile to the truck loadout.

Findings:

The information provided in the amendment is considered adequate to meet the requirements for the road systems and other transportation facilities requirements of the regulations.

SPOIL AND WASTE MATERIALS

Regulatory Reference: 30 CFR Sec. 701.5, 784.19, 784.25, 817.71, 817.72, 817.73, 817.74, 817.81, 817.83, 817.84, 817.87, 817.89; R645-100-200, -301-210, -301-211, -301-212, -301-412, -301-512, -301-513, -301-514, -301-521, -301-526, -301-528, -301-535, -301-536, -301-542, -301-553, -301-745, -301-746, -301-747.

Analysis:

Disposal Of Noncoal Mine Wastes

On page 10 of Chapter II, the Permittee describes how noncoal waste will be handled at the main mine facility. Temporary noncoal waste storage areas consist of two small pits dug into the side of the hill. The pits measure 20' by 40' by 10'. When the temporary storage facilities are full, the noncoal waste will be shipped to a private landfill.

The Permittee will use trash bins at the 4th East Portal site. The trash will be hauled from the site and taken to a state approved landfill.

Coal Mine Waste

The existing plan calls for coal mine waste, underground development waste to be placed in a refuse pile that is located on the hilltop adjacent to the northwest coal stockpile at the main mine facility. The underground development waste will consist mostly of material encountered from roof fall and development of underground workings.

Coal mine waste at the 4th East Portal site will be temporarily stored on site. The Permittee committed to store no more than 20 cubic yards of coal mine waste at the 4th East Portal site. Once the 20 cubic yards of material have been accumulated the Permittee will ship the material to the refuse pile.

Refuse Piles

The proposal indicates on Chapter III page 12a that acid-toxic forming material (or refuse) will be disposed of in one of three locations:

1. the permanent underground development waste site; or
2. the abandoned underground mine workings; or
3. the coarse refuse disposal area.

A “proposed coarse refuse disposal area” is in the currently approved MRP and shown on Plate II-2. This coarse refuse disposal area is not located at the 4th East Portal breakout, but is located on the hilltop adjacent to the northwest coal stockpile at the main mine facility. However, Chap III page 9 indicates that this coarse refuse disposal area will not be constructed until the Preparation Plant becomes a reality.

The Permittee has estimated on page IV-8 that 93,500 cu yds of rock will be excavated and stored in the excavated material pile at the 4th East Portal site. The Permittee anticipates 4,300 cu yds of coal to be extracted during development. The Permittee does not anticipate any refuse to be generated at the 4th East portal due too the mine plan dictating that coal will be left in-place in the roof and floor. Any refuse encountered will be hauled to the approved refuse disposal site at the main Emery mine facility. The submittal specifically indicates (page IV 8) that no coal or refuse will be placed in the excavated material pile.

Impounding Structures

The Permittee does not plan to construct impoundments from coal mine waste.

Burning And Burned Waste Utilization

The Permittee will follow the existing plan.

Return of Coal Processing Waste to Abandoned Underground Workings

The Permittee does not plan to return coal processing waste to abandoned underground workings.

Excess Spoil:

During operations, there will be an excavated material storage pile that will hold approximately 128,000 cubic yards of material (pp II-17a, and IV-8) and cover 4.1 acres (Chap VI.B.3). This material will come from:

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- The development of the airshaft in the southwest corner of the site will generate 520 cu yds of rock (70 ft deep X 16 ft diameter, pp IV-8 and II-17c).
- Excavation of the ramp down to the portal cuts and across the face of the three portals each 8 x 14 on 45 foot centers (93,500 cu yds).
- The temporary diversion construction.
- Construction of the surge stockpile and coal handling facility (cross section B-B' Plate IV-3).
- The sediment pond (IV-8).

The submittal specifically indicates (page IV 8) that no coal or refuse will be placed in the excavated material pile. The Division is emphatic about this requirement due to the fact that

1. There is a permitted disposal site for refuse within the permit area and
2. Topsoil being stored beneath the excavated material must be protected from contaminants.

Reclamation of the 4th East portal will require grading of 132,149 loose cubic yards of spoil in to the box cut and over the surface to achieve approximate original contour. There will be no excess spoil.

Findings:

The information provided in the amendment is considered adequate to meet the requirements for spoil and waste materials requirements of the regulations.

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 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 Permittee meets the requirements of this section by describing the geologic setting and hydrologic resources in the vicinity of the Emery Deep Mine. The 4th East Portal surface area is located in the southwestern end of Castle Valley. The site sits on the surface of exposed Ferron Sandstone a member of the Mancos Shale. There is very little cover of soil material at the site. A stream channel cuts through the proposed surface facilities. The channel is carved in bedrock of the Ferron Sandstone. The channel is a small tributary to Christiansen Wash, a tributary to Quitchupah Creek. The length of the channel above the portal area is over two miles,

Plate VI-12. It will be diverted around the disturbed area via a temporary channel excavated by the Permittee.

The channel is considered ephemeral. The soils consist of fine powdery sand, eroded from the Ferron Sandstone. There is no riparian vegetation in the proposed disturbed area. There is no vegetation in the channel. The site is characterized by sparse stands of juniper trees, small desert shrub and grasses. In some areas the soil is crusted with cryptogams. There is a vegetated channel area below the proposed disturbed area that is being evaluated for wetland status. The site was previously proposed for the sedimentation pond site, however wetland status is still pending so the Permittee decided to use other sediment control structures as described in previous review sections. The channel will not be disturbed.

With the construction of the 4th East Portal area, the potential for physical surface impacts expands. The Permittee has previously described the probable impacts for the mine operation in the MRP p. 171, Chapter VII of 2. Essentially, the mine is changing from an inactive status to an active status. Data gathered over the years of inactive status should be summarized and compared to the PHC to check if conditions have changed. If it is found that the PHC needs modification to describe future impacts, the Permittee should do so.

Groundwater Monitoring

No ground water monitoring will be conducted at the 4th East Portal site, other than is already done in accordance with the approved mine plan. No mine water will be discharged from this site, however some water discharged into the 4th East Portal will be treated underground and discharged through UPDES discharge outflow 001. Groundwater accumulates in the mine where it is already being monitored via wells and as a discharge site at UPDES discharge sites 001 and 006.

The Permittee has collected baseline groundwater information for the IBC area in conjunction with the existing monitoring program. The Permittee has calculated that mining the IBC as proposed will produce approximately 45 gallons per minute. Five wells and one spring lie within or adjacent to the IBC. An updated potentiometric surface map has been submitted for the IBC. The data used to update is in the Coal Database. The data and map shows the potentiometric surface in the Ferron Sandstone has been drawn down some since Plate VI-9 was developed using 1979 water levels. Some of the wells may be destroyed during mining, however data will be collected from the wells during the mining process. Monitoring wells EMRIA #1 and FC346WW will still be monitored, which lies outside, northeast, of the IBC.

Surface Water Monitoring

A surface water monitoring plan is already functioning for the mine. There are monitoring sites on Christiansen Wash and Quitcupah Creek for surface flow. There are no

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surface water monitoring sites on the permit area of the 4th East Portal. A UPDES site exists at Sedimentation Pond 009.

Acid- and Toxic-Forming Materials and Underground Development Waste

Drill Hole FC 702 provides an analysis above and below the I & J coal seams in the 4th East Portal location (page IV-2 through IV-6). This core indicates that the highest Electrical Conductivity and Sodium Adsorption Ratios are in the top ten feet of this material. Selenium and Boron are not a problem in the depths to be excavated. A layer of black sooty coal is encountered at approximately 34 feet. The band is about 6 inches thick and is low in pH (5.2) and has elevated copper (4.0 ppm) and iron content (821 ppm). The submittal specifically indicates (page IV 8) that no coal or refuse will be placed in the excavated material pile.

The Permittee describes acid and toxic forming materials based on information from the MRP. Analyses of roof and floor rock and coal indicate that no acid or toxic contamination will take place from these materials. [No surface mining will take in the IBC. There will be no exposure to acid or toxic forming materials.](#)

Transfer of Wells

There are no wells within the 4th East Portal area. [No IBC wells within the IBC will be transferred.](#)

Discharges Into An Underground Mine

The Permittee describes in Ch. 2, Page 4, how they have constructed a ramp 70 feet below surface to the coal seam. The combined area of the ramp, ROM stockpile, and conveyer total an area of 2.7 acres. Precipitation falling on this area will drain into the mine. The runoff entering the mine will not drain to the sedimentation pond or retention basins. [There will be no underground mine discharges in the IBC](#)

Water-Quality Standards And Effluent Limitations

The Permittee will meet water quality standards by routing undisturbed drainage around the disturbed area and by controlling or capturing disturbed area drainage. The applicant states that monitoring will not be conducted at the 4th East Portal site. Since there are no surface or groundwater resources at the site the retention basins and sedimentation ponds have been installed. The Permittee indicates p. 156 that Sedimentation Pond 009 will function as a UPDES monitoring site and will be monitored for the parameters on p. 157, Chapter VI.A.6.

The Permittee plans to use berms to divert undisturbed drainage away from the site and disturbed drainage to retention basins and sedimentation ponds. The plan views and cross-sections of the berms are shown on Plate IV-3, IV-3b IV-10a and Figure VI-59. e and will be monitored for the parameters on p. 157, Chapter VI.A.6.

Diversions: General

The Permittee plans to use berms to keep disturbed drainage on the site and to divert disturbed drainage to retention basins and sedimentation ponds. The plan views and cross-sections of the berms are shown on Plate IV-3, IV-3b IV-10a and Figure VI-59.

An undisturbed diversion ditch is planned to divert runoff from a 310.4 acre drainage basin around the disturbed area. The diversion is temporary and designed to handle the runoff from a 10 yr- 24 hr precipitation event plus a 1 foot freeboard. The diversion will be excavated in solid sandstone and divert ephemeral runoff flows from the established channel to an adjacent channel. The Permittee has supplied flow and channel design calculations for the undisturbed drainage in the updated submittal. Calculations are based on a SCS Type II storm. Peak flow is calculated to be 50.66 cfs. The temporary diversion is designed using Mannings equation for channel flow. Calculations show the ditch to be designed to transmit 66.11 cfs with a 6 foot wide bottom, 2H:1V sideslopes, 4% gradient in solid rock. The Permittee also ran a SedCad 4 using the same channel shape and received a discharge value of 71.3 cfs.

The Permittee shows a culvert on Plate IV-10a that conveys water under the entrance road. Two 18-inch culverts are planned to divert runoff from the disturbed areas under a roadway to the sedimentation pond.

Stream Buffer Zones

There is no mining within 100 feet of a perennial or intermittent stream channel at the 4th East Portal site.

~~—~~ The permittee will not split pillars above or 100 ft of each side of Christiansen Wash. This is illustrated on Figure V-1.

There are no perennial or intermittent streams on the IBC. There is no secondary mining proposed for the IBC.

Sediment Control Measures

All precipitation falling on the 4th East portal site will flow into the mine, be channeled into retention ponds, directed into Sedimentation Pond #9 or be treated by a silt fence. A combination berms and culverts are proposed to control overland flow on the disturbed area.

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Plate IV-3 shows an 18-inch culvert at the entrance of the site and a 12 inch culvert below Retention Pond #1.

Siltation Structures: General

The Permittee describes the method of installation and placement of silt fences to the 4th East Portal area, Section VI.B.2.4. Silt fences are required on the west and north sides of the disturbed portal area to trap and contain sediment that doesn't report to the sedimentation pond or retention ponds.

Impoundments

Plate IV-3 shows the watershed area for Sedimentation Pond 009. Two retention ponds will be constructed, one will contain runoff from the topsoil stockpile and another to contain runoff from the excavated material stockpile. The retention ponds are designed to treat the runoff from a 100 yr-6 hr precipitation event.

The applicant has submitted designs for the sedimentation pond. Designs are based on the SCS runoff Type II rainfall model. The drainage area is 3.2 acres and an average curve number (CN) of 85 was used to account for infiltration. The pond is designed to contain the precipitation event of a 10 yr.-24 hr. precipitation event. The emergency spillway is designed to pass the flow of a 25 yr.-24 hr. precipitation event. Stage storage information has been submitted in a table. The 10 yr.-24 hr. design pool volume contains 0.43 ac-ft of sediment and 0.22 ac-ft of runoff for a total of 0.65 ac-ft. Dewatering of Pond No. 9 will proceed only after a minimum of 24 hours.

The applicant has submitted pond design maps, however, current as-built maps need to be submitted to ensure varification of designs.

Exemptions for siltation structures

No exemptions for siltation structures have been given.

Discharge structures

The Permittee provides sizing and design information for Sedimentation Pond 009. The primary and emergency designs show the designed pond is capable of handling the 5 year sediment storage plus the runoff from the 25 yr-6 hr. design storm.

Impoundments

Casing and sealing of wells

There are no wells on the 4th East Portal area to seal.

Ponds, Impoundments, Banks, Dams, and Embankments

Findings:

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

SUPPORT FACILITIES AND UTILITY INSTALLATIONS

Regulatory Reference: 30 CFR Sec. 784.30, 817.180, 817.181; R645-301-526.

Analysis:

The Permittee lists the support facilities in Chapter II and on Plate II-3, 4 East Portal Surface Facilities. The information in the PAP shows the location of each structure and a brief description. All of the structures in the 4th East Portal disturbed area with the exception of a subsidence monument are post-SMCRA.

Findings:

The Permittee has met the minimum regulatory requirements for the support facilities section of the TA.

SIGNS AND MARKERS

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

Analysis:

The Permittee is required to place signs and markers as outlined below:

- Signs and markers shall: be posted, maintained, and removed by the person who conducts the underground mining activities; be of a uniform design throughout the activities that can be easily seen and read; be made of durable material; and, conform to local laws and regulations. Signs and markers shall be maintained during all activities to which they pertain.

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- Mine and permit identification signs shall be displayed at each point of access from public roads to areas of surface operations and facilities on permit areas for underground mining activities. Signs will show the name, business address, and telephone number of the person who conducts underground mining activities and the identification number of the current regulatory program permit authorizing underground mining activities. Signs shall be retained and maintained until after the release of all bonds for the permit area.
- Perimeter markers shall clearly mark the perimeter of all areas affected by surface operations or facilities before beginning mining activities.
- Buffer zones shall be clearly marked to prevent disturbance by surface operations and facilities.
- Topsoil markers shall be used where topsoil or other vegetation-supporting material is segregated and stockpiled.

In Section UMC 817.11 of the MRP the Permittee commits to place signs and markers as outlined above.

Findings:

The Permittee has met the minimum requirements of signs and markers section of the regulations.

USE OF EXPLOSIVES

Regulatory Reference: 30 CFR Sec. 817.61, 817.62, 817.64, 817.66, 817.67, 817.68; R645-301-524.

Analysis:

General Requirements

Appendix IV-9 was incorporated into the MRP on May 7, 2002. The amendment deals specifically with blasting used to open up the 4th East Portal area. The approved plan is good between April 15, 2002 and October 1, 2002. Since the Permittee had a valid blasting plan for the 4th East Portal area a new blasting plan was not required as part of this amendment.

Findings:

The Permittee has met the minimum requirements of the explosives section of the regulations.

MAPS, PLANS, AND CROSS SECTIONS OF MINING OPERATIONS

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

Analysis:

Affected Area Maps

The Division usually considers the affected area as those areas where the Permittee plans to mine as part of the expect life-of-mine. The reason for the expect life-of-mine area is so that the Division will have a heads up on what future activities will occur. In addition, the Division can instruct the permittee on what type of actions should be taken know to prevent long delays in the permitting process. While the Permittee did not include the entire affected area in the PAP the Division does have a good idea about future mining plans.

The Permittee did include several maps that show the location of the permit boundaries for the 4th East Portal area. The Division considers that information adequate.

The affected map area of the IBC is shown on Plate XII-1. All maps in the MRP that show the permit area need to be updated to include the IBC area. Plate XII-1 in conjunction with existing and geological and hydrologic maps was used to identify potential impacts to surface- and ground-waters in the vicinity of the IBC.

Mining Facilities Maps

The Permittee give the Division a surface facilities map for ~~the Emery Deep Mine~~ 4th East Portal disturbed area. Plate II-3, 4th East Portal Surface Facilities, shows the location of the mine facilities. A professional engineer has certified the maps. ~~No mine facilities will be constructed on the surface of the IBC site.~~

Mine Workings Maps

The Permittee included mine maps in various submittals. The maps show the location of the proposed underground workings. ~~Plate XII-1 was used to identify the location of mine workings in the IBC area. Map as last updated on April 2005. A copy of the mine workings map was not included in December 6, 2002 submittal.~~ The Permittee did commit to include that map in the as-built submittals.

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Monitoring and Sampling Location Maps

The Permittee has identified dewater pipes on Plate IV-3 where discharge samples will be required when discharge occurs.

Certification Requirements

The Permittee has met the minimum requirements for map certification.

Findings:

~~The information provided in the amendment is considered adequate to meet the requirements for maps, plans and cross-sections requirements of the regulations.~~

The information submitted by the Permittee was sufficient to make geological and hydrologic decisions. This submittal was treated as an emergency issue do to the time constraints the operator has to start mining activities in the IBC section or lay off miners until all maps have been completed. All maps showing the permit area in the MRP need to be updated with the boundaries of the IBC.

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GENERAL REQUIREMENTS

Regulatory Reference: PL 95-87 Sec. 515 and 516; 30 CFR Sec. 784.13, 784.14, 784.15, 784.16, 784.17, 784.18, 784.19, 784.20, 784.21, 784.22, 784.23, 784.24, 784.25, 784.26; R645-301-231, -301-233, -301-322, -301-323, -301-331, -301-333, -301-341, -301-342, -301-411, -301-412, -301-422, -301-512, -301-513, -301-521, -301-522, -301-525, -301-526, -301-527, -301-528, -301-529, -301-531, -301-533, -301-534, -301-536, -301-537, -301-542, -301-623, -301-624, -301-625, -301-626, -301-631, -301-632, -301-731, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-732, -301-733, -301-746, -301-764, -301-830.

Analysis:

The demonstration test plot was constructed in 1984 and reworked in 1987 in an effort to determine successful revegetation techniques for use on subsoils derived from the Mancos Shale. The chemical characteristics of the soils in this plot are described with the Vegetation Data in the 1991 Annual Report. They are extremely sodic, with average values in the top six inches of 9.3 pH and 19.8 SAR. The variables tested in the plots were:

- topsoil and no topsoil treatments;
- irrigation and no irrigation treatments;
- mulch and no mulch treatments;
- furrows and no furrows; and
- mature versus containerized transplants.

The demonstration test plots were evaluated in 1989 and 1990 by Richard Denning and David Larson of Consolidation Coal Company. The results of the evaluation are included in the Annual Reports for 1988 and 1989. Mortality of transplants and containerized plants was high. At the end of the monitoring period, the 33% of the mature transplants survived and 10% of the containerized transplants were living. The most successful plots were those that received mulch and contained shallow depressions. Thus, the test plots emphasize that the most important variable is the availability of water. Water not only irrigates the plants, but also leaches the salts from the soil.

The Permittee has committed to evaluating the reclamation practices used at the mine site thus far and to revise the MRP with the best practices available (Chap III, page 4a).

Findings:

The information provided is adequately meets the General Requirements of the Regulations for the purposes of this amendment.

APPROXIMATE ORIGINAL CONTOUR RESTORATION

Regulatory Reference: 30 CFR Sec. 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 definitions of AOC contained in the Surface Mining Control and Reclamation Act (SMCRA) and the Utah coal rules are primarily statements of the objectives of post-mining backfilling and grading so that the area "closely resembles the general surface configuration of the land prior to mining" and "blends into and complements the drainage pattern of the surrounding terrain". At the same time, reclamation performance standards must be met, including controlling erosion, establishing mass stability and establishing permanent, diverse and effective vegetative cover. In some circumstances, replicating the original contour may only be possible at the expense of one or more reclamation performance standards. In other circumstances, it may be possible to achieve nearly exact original contour and simultaneously satisfy all the other regulatory requirements. Although the principles of regulatory construction suggest that specific regulatory requirements take precedence over general provisions, this directive is intended to reconcile the specific performance standard requirements of the regulatory program with the general definitions of AOC in a way that accomplishes the objectives of SMCRA.

The underlying objectives of the AOC requirements relate to the assumption that post-mining features which mimic pre-mining features are most likely to quickly achieve mass and erosional stability, revegetation, hydrologic balance and productive post-mining land use, all of which are the objectives of the reclamation performance standards. AOC also addresses aesthetic considerations. In order to evaluate methods for achieving AOC, the underlying objectives and challenges of reclamation at the site in question must first be identified.

Final Surface Configuration

The main question that is used to determine if the site meets this requirement is "Does the postmining topography, excluding elevation, closely resemble its premining configuration?" The Division relies on the judgment of the technical staff that reviews the reclamation plan. The staff reviewed the premining and post mining topographic maps and cross sections and determined that this condition is met based on the following:

- The premining and postmining topography are shown on Plate III-5. The main differences between the premining and postmining topography is that the postmining contours are smoother. However, pocking and other surface roughening techniques tend to make the postmining surface look more natural after a few years.

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- The premining and postmining cross-sections shown on Plate IV-3, IV-3a and IV-3b shows those premining and postmining contours will be similar. The highwalls will be located in the lower section of the ramp area and will be eliminated.

All Spoil Piles to be eliminated

No spoil piles are associated with this site.

All Highwalls to be eliminated

The highwalls will be located at the bottom of the ramp. The ramp will be completely backfilled during final reclamation.

Because the highwalls areas will be restored to approximate premining topography the Division finds that the highwall elimination plans meets the minimum requirements of R645-301-553.120.

Hydrology

The main concerns with hydrology are that the drainages are restored, sediment is controlled and that no hazardous or toxic discharges will occur. The Division considers that those conditions will be met when the hydrologic reclamation requirements are met.

Post-Mining Land Use:

No surface disturbance is planned for the IBC. No rapid subsidence is planned. Pillars will be left to support the overlying strata. Over long periods subsidence could take place. The Permittee has a reclamation plan in the MRP to mitigate subsidence impacts. The Division has found that the application meets the general post-mining land use requirements

Variance from AOC:

The Permittee did not request a variance from AOC.

General Backfilling and Grading:

The Division analysis of the general backfilling and grading requirements is in the backfilling and grading section of this TA. The Division has found the general backfilling and grading requirements are satisfied.

Findings:

The Permittee has met the minimum requirements for the reclamation Approximate Original Contour section of the TA.

BACKFILLING AND GRADING

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

Analysis:

The 4th East Portal will be graded to approximate original contour, with a slight mounding (2.5 - 3.0feet) over the area of the box cut (page III-15a), due to a 20% swell factor. All coal waste will be placed in the bottom of the box cut (WorkSheet 1 in Chap IV). Material from the excavated material pile will be placed in three foot lifts into the box cut and compacted by the passage of heavy equipment. The WorkSheet indicates that the last three lifts will not be compacted. Large boulders (3 ft diameter or larger) will be separated and used for the construction of the stream channel and habitat enhancement.

Topsoil stored in the topsoil pile and in the berms around the topsoil pile as well as the berms on the east and west perimeter of the disturbed area will be applied to nine acres where topsoil was removed (Chap IV Worksheet 1 Earthmoving Activity). The separation of topsoil in berms from the general fill is also itemized in the Bonding Table in Chapter IV WorkSheet 1). The WorkSheet indicates segregation of the surface two inches of the surface of the topsoil pile for topdressing on the re-spread topsoil. The nine acres receiving topsoil will be surface roughened with a 416 backhoe. The five acres of land re-exposed after removal of the material excavation pile will be ripped to twelve inches with a spacing of two feet using a Cat D6 with 3 shank ripper.

General

The general backfilling and grading requirements are as follows:

Achieve AOC:

The AOC issues are discussed in the AOC section of this TA. The Division made the finding that the reclamation plan is adequate to insure that the site can be reclaimed to the approximate original contour requirements.

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The Permittee provided the Division with a table that shows the cuts and fills that will occur during final reclamation. The Division's may concern is that swelling will increase the volume of material and the Permittee will be unable to place all the backfill material within the disturbed area. On Table III-1 the Permittee shows the cut and fill requirements. The excess material will be used as general backfill. The results will be that the average pot-mining surface will increase in elevation by 2.8 feet. The Division considers that amount minor.

Elimination of Highwalls Spoil Piles and Depressions:

Highwall elimination is discussed in the AOC section of this TA. The highwall are located at the bottom of the ramp. The ramp will be completely backfilled and graded so the highwalls will be eliminated. See Plate IV-3 for cross-section of the premining and postmining ramp and Plate III-5 for premining and postmining contours.

No spoil piles will be associated with the site. No major depressions will be present after reclamation. Minor depressions (pocks) may be left after topsoil placement to stabilize the surface and retain moisture. The pocks generally fill in within a few years.

Slope Stability:

In Chapter III Page 15a, the Permittee show the results of a slope stability analysis for the reclaimed areas at the 4th East Portal area. The post-mining slopes range in steepness from 20H : 1V to 2H : 1V. The minimum slope stability requirement for all reclaimed areas is 1.3 or greater

Minimize Erosion and Water Pollution:

The review of the erosion and water pollution plans is in the hydrology section of the TA.

Post-Mining Land Use:

The post mining land-use finding is in the post-mining land use section of the TA.

Settled and Revegetated Fills:

The variances from AOC and other requirements for existing spoil or underground development waste do not apply to the 4th East Portal area.

Spoil Disposal:

No spoil will be generated on site.

Disposal of Coal Mine Waste and Underground Development Waste:

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The Permittee addresses how coal mine waste and underground development waste will be handled at the 4th East Portal area. That issue was deal with in other sections of the TA.

Exposed Coal Seams and Acid- and Toxic-Forming Materials and Combustible Materials:

The coal will be exposed at the airshaft and the portals. Those areas will be backfilled with more than 4 feet of cover.

Cut and Fill Terraces:

The Permittee does not propose to use cut and fill terraces at the 4th East Portal area.

Final Preparation of Graded Surfaces:

The proper preparation of the graded surface is a performance standard that the Permittee must meet during reclamation.

Previously Mined Areas

No previous mining has occurred at the surface of the 4th East Portal areas.

Steep Slopes

No steep slopes exist at the 4th East Portal area.

Special Provisions for Steep Slope Mining

The Permittee did not request any special provisions for steep slope mining.

Findings:

The information provided in the amendment is considered adequate to meet the requirements for backfilling and grading requirements of the regulations.

MINE OPENINGS

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

Analysis:

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The Permittee has committed to seal and backfill all portals. The seals will be MSHA approved and the backfill will be a minimum of 25 feet. In addition to the 25 feet of backfill the portal area will be backfilled and graded as part of the reclamation work. The shaft will be completely backfilled.

Findings:

The Permittee has met the minimum requirements for the mine opening section of the TA.

All roads within the 4th East Portal area will be reclaimed. The road surface will be crushed rock or gravel. That material will be used for backfilling.

TOPSOIL AND SUBSOIL

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

Analysis:

Redistribution

Chapter III, page 20 discusses the topsoil application to the re-graded surface as follows:

- the graded land will be surface roughened prior to respreading topsoil either by ripping or gouging or both.
- Topsoil will be redistributed with front end loaders and dump trucks.
- Topsoil will be graded to the approximate depth using dozers and backhoes.
- Stakes will be used to determine the final topsoil grade.
- Topsoil will be analyzed according to Table 1 of the Division Guidelines (1988) prior to seeding.
- If cryptogams are harvested, they will be re-applied after seeding to selected locations (such as depressions).
- The site will be seeded with a warm season mixture described in Chapter VIII.C.4.

The in-place topsoil, stored beneath the excavated material will be sampled and analyzed during final reclamation for the chemical parameters listed in Table 6 of the Division's 1988 Topsoil and Overburden Guidelines (Chap III, page 20). The topsoil stored in the topsoil pile and in berms will be analyzed for Nitrogen, Phosphorus, Potassium and texture.

The Permittee calculates that 12,000 cu yds replaced over 9 acres of disturbed area will provide nearly ten (9.9) inches of replaced topsoil (Chapter III page 21 and Chap IV Worksheet 1).

The submittal indicates that the soils will be handled on when they are in a loose or friable condition or when the moisture content is an optimal 10 – 15% (Chap III, page 20).

Findings:

The information provided meets the minimum required for Reclamation Topsoil and Subsoil

ROAD SYSTEMS AND OTHER TRANSPORTATION FACILITIES

Regulatory Reference: 30 CFR Sec. 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

All roads in the 4th East Portal area will be reclaimed as part of the general backfilling and grading plan. The road surface will be crush stone or gravel and will be used as backfill material.

Retention

No roads in the 4th East Portal area will be retained.

Findings:

The Permittee has met the minimum requirements for the reclamation road section of the regulations.

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 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:

General

RECLAMATION PLAN

Reclamation of the 4th East Portal is described in Chapter III.C.2. When mining is complete the Permittee intends to remove the facility structures, then regrade the surface to approximate original contour. The Permittee marked the surface with flagging prior to developing the topsoil stock and rock waste piles. Upon reclamation the fill material will be removed to relocate the original contour of the channel and surrounding area.

The portals will be sealed and backfilled. The temporary undisturbed diversion channel will be backfilled and the surface flows directed to the original course. The Permittee has not provided details for backfilling to ensure compaction. The applicant proposes to compact the fill material in the ramp and ROM stockpile area to minimize percolation of surface waters into the cut.

There will be no surface disturbance in the IBC, thus no surface reclamation for this site. Some wells may be destroyed during mining of the IBC. The Permittee has committed to replace all well used for water use. Sampling wells will not be replaced, however other wells outside the IBC will still function, and they will be used and maintained. Water monitoring data is sent to the Coal Mining Database. There is currently over 25 years of data for most sites in and adjacent to the IBC.

Surface-water monitoring

The stream channels on and adjacent to the 4th East Portal are ephemeral. No monitoring is planned after reclamation. The water monitoring plan currently being conducted will continue which monitors waters below the 4th East Portal on Christiansen Wash.

Utah Coal Rules require the Permittee to show no additional settleable solids are degrading the stream channels below the reclaimed site prior to bond release.

Transfer of wells

No wells exist in the 4th East Portal area to be reclaimed. [No wells will be transferred.](#)

Discharges into an underground mine

Discharge into underground openings will be prevented, because plans have been mandated necessary for the Permittee, to grout or apply a cement type of material to form a non-filtering layer below the surface to prevent infiltration of the channel flows.

Water quality standards and effluent limitations

Sediment control structures will be maintained until no longer needed. Water quality sampling will continue below the site until final bond release.

Diversions

The Permittee commits to reclaiming all diversions.

Sediment control measures

The Permittee will maintain sediment control facilities through reclamation.

Sedimentation ponds

The sedimentation pond will be removed during the final reclamation phase as identified in the reclamation table in Chapter III.

Ponds, Impoundments, Banks, Dams, and Embankments

The Permittee has submitted a reclamation schedule in Chapter III. The schedule identifies the sequence or hydrologic structure removal in sequence of mine reclamation.

Findings:

The Permittee has supplied sufficient information ~~provided in~~ in the application to meet the ~~considered adequate to meet~~ the minimum Hydrologic ~~Resource~~ Information of the Reclamation section ~~requirements of the regulations~~.

CONTEMPORANEOUS RECLAMATION

Regulatory Reference: 30 CFR Sec. 785.18, 817.100; R645-301-352, -301-553, -302-280, -302-281, -302-282, -302-283, -302-284.

Analysis:

General

The Borehole site and the Flume site were reclaimed in 1984. Mulching appears to have been one of the treatments. The last evaluation of the site is in the 1991 Annual report. The most frequently encountered species at the Flume site were *Atriplex canescens* (Four Wing Saltbush) and *Salsola kali* (Russian Thistle).

According to the 1988 Annual Report, mat saltbush was transplanted to the Borehole site in 1987. The most recent monitoring of the Borehole site (1990) indicates that of the three of the twenty mat saltbush transplants survived. Species most frequently encountered at the Borehole site were *Bouteloua gracilis* (Blue Grama); *Atriplex sp.*; and *Halogeton glomeratus*.

RECLAMATION PLAN

The 1990 Annual report indicates that the Borehole Pump #3 and Sedimentation Pond #6 were built in the spring of 1989 and were seeded after construction without mulching. The initial seeding was unsuccessful. The areas were reseeded in October of 1991. As described in the 1991 Annual report, the following steps were taken in reseeding the topsoil piles and pipeline right of way:

- creation of depressions 4 – 5 feet square and six inches deep;
- discing the soil;
- seeding and mulching the soil by hand;
- then re-discing to crimp the 2 Tons/ac native hay mulch.

The reseeded topsoil piles were evaluated in November 1993 by Paul Baker, Reclamation Biologist for the Division:

Best growth on all three piles is on the top where it is relatively flat. There is also a limited amount of growth in the gouges that were made on the sides of the slopes. Even though some plants appear to have become established, plant density is still low...Disturbance of the piles has led to growth of more halogeton and kochia than was present in 1991. The native grasses have not grown sufficiently that they can be identified...Shrubs that I found are winterfat, shadscale, and fourwing saltbush. Winterfat was by far the most prevalent of the shrubs. I did not see any seeded forbs...

Findings:

The information provided in the application considered adequate to meet the minimum Contemporaneous Reclamation section requirements of the regulations.

REVEGETATION

Regulatory Reference: 30 CFR Sec. 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:

Revegetation: General Requirements

Vegetation reference areas were established and quantitatively sampled in 1980 by Stoecher-Keammerer & Associates of Boulder, Colorado. The mixed desert shrub reference area had a vegetative cover of 10.6 percent (Chpt. VIII, page 19). The raw data is not included in the Mining and Reclamation Plan (MRP). Eleven percent vegetative cover is low from the Division experience in observing vegetative cover on other adjacent sites. However, the reference area

and 4th East Portal disturbed area compare equally based on the Division's visual observations. The vegetative cover of the reference area will be re-measured at the same time as the reclaimed disturbed area by the same observer according to the revegetation guidelines.

The MRP discusses standard revegetation methods to be used at final reclamation. In 20 years Emery Deep Mine has not stabilized any disturbance on the permit area with vegetation. Because of this, the Permittee has committed to study past and future reclamation techniques as described in the Operation Plan, Vegetation section of this technical analysis and as described in Chapter III, Page 4b of the MRP. Demonstrating that the site can be reclaimed is important to obtaining future approval for site disturbance. Rock mulch, wind breaks, transplants, irrigation and/or amendments may be required to establish vegetation. The timing of seeding and seasonality of the species may be of importance and should be correlated to the timing of precipitation (July through October as established in the Environmental Resource Climatological Section of this Technical Analysis). Repeated and continuous efforts at the Hidden Valley Mine and Emery Deep Mine must be made until vegetation is established on the soil stockpiles and at interim vegetation sites.

Findings:

Information provided in the application and MRP is adequate to meet the minimum Revegetation requirements of the regulations.

STABILIZATION OF SURFACE AREAS

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

Analysis:

Chapter II page 23 describes the use of gouging to provide protection from wind erosion. This page also describes the plan to separately harvest cryptogams and re-apply them to the surface of topsoil stockpiles in an effort to provide a source of spores and mycelium during reclamation.

The Permittee indicates in the submittal that large rocks will be strewn across the reclaimed surface for wildlife habitat. These rocks will also serve as windbreaks. The Permittee has indicated in Chapter III, page 4a that an evaluation of the best revegetation methods will ensue and improvements would be made on the methods outlined in the MRP as a result. These improvements will be reviewed for their erosion control potential by the Division.

Findings:

RECLAMATION PLAN

The information provided is adequate for the purposes of Reclamation Stabilization of Surface Areas.

MAPS, PLANS, AND CROSS SECTIONS OF RECLAMATION OPERATIONS

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

Analysis:

Affected Area Boundary Maps

The affected area should include all areas proposed to be affected over the estimated total life of all mining and reclamation activities. All mining and reclamation activities associated with the 4th East Portal area will be within the permit boundaries. The permit boundaries are shown on several maps in the PAP.

Bonded Area Map

Plate III-5 show the bonded area map for the 4th East Portal area.

Reclamation Backfilling And Grading Maps

Plate III-5 shows the reclaimed contours for the 4th East Portal area. Cross-sections for the area are shown on Plate III-3, Plate III-3a and Plate III-3b.

Reclamation Facilities Maps

Plate III-5 shows the location of the County road that will be left after final reclamation.

Final Surface Configuration Maps

Plate III-5 shows the reclaimed contours for the 4th East Portal area. Cross-sections for the area are shown on Plate III-3, Plate III-3a and Plate III-3b.

Certification Requirements.

All maps and cross-sections that are required to be certified by a registered professional engineer have been.

Findings:

The Permittee has met the minimum requirements for the reclamation maps and cross-sections of the TA.

BONDING AND INSURANCE REQUIREMENTS

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

Analysis:

Determination of Bond Amount

The Division has calculated the reclamation cost for the Emery Deep mine and found that that the bond amount exceeds the reclamation cost estimate. The Division has calculated the reclamation costs to be \$1,920,000 in 2005 dollars. The current bond held by the Division for the Emery Deep Mine is \$3,454,443. Therefore, the bond amount is adequate. A copy of the reclamation cost estimate is available from the Division.

Terms and Conditions for Liability Insurance

Findings:

The information provided in the amendment is considered adequate to meet the requirements for bonding and insurance requirements of the regulations.