

July 29, 2002

TO: Internal File

THRU: Wayne Western, Team Lead

FROM: David Darby, Senior Reclamation Specialist

RE: 4<sup>th</sup> East Portal Facility at the Emery Deep Mine, Consolidation Coal Company, Emery Deep Mine, C/015/015-AM02B-2

**SUMMARY:**

This amendment proposes to add new surface facilities to the Emery Deep Mine. The facilities are identified as the 4<sup>th</sup> East Portal Loadout. These facilities are north of the current surface operations and consist of an incised ramp leading to three portals, coal loadout, exhaust fan, topsoil stockpile, excavated rock stockpile, sedimentation pond, various siltation structures and undisturbed areas. The site will provide complete portal facilities to the underground mining operation. 4<sup>th</sup> East Portal plans were approved as part of the original mine plan submitted in 1988, however there have been many changes to the regulation since. This amendment review evaluates modifications to the approved 4<sup>th</sup> East Portal plans submitted November 01, 2002.

The Emery Deep Mine was in cessation since May 1990. While in cessation the operator turned off the ventilation fans, but maintained the groundwater pumps to dewater the mine. During that time some regulations and reclamation standards have changed. Consolidation Coal Company (Consol) recently decided to continue operations. When they reentered the mine, they found some main entries collapsed, which blocked safe access to the working. Consol decided to implement their plans for the 4<sup>th</sup> East Portal.

On submittal of their intent to construct the 4<sup>th</sup> East Portal site, the Division evaluated plans submitted with the original MRP. The review found that the approved MRP described the portal area, but was did not necessarily conform to current criteria in the regulation. A meeting was held on June 4, 2002. The review team identified several areas of deficiencies, and stated that prior to mining, Consul would have to make some changes to ensure no impacts would take place. Consul committed to making those changes, which allowed them to begin development, following the original plan.

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On May 17, 2002, Consol submitted additional changes to the 4<sup>th</sup> East Portal plans. The application was found deficient on October 2, 2002. The amendment was resubmitted on November 1, 2002. This amendment was determined sufficient to meet the regulatory requirements.

As a condition of their approval on December 6, 2003, Consolidation Coal Company (Consol) was required to submit as-built drawings, including roads, sedimentation pond, topsoil stockpile and mine workings. As-built drawings were requested for the sedimentation pond. Consol submitted a set of as-built plans on January 27, 2003, these plans showed new information, but were not sufficient to describe the current status of facilities. A new drawing (Plate II-3A) was submitted on May 5, 2003. The drawing appears complete with all hydrological structures located to ensure proper drainage. The structures have been properly sized with information is submitted to verify sizing.

The applicant also provided an AutoCad drawing on CD on May 5, 2003. The information identified all hydrologic structures actual size and location of facilities and structures (sedimentation pond, culverts and berms).

**TECHNICAL ANALYSIS:**

## **GENERAL CONTENTS**



### **CLIMATOLOGICAL RESOURCE INFORMATION**

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

#### **Analysis:**

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

#### **Findings:**

Sufficient information is presented to address the Climatological Resource section.



### **FLUVIAL VALLEY FLOORS**

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

**Analysis:**

**Alluvial valley floor determination**

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 Applicant has submitted sufficient information to address the Alluvial Valley Floor section.



**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 4<sup>th</sup> 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.

**Findings:**

The Applicant 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 4<sup>th</sup> 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.

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### **Baseline Information**

Baseline information is presented in the MRP. The site is ephemeral and no surface or ground-water flows 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.

### **Ground-water Information**

There are two identifiable groundwater or recharge sources on the 4<sup>th</sup> 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 4<sup>th</sup> East Portal site.

### **Surface Water Information**

There are no perennial or intermittent surface water sources on the 4<sup>th</sup> 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.

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 4<sup>th</sup> 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.

### **Modeling**

No modeling has been conducted for the 4<sup>th</sup> East Portal site.

### **Alternative Water Source Information**

With the development of the ramp and ROM stockpile a small volume of precipitation, 1.33 ac-ft per year, based on average annual rainfall, will be intercepted and diverted into the mine annually. The Applicant 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 4<sup>th</sup> 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 4<sup>th</sup> East Portal does not require changes to the PHC, because no surface or ground waters resources will be impacted by operating those facilities.

The Applicant describes several methods to be used to mitigate hydrologic impacts. The Applicant plans to construct an undisturbed drainage channel around the site. In addition, the Applicant 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.

## **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 affected area boundary for the 4<sup>th</sup> East Portal is shown on several plates, including Plate III-1, IV-10a and VI-12.

#### **Coal resource and Geologic Information Maps**

The plans for the 4<sup>th</sup> East Portal describe the facilities area to gain access to the coal seam. The coal seam is 50 to 70 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.

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**Existing Structures and Facilities Maps**

There were no existing structures on the proposed site prior to mining. Construction was allowed in accordance with the approved mine plan and approved modification.

**Existing Surface Configuration Maps**

Plate III-5 shows the existing surface configuration.

**Mine Workings Maps**

The 4<sup>th</sup> East Portal plans are surface facilities only.

**Monitoring Sampling Location Maps**

There are no monitoring or sampling locations on the 4<sup>th</sup> East Portal area.

**Permit Area Boundary Maps**

The permit boundary for the 4<sup>th</sup> East Portal is shown on several plates, including Plates II-3A, III-1, IV-10a and VI-12.

**Surface and Subsurface Ownership Maps**

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

**Contour Maps**

Contours are shown on several maps, including Plates III-1, IV-10a and VI-12.

**Findings:**

The information provided in the application is adequate to meet the minimum Maps, Plans and Cross-Section of Resource Information section requirements of the regulations

## **OPERATION PLAN**

### **MINING OPERATIONS AND FACILITIES**

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

## **Analysis:**

### **Type and Method of Mining Operations**

The 4<sup>th</sup> East Portal plans describe how surface facilities will be developed to gain access to the coal seam by ramping down 60 feet. Entries will be developed to connect with existing working. Longwall mining and room and pillar mining operations will be conducted.

## **Findings:**

The Applicant has submitted the minimum requirements of the Mining Operations and Facilities section.

## **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 4<sup>th</sup> 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 Applicant.

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 Applicant decided to use other sediment control structures as described in previous review sections. The channel will not be disturbed.

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With the construction of the 4<sup>th</sup> East Portal area, the potential for physical surface impacts expands. The Applicant 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 Applicant should do so.

**Ground-water monitoring**

No ground water monitoring will be conducted at the 4<sup>th</sup> 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 4<sup>th</sup> 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.

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

**Acid and toxic-forming materials**

The Applicant 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.

**Transfer of wells**

There are no wells within the 4<sup>th</sup> East Portal area.

**Discharges into an underground mine**

The Applicant 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.  
Gravity discharges

There will be no gravity discharges from the 4<sup>th</sup> East Portal site.

### **Water quality standards and effluent limitations**

The Applicant 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 4<sup>th</sup> East Portal site. Retention basins and sedimentation ponds have been installed to capture and contain disturbed area runoff. The Applicant 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.

### **Diversions**

The Applicant plans to use berms and silt fences around the lower perimeters of the facilities to keep undisturbed drainage on the site. Berms will also divert drainage to retention basins and sedimentation ponds. Planviews and cross-sections of the berms are shown on Plate II-3A, 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 Applicant has supplied flow and channel design calculations for the undisturbed drainage in the updated submittal. Calculations are based on a SCS Type II storm. The peak 100 yr-24 hr event 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 Applicant also ran a SedCad 4 model using the same channel shape and obtained a discharge value of 71.3 cfs.

The Applicant shows a 12 inch culvert on Plate IV-10a that conveys water under the entrance road to the sedimentation pond.

### **Stream buffer zones**

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

### **Sediment control measures**

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

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fence.

### **Siltation structures**

The Applicant describes the method of installation and placement of silt fences in 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.

### **Sedimentation ponds**

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 contain 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 settling time of 24 hours.

### **Exemptions for siltation structures**

No exemptions for siltation structures have been given.

### **Discharge structures**

The Applicant 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 4<sup>th</sup> East Portal area to seal.

### **Findings:**

The information provided in the application is adequate to meet the minimum Hydrologic

Resource Information section requirements 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 Applicant has submitted affected area maps

#### Monitoring and sample location maps

The Applicant identifies that no sampling will take place on the 4<sup>th</sup> East Portal site except at the UPDES discharge on Pond 009. All surface and groundwater monitoring sites are identified on Plate VI-3 of the MRP.

### Findings:

The Applicant has submitted the minimum required information for the Maps and Plans section of the regulations.

## RECLAMATION PLAN

### 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 of the 4<sup>th</sup> East Portal is described in Chapter III.C.2. When mining is complete the Applicant intends to remove the facility structures, then regrade the surface to approximate original contour. The Applicant 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.

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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 Applicant 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.

**Surface-water monitoring**

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

Utah Coal Rules require the Applicant 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 4<sup>th</sup> East Portal area to be reclaimed.

**Discharges into an underground mine**

Discharge into underground openings will be prevented, because plans have been mandated necessary for the Applicant, 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 Applicant commits to reclaiming all diversions.

**Sediment control measures**

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

#### **Findings:**

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

#### **RECOMMENDATIONS:**

The amendment is recommend for approval.