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State of Utah  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

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April 27, 1999

Elliot Finley, Resident Agent  
Hiawatha Coal Company, Inc.  
P. O. Box 1202  
Huntington, Utah 84528

Re: Approval of February 8, 1999 Response to Division Order 97A, Hiawatha Coal Company, Hiawatha Mine, ACT/007/011-DO97A, File #3, Carbon, County, Utah.

Dear Mr. Finley:

The Division has completed our review of the information you have provided through February 8, 1999, in response to Division Order 97A. It has been determined that the information you have provided, while not entirely sufficient, is appropriate for incorporation into the Hiawatha Mining and Reclamation Plan and is hereby approved. A stamped "incorporated" copy has been enclosed for your records.

It is recognized that additional information will still need to be submitted in order to bring your plan into compliance. A technical analysis is enclosed which discusses the remaining deficiencies in your plan. These deficiencies will still need to be corrected as Division Order 97A is still in effect. Please submit your response by no later than June 15, 1999.

If you have any questions, please call.

Sincerely,

Daron R. Haddock  
Permit Supervisor

tam  
Enclosure

cc: Ranvir Singh, OSM  
Richard Manus, BLM  
Janette S. Kaiser, Forest Service, 2 copies  
Price Field Office

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**State of Utah  
Division of Oil, Gas and Mining  
Utah Coal Regulatory Program**



**Technical Analysis and Findings For DO 97A  
Hiawatha Mine  
ACT/007/011  
April 27, 1999**

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## INTRODUCTION

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### INTRODUCTION

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

Often the technical review of an application finds that the application contains some deficiencies. The deficiencies are discussed in the body of the TA and are identified by a regulatory reference which describes the minimum requirements.

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

This TA is a review of items associated with Division Order 97A and does not analyze the entire mining and reclamation plan.

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**TECHNICAL ANALYSIS**

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**TECHNICAL ANALYSIS  
FEBRUARY 8, 1999 RESPONSE  
TO DIVISION ORDER 97A**

**GENERAL CONTENTS**

**PERMIT APPLICATION FORMAT AND CONTENTS**

Regulatory Reference: R645-301-121.100.

**Analysis:**

The MRP contains errors which should be corrected. The following errors are noted again:

- The reclamation plan is inconsistent in the detail of mulch application. Page 16 describes 1T/acre of mulch over the reclaimed slurry ponds; Page 20 calls for 2T/acre; and pages 40 and 55 state 1.5 T/ac of mulch will be applied at the preparation plant. Table II-14 indicates that 2.5T of hay, straw or other acceptable organic additive is needed. The rate of mulch application should be clarified.
- Page 16 describes a six inch layer of topsoil to be replaced over the regraded coal refuse materials. However, sixteen inches of cover is referred to on pages 12 and 40. According to discussions with Charles Reynolds on September 17, 1998, six inches of cover is an error. Hiawatha Coal Co. plans to apply 16 inches of substitute topsoil to slurry ponds and coal refuse. This has been the approved practice with reclamation of slurry pond 4 and 5. Page twelve must correctly state sixteen inches of substitute topsoil will be replaced over slurry ponds and coal refuse.
- Total available topsoil is recorded in a table on page 10. This table does not reflect the fact that 42,000 CY of soil from Borrow area F has already been applied to slurry pond 4. The table on page 10 should reflect available topsoil.

**Findings:**

The permittee must provide the following, prior to approval, in accordance with the requirements of:

**R645-301-121.200**, The applicant needs to correct the text to accurately reflect the location of information within the document and to accurately reflect the permittee's intentions with regard to operations and reclamation plans. See the

## TECHNICAL ANALYSIS

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discussion above which itemizes errors in the text.

### ENVIRONMENTAL RESOURCE INFORMATION

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

### CLIMATOLOGICAL RESOURCE INFORMATION

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

#### Analysis:

The plan presents climatic information obtained at the town of Hiawatha as reported by the U.S. Department of Commerce in 1973. Hiawatha lies at an elevation of 7,200 feet. Hiawatha has a mean annual temperature of 45.5° F and a mean annual precipitation of 13.71 inches according to data from the Western Regional Climate Center station 423896 recorded from 9/11/1921 to 7/31/1992. The town receives its highest precipitation, 1.8 inches on average, during the month of August. Extreme daily precipitation has exceeded 2.1 inches at the town of Hiawatha.

The plan should incorporate current climatological data and data summaries for all data collected locally. The Division finds that this information is no longer current.

#### Findings:

Although the plan has been determined to meet minimum regulatory requirements in the past, current climatic information for the area should be used to updated the permit when future permit amendments are submitted.

### ALLUVIAL VALLEY FLOORS

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

#### Analysis:

No Alluvial Valley Floor determination was conducted under this review. It is assumed the Alluvial Valley Floor information in the plan meets the regulatory requirements based on previous mining permit approvals.

#### Findings:

## TECHNICAL ANALYSIS

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Findings from previous technical analyses apply.

### HYDROLOGIC RESOURCE INFORMATION

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

#### Analysis:

##### Sampling and Analysis.

The plan states that all water samples will be collected and analyzed according to methods in either the current edition of "Standard Methods for the Examination of Water and Waste Water" or the 40 CFR parts 136 and 434. All laboratory analysis will be done by certified laboratories.

##### Baseline information.

Some information collected for baseline characteristics were obtained following mining since portions of the permit area were mined prior to SMCRA. Information from previously compiled technical analyses was excerpted to compile this TA. Additional information was compiled and updated where appropriate.

##### *Water Rights/Water Use*

Historically, a water line from the Mohrland mine portal to Hiawatha supplied water for mining use. The Mohrland pipeline extends for approximately 4 miles along the Utah Railway right-of-way. The water line can carry up to 1,000 gpm. The pipeline was upgraded over 660 ft near Mohrland in 1988, (section R645-301-526, pg. 34, Utility Installation and Support Facilities). After removing the preparation plant, the pipeline was no longer considered a support facility but continued to supply water to the town, U.S. Fuel, and Miller Creek. Currently Mohrland pipeline flows under the town of Hiawatha, discharges to Miller Creek, and is used for irrigation downstream of the minesite. Additionally, U.S. Fuel is providing water to the BLM from its Mohrland Portal water supply for use as habitat enhancement, section 301-322 General Wildlife Mitigation.

##### Hiawatha Coal Mine

Water resources used for the Hiawatha mine include diversions to the mine from Miller Creek and discharges from the mine. The ANR Co Inc. holds the right to 91-174, application a4656, diverting 3.3 cfs from the Left Fork of Miller Creek for domestic and mining use. A summary of the water rights associated with the mine are presented in Table 1.

The plan references Certificate of Appropriation No. 2159, associated with the North Fork

## TECHNICAL ANALYSIS

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of Miller Creek Diversion (section 513.600). This water right references the claim to water right 91-174. Currently an extension, until December 27, 2001, is granted to demonstrate water rights; 91-174, 91-251, 91-316, 93-3524 and 93-3525, meet the proposed use. An additional extension to demonstrate the water rights meet the proposed use may be requested.

### *Ground-water information.*

The spring inventory, obtained November 7, 1984, found that more than 75% of the seeps and springs issue above the Blackhawk Formation. More than one half of the inventoried springs issue from the North Horn Formation with flow rates varying from 2 to 8 gpm. Approximately one-fifth of the surveyed springs were located in the Blackhawk Formation and these have low flow rates and minimal associated use (technical analysis attached to the 1985 decision document).

The Hiawatha Mines Complex encountered approximately 100 gpm in 1972 when mining contacted the Bear Canyon Fault (Environmental Assessment, 1985-1990 permit term). Generally the ground water flows to the south and gravity discharge occurs at the Mohrland Portal. Water that was not consumed for culinary and industrial uses at Hiawatha flowed into Cedar Creek.

**TECHNICAL ANALYSIS**

**Table I**

**Hiawatha Mine Water Rights**

| Source                           | Right Number                              | Quantity                 | Priority & period of use                | Owner/Use   |
|----------------------------------|---|--------------------------|---|---|
| Left Fork Miller Creek Diversion | 91-105<br>A10735<br>a4632<br>cert: 2159   | 0.7 cfs                  | 8/17/1929<br>claim referenced to 91-174 | ANR Co. Inc., River Gas Corporation, Texaco Exploration and Production Inc., Dominion Reserves/ claim referenced to 91-174. |
| Underground Tunnel King #1       | 91-251<br>A29532<br>a6961<br>cert: a1811  | 0.942 cfs                | 10/11/57<br>1/1-12/31                   | ANR Co. Inc. /Industrial &Municipal.  |
| Underground Tunnel King #1       | 91-316<br>a6963<br>UWC4147<br>cert:a1812  | 0.058 cfs                | 1910<br>1/1-12/31                       | ANR Co. Inc. /Industrial &Municipal.  |
| Left Fork Miller Creek Diversion | 91-174<br>A20261<br>a4656<br>cert:5294    | 3.30 cfs up to 101.92 AF | 10/14/48<br>1/1-12/31                   | ANR Co. Inc. /Industrial &Municipal.  |
| Underground Tunnel King #1       | 91-322<br>UWC7236<br>a8095<br>cert. a1129 | 0.152 cfs                | 9/14/1921<br>1/1-12/31                  | ANR Co. Inc. /Industrial &Municipal.  |
| Cedar Creek Diversion            | 93-3524<br>A20261<br>cert. a1713          | 52.57 AF                 | 4/10/1930<br>1/1-12/31                  | ANR Co. Inc. & Intermountain Power /Industrial &Municipal .   |
| Cedar Creek Diversion            | 93-3525<br>a6962<br>cert. a1712           | 59.51 AF                 | 4/10/1930<br>10/16-03/14                | ANR Co. Inc. /Industrial &Municipal.  |
| Mohrland Mine Seeps and Drains   | 93-1089                                   | 0.446 cfs                | 1884                                    | United States Fuel Corporation/ Irrigation.   |

Ground water consumed by the Hiawatha Coal Processing Plant was approximately 786,000 gallons per day (gpd) while the town utilized approximately 30,000 gpd (technical analysis attached to the 1985 decision document). Ground water intercepted by mining and water diverted from the North Fork of Miller Creek was stored in the Hiawatha No. 2 mine. Four bulkheads constructed in 1951 retain the water in the old workings. Maximum storage is about 120 million gallons with 60 million gallons stored under normal operations.

**TECHNICAL ANALYSIS**

**Table 2**

| <b>Baseline Water Quality</b>          |                    |            |                     |                     |         |
|--|--------------------|------------|---------------------|---------------------|---------|
|  | Average TDS (mg/l) | TSS (mg/l) | Dissolved Na (mg/l) | Dissolved Cl (mg/l) | pH      |
| In mine water                          | 700                |            |                     |                     |         |
| Surface Water (on the Wasatch Plateau) | 400                | < 30       | <15                 | <15                 | 7.6-8.1 |
| Miller Creek, Highway 10 junction      | 3,200              |            |                     |                     |         |

*Surface-water information.*

The land use description, section 411.120 pg. 2, describes the flow rates in Miller Creek as varying from 0.1 to 4 cfs and describes the flow rates in Cedar Creek as varying from 0.8 to 4.5 cfs. Streamflow information in table 3 was obtained from the Technical Analysis completed for the Hiawatha Mines Complex initial permit issuance.

**Table 3**

| <b>Streamflow</b>                    |           |   |
|--------------------------------------|-----------|---|
| Stream                               | Flow      | Region  |
| Miller Creek                         | Perennial | Below confluence with the North Fork of Miller Creek. |
| Left Fork of North Fork Miller Creek | Diverted  | Underground Storage Reservoir in Hiawatha No. 2 Mine. |
| Cedar Creek                          | Perennial |   |

**Baseline Cumulative Impact Area Information.**

The Cumulative Impact Area Information (CHIA) was recently completed for the Gentry Mountain Area on September 16, 1998. Information from the Hiawatha Mine was not completed during that review. As plans for mining change the CHIA will need to be updated.

## TECHNICAL ANALYSIS

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### **Modeling.**

Water modeling specific to the Hiawatha mine was not completed in lieu of water monitoring.

### **Alternative Water Source Information.**

Section 301-332, *Anticipated Impacts of Mining*, contains a commitment to mitigate water resource impacts where significant livestock or wildlife watering sources are diminished. When water rights are determined to need replacement, watering ponds or, troughs and pipelines from alternate water sources would be constructed. Additionally, under the section entitled "Big Game Habitat, the plan states "should any springs or streams be eliminated due to subsidence, U.S. Fuel will immediately notify DOGM for a regulatory agency assessment of the magnitude of the impact. Mitigation will be implemented if necessary." The party currently responsible for mining impacts needs to be referenced in the commitments for water replacement.

### **Probable Hydrologic Consequences Determination.**

In the plan under section R645-301-523, Hiawatha Coal Company intends to open King V and VI portals for underground mining by November 1, 1999. Currently the mining operations consist of selling pond fines, providing maintenance, and conducting reclamation on areas no longer proposed to be used for operations. Therefore, the last technical analysis completed is considered to currently apply for applicable portions under this section.

### **Findings:**

This section was found to be complete and accurate under earlier reviews, however, updated information pertaining to water rights, water use, and water replacement information should be made current. The party presently responsible for mining impacts should be referenced to replace water impacted by mining. Current information should be provided in conjunction with the future proposed mining operation plan.

## **MAPS, PLANS, AND CROSS SECTIONS OF RESOURCE INFORMATION**

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

### **Analysis:**

#### **Water Monitoring Location Maps**

This map is not being reviewed at this time. It is assumed the baseline monitoring and

## **TECHNICAL ANALYSIS**

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related information are accurately represented based on previous approvals.

### **Subsurface Water Resource Maps**

This map is not being reviewed at this time. It is assumed the baseline monitoring and related information are accurately represented based on previous approvals.

### **Surface Water Resource Maps**

This map is not being reviewed at this time. It is assumed the baseline surface water resource maps and related information are accurately represented based on previous approvals.

### **Well Maps**

This map is not being reviewed at this time. It is assumed the baseline well resource maps and related information are accurately represented based on previous approvals.

### **Contour Maps**

These maps are not being reviewed at this time. It is assumed the baseline contour maps and related information are accurately represented based on previous approvals.

### **Findings:**

Based on earlier approvals this section is determined complete and accurate.

## **MINING OPERATIONS AND FACILITIES**

Regulatory Reference: R645-301-231, -301-526, -301-528.

### **Analysis:**

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

Under Division Order 97A the Permittee was required to give the Division plans for future mining operations. At the time the division order was issued the Permittee was reclaiming most of the facilities and moth balling the rest. The Permittee claimed that while they no longer intended to mine they were in the process of marketing the property of someone that might reopen the mines. The Division wanted to know the Permittee operational plan. After the Division Order 97A was issued, the permit was transferred to HCC, who want to reopen the mines. On Page 12 of Chapter 5 of the MRP the Permittee states:

HCC intends to reopen the King V and VI portals by November 1, 1999. Until that time HCC intends to:

## TECHNICAL ANALYSIS

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1. sell pond fines
2. maintain the hydrologic structures and controls
3. monitor and inspect the property as required by the permit
4. reclaim those portions of the disturbed area that HCC feels is both unnecessary for and would not be affected by the resumption of underground mining operations

The Division considers the mining schedule submitted by HCC adequate.

### Facilities and Structures

In Division Order 97A the Permittee was required to update the MRP regarding the use, maintenance and demolition of mine structures. The Division wanted to know what structures would be demolished and what structures would be left for the post mining land use. After the division order was issued, the permit was transformed. The new Permittee wants to reopen the mine. The new Permittee will determine what facilities are needed future mining operations. The Permittee gave the Division lists of the facilities and structures that are in South Fork, Middle Fork and the Processing Plant area. The Division considers those lists adequate.

In Division Order 97A the Permittee was required to update the MRP regarding the use and maintenance of coal waste, refuse and impoundment structures. They must also explain the coal storage, loading, hauling, handling and the associated haul roads located within the railroad right-of-way.

In a letter dated May 13, 1998 from Daron Haddock to Elliot Finley, the Division states that the railroad right-of-way and the associated haul road will not be included as part of the permit area. Therefore, the Permittee does not need to give the Division any additional information.

### Findings:

The Permittee met the minimum requirements of this section.

## TECHNICAL ANALYSIS

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# OPERATION PLAN

## SUBSIDENCE CONTROL PLAN

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

### Analysis:

#### Subsidence control plan.

##### *Stream Buffer Zones*

Room and pillar mining with full or partial extraction is the only mining that has occurred at the Hiawatha mine. Within section 645-301-525, the mine plan discusses pillar extraction of second seam mining inside a perennial stream buffer zone. The plan states that 60 days prior to extracting a second seam within a 20 degree angle of draw from a perennial stream U.S. Fuel shall present a detailed evaluation of the anticipated effects of multiple seam mining on perennial streams to the regulatory authority for review and approval and will be based upon multiple seam mining in similar areas (page 25).

The following effects were noted to have the potential to occur with subsidence within the plan:

1. Surface fractures could contribute to changes in existing water patterns for springs, seeps and streams. Diminution of surface and ground water sources could have an affect on livestock and wildlife water availability.
2. Water resources for 11 springs issuing from the North Horn Formation, in the upper Miller Creek Watershed Section 7, 18, 19, 30 and 31 of Township 15 South Range 8 East combined spring flow was measured as 24 gallons per minute in October of 1983. Three springs issuing from the Castlegate formation are monitored in the forks of Miller Creek.
3. Downstream uses include municipal, industrial, and irrigation. Mining is conducted above the Star Point formation in this location and is upstream of the point of use for these sites. Any water intercepted in mining will likely seep downward and exit at points along this member.
4. Renewable surface water resources above the mined area include three or four stock watering ponds (R645-301-322). According to the plan no significant subsidence effects have been noted on these resources.

### Findings:

## TECHNICAL ANALYSIS

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Based on previous permit issuance and, the current inactive underground mining status, this section is determined complete and accurate.

### TOPSOIL AND SUBSOIL

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

#### Analysis:

##### Topsoil and Subsoil Removal

The MRP describes the salvage and handling of undisturbed soils in section 231.100. It is unlikely that any undisturbed soils will be encountered during the life of the mine, unless an expansion is planned. Should an expansion be considered, a soil survey of the site must be undertaken prior to any disturbance. An Order-I soil survey would be required to ascertain the topsoil salvage depth. The MRP should further state that a non-biased, third party, professional soil scientist will be on-site during soil salvage to monitor and supervise soil salvage operations for the purpose of maximizing soil salvage volumes and quantities. Surface disturbance activities will only take place after topsoil removal.

The estimated volumes of stockpiled soils are presented in Table II-12 and discussed in the narrative under 231.400 (page 31). Five topsoil stockpiles were identified: Middle Fork, containing 354 CY; South Fork, containing 1,206 CY; Hiawatha area east of Pond 4, containing 1,488 CY; Hiawatha area east of Pond 5, containing 1,028 CY; and Hiawatha area west of the equipment storage yard, containing 4,480 CY. In total, 8,556 CY of topsoil has been salvaged and stockpiled over the years. The total listed in Table II-12 of the plan should clearly show that of the 8,556 CY salvaged, 4,480 CY were utilized in the reclamation of Pond 5 reclamation and 1,488 CY will be used for the Pond 4 outslope reclamation. Thus, the available topsoil material stored in piles on site is 3,048 CY.

#### Findings:

The permittee must provide the following, prior to approval, in accordance with the requirements of:

**R645-301-231.400**, The total listed in Table II-12 of the plan should clearly show that of the 8,556 CY salvaged, 4,480 CY were utilized in the reclamation of Pond 5 reclamation and that 1,488 CY will be utilized for the Pond 4 reclamation. Thus, the available topsoil material stored in piles on site is 3,048 CY.

**R645-301-222**, The MRP should state that, an Order-I soil survey is required to ascertain topsoil salvage depth, in the event of any additional new disturbance at the mine site. The MRP should further state that a non-biased, third party, professional soil

## **TECHNICAL ANALYSIS**

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scientist will be on-site during soil salvage to monitor and supervise soil salvage operations for the purpose of maximizing soil salvage volumes and quantities and that surface disturbance activities will only take place after topsoil removal.

### **INTERIM STABILIZATION**

Regulatory Reference: R645-301-331

#### **Analysis:**

Chapter 3 of the plan discusses interim revegetation plans for certain types of areas. A mix of intermediate wheatgrass and alfalfa would be used for long-term interim revegetation, and a winter grain, such as barley, would be used for short-term revegetation. The seeding rate for the winter grain has been increased to 80 pounds per acre. This is the rate recommended in the "Interagency Forage and Conservation Planting Guide for Utah."

#### **Findings:**

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

### **ROAD SYSTEMS AND OTHER TRANSPORTATION FACILITIES**

Regulatory Reference: R645-301-521, -301-527, -301-534, -301-732.

#### **Analysis:**

##### **Road Systems**

In Division Order 97A the Division required the Permittee to either reclaim the North Fork road or classify it as a primary road. On Page 34 of Chapter 5 the Permittee states that the North Fork road has been classified as a primary road. Since the North Fork road is a primary road, it does not have to be reclaimed.

#### **Findings:**

The Permittee met the minimum requirements of this section.

### **SPOIL AND WASTE MATERIALS**

Regulatory Reference: R645-100-200, -301-210, -301-211, -301-212, -301-412, -301-512,

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-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:

#### Coal mine waste.

The Division is concerned about the storage of miscellaneous coal and coals mine waste in and around the disturbed area. In Division Order 97A the Permittee was required to develop a plan to place coal and coal mine waste in approved storage locations during the operational phase. The Permittee did not address these issues. The Division needs the Permittee to give the Division an operation plan for the handling of all coal and coal mine waste on or near the site because:

- R645-301-521.164 states that the location of each coal storage area will be shown on a map. None of the maps in the MRP show all the coal storage sites within the disturbed area.
- R645-301-521.165 states that the location of each coal preparation waste and underground development waste will be shown on a map.
- R645-301-521.190 allows the Division to require the Permittee to supply other relevant information. The Division considers a narrative on how the coal storage piles and coal mine waste storage areas will be managed during the operational phase relevant information.
- R645-301-536 states that all coal mine waste must be disposed in an approved facility. The Permittee has the option during the operational phase to either store coal mine waste in an approved storage site or place the material in an approved disposal facility.

### Findings:

Information provided in the response to Division Order 97A for identifying the location of all coal storage areas and coal mine waste storage areas is not considered adequate to meet the requirements of this section. Prior to approval, the Permittee must provide the following in accordance with:

**R645-301-521.164**, The Permittee must show the location of all coal storage sites in and around the disturbed area boundaries on the operations maps.

**R645-301-521.165**, The Permittee must show the location of all coal mine waste storage sites in and around the disturbed area boundaries on the operations maps.

**R645-301-521.190**, The Permittee must describe how each coal storage area and coal

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mine waste storage area will be operated.

**R645-301-536**, The Permittee must place all coal mine waste that is not in an approved storage area into an approved disposal facilities.

### 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:**

##### **Ground-water Monitoring.**

This information was not reviewed at this time. It is assumed the ground water monitoring and related information are accurately represented based on previous approvals.

##### **Surface-water Monitoring.**

This information was not reviewed at this time. It is assumed the surface water monitoring and related information are accurately represented based on previous approvals.

##### **Acid and Toxic-forming Materials.**

###### *Hydrocarbons*

Section 742.313, states that one 500 gallon unleaded gas tank and one 10,000 gallon diesel fuel tank are located inside a concrete storage structure designed to contain the volume of the tanks. A SPCC plan is on file in the engineering office. These procedures are in-place to minimize damage to the hydrologic balance in and beyond the permit area.

Other acid and toxic waste information was not reviewed this time. It is assumed the acid and toxic waste and related information are accurately represented based on previous approvals.

##### **Transfer of Wells.**

Information regarding well transfers were not reviewed at this time. It is assumed the transfer of wells and related information are accurately represented based on previous approvals.

## **TECHNICAL ANALYSIS**

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### **Discharges into an Underground Mine.**

The Hiawatha No. 2 mine, abandoned in 1962, has been used as a water storage reservoir for culinary and mining purposes. A water diversion, from the North Fork of Miller Creek, Middle Fork Canyon, to the mine under is approved under appropriated water right no 2159. A structural hazard assessment for the Hiawatha No. 2 mine reservoir is presented in Appendix V-2. This reservoir/impoundment is inspected monthly when used for storage. Exhibit V-15, V-16 and V-17. This activity was approved with the initial permit issuance.

Using this structure again, following the present lack of use, may require additional review by the regulatory agencies and testing methods to demonstrate structure reliability.

### **Gravity Discharges.**

Gravity discharge occurs at the Mohrland Portal and is expected to continue to discharge through mining and following reclamation. See **Gravity Discharges under Reclamation Plan** in this Technical Analysis document.

### **Water Quality Standards and Effluent Limitations.**

A current copy of the UPDES permit UT0023094 is incorporated as Appendix VII-5 in the plan. This permit expires on May 31, 1999. The permit is issued to United States Fuel Company and should be transferred to the current permittee.

### **Diversions.**

Appendix VII-19 is submitted with design calculation for drainages in the Hiawatha Mine permit area. However, the CN's used for some watersheds do not match CN used for a previously approved section in Appendix VII-20 which cross referenced VII-19 as to the source for the CN (Appendix-19 was incorporated with the previous submittal associated with this division order: the previous CN information was removed during the replacement). At any rate the methods and calculations used to arrive at the CN are not provided.

### *Roads*

The primary haul road from the Middle Fork loading facility to the processing plant is presented on Exhibit VII-18C. The drainage designs are included in Appendix VII-19.

The North Fork road and drainage is shown on drawing V-13E. Appendix VII-19 was amended to include culverts and water bars along the North Fork Road. Stream fords are currently used to cross the North Fork road. Stream fords are prohibited according to 742.422 unless they are specifically approved by the Division as temporary roads used during periods of construction or, if they are not considered a primary road. The North Fork Road is identified as a primary road. To meet regulatory requirements, the operator provided culvert designs for the

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road crossings on the North Fork of Miller Creek (Appendix VII-19). The map shows the stream crossings in two locations, both of which are adjacent to the stream location according to the topographic information in Exhibit VII-19. It appears as though a section of the stream became diverted along the road rather than being retained in the pre-existing stream channel. This situation will require field verification prior to determining whether this road section meets R645-742.412, -742.42, -742.423.3 and 742.423.5. Depending on the field determination, either the road or stream channel may need to be relocated.

### *Ditches and Culverts*

A Manning's  $n$  equal to 0.033 is used to determine ditch design standards or, were otherwise described and adjusted. Velocities over 5 fps were considered erosive. Inspecting for proper channel function will ultimately be determined under field conditions.

Most culverts were sized using 0.024 for the roughness coefficient or were otherwise described and adjusted. Although the CN's provided were stated to be selected based on soils and vegetation types the methods and calculations to arrive at the CN's were not found.

The permittee has found some drainage ditches/culverts to be inadequately sized and has committed to bring those ditches into design compliance in the field when site conditions allow.

### *Middle Fork Area*

In the South Fork area culvert (57) is abandoned in place (Exhibit VII-18B). This culvert is proposed to be removed during reclamation. The rules state temporary diversions will be removed when no longer needed to achieve the purpose for which they were authorized, R645-301-742.313. Currently the runoff is diverted to DD58 and reports to sedimentation pond. The culvert had continuing maintenance problems. It is believed removal during reclamation can meet the intent of the rules as-long-as the plugged culvert does not adversely impact operational drainage flows. The site inspector will be relied upon and may determine the culvert to be a hindrance to the function of the site drainage at any time there is evidence to that effect.

### **Stream Buffer Zones.**

The following is excerpted from the Technical Analysis completed for the initial permit issuance.

Two of the existing sedimentation ponds, the upper coal storage yard pond and the sedimentation pond associated with Slurry pond No. 1, are within 100 feet of Miller Creek, [sic] a perennial stream....data from the surface-water quantity or quality do not indicate that any adverse effects on water quantity or quality are associated with these two ponds...

The permit was determined to be in compliance with regulatory requirement for these

## TECHNICAL ANALYSIS

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locations according to UMC 817.57 Hydrologic Balance: Stream Buffer Zones.

### **Sediment Control Measures**

Six small catch basins, associated with sites approved for alternate sediment control areas, are shown on Exhibit VII-18A through VII-18D. Appendix VII-15 presents designs for sediment traps 1, 3, 4 and 6. One ASCA is provided for the truck maintenance yard near the junction of the Middle Fork and South Fork haul road has hydrologic information provided in Appendix VII-11. The associated designs were reviewed under earlier approvals.

Sediment control measures for the proposed borrow areas include a combination of straw bale dikes, silt fencing or sediment ponds. Runoff controls and post mining topography are detailed in Appendix VIII-18. The associated designs were reviewed under earlier approvals.

### **Sediment Control**

#### *Processing Plant*

Surface drainage from the yard and the town of Hiawatha is conveyed to Slurry Pond #5A. According to the information under R645-301-527, Utah Railway Company owns and maintains the railroad corridors and yards that are not part of U. S. Fuels disturbed area. A portion of this area does drain to the Slurry Pond 5A. The remaining drainage is not treated. The Hiawatha Coal Processing Plant has a total of five sedimentation ponds according to Table V-7.

#### *North Fork*

The North Fork area has established vegetation in the disturbed area now under reclamation. These areas use alternate sediment control measures (ASCM).

**TECHNICAL ANALYSIS**

**Table 4**

| <b>Sediment Control Measures and Impoundments</b> |   |  |   |   |
|---|---|--|---|---|
| <b>Location</b>                                   | <b>Sediment Ponds</b>   | <b>Impoundments</b>  | <b>ASCM</b>                               | <b>Comments</b>   |
| Middle Fork                                       | Pond D008   | Hiawatha No. 2 mine water storage reservoir.   |   |   |
| South Fork  | Pond D009<br>Pond D011  | NA   | Bathhouse access road and water tank area |   |
| Processing Plant Facilities                       | Pond D003<br>Pond D004<br>Pond D005<br>Pond D006<br>Pond D007 | Slurry Pond #1^<br>Slurry Pond#2*<br>Slurry Pond #4*<br>Slurry Pond #5*<br>Slurry Pond #5A | Six small catch basins.                   | Slurry Pond #1 and #5A are used for sediment control. Pre-SMCRA use of slurry ponds include sewage containment. |
| North Fork  |   |  | Revegetated and uses silt fencing.        | Information contained in Appendix V-15.   |

^ currently mining coal waste  
 \* reclamation commenced

**Sedimentation Ponds.**

Sedimentation structure designs were previously approved and were not reviewed at this time.

**Other Treatment Facilities.**

No other treatment facilities were identified in association with this permit.

**Exemptions from Siltation Structures.**

No exemptions from siltation structures were approved under this permit amendment.

**Discharge Structures.**

Sedimentation pond discharge structure designs were previously approved and were not reviewed at this time. Sedimentation Pond 005 was determined to have the capacity for a full containment (non-discharging) structure under earlier reviews.

**Impoundments.**

## TECHNICAL ANALYSIS

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Three slurry impoundments currently exist in the permit area and are presented on Exhibit V-9. Slurry impoundment #1, Slurry impoundment #4, Slurry impoundment #5, MSHA #'s 1211-UT-09-0098;-01;-02;-03 respectively. Slurry Pond #3 no longer exists and an embankment from Slurry pond #2 remains which is now the base of refuse pile No.2.

Hiawatha Coal Company is actively removing pond fines from slurry impoundment #1. Impoundment #5 is being regraded, topsoiled and reseeded and impoundment # 4 was regraded topsoiled and seeded in fall of 1996. Impoundment 5A, a portion of slurry impoundment #5, is presently used for sediment control.

An underground reservoir in the Hiawatha No. 2 mine in Middle Fork Canyon is considered an MSHA structure. Approvals are presented in Appendix V-2.

### **Casing and sealing of wells.**

All post SMCRA openings were permanently closed through cementing beds from the bottom of the hole to 50 feet above the highest coal bed that is 4 feet or greater in thickness. The hole collar is plugged with 5 feet of concrete. The same method is proposed to be used for future boreholes unless they are approved for water monitoring (Chapter 5, Section 529).

### **Findings:**

The plan does not meet the requirements of this section. The permittee must provide the following in accordance with:

**R645-301-742.422.** A determination that demonstrate that the requirements for stream crossings are met needs to be made. The map shows the stream crossings in two locations, both of which are adjacent to the stream location according to the topographic information in Exhibit VII-19. It appears as though a section of the stream became diverted along the road rather than being retained in the pre-existing stream channel. This situation will require field verification prior to determining whether this road section meets R645-742.412, -742.42,-742.423.3 and 742.423.5. Depending on the field determination, either the road or stream channel may need to be relocated.

**R645-301-711.300.** Provide the methods and calculations used to arrive at the CN used in the runoff calculations.

## **TECHNICAL ANALYSIS**

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### **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:**

##### **Monitoring Sampling Location Maps**

This map is not being reviewed at this time. It is assumed the baseline monitoring and related information are accurately represented based on previous approvals.

##### **Subsurface Water Resource Maps**

This map is not being reviewed at this time. It is assumed the operational monitoring and related information are accurately represented based on previous approvals.

##### **Surface Water Resource Maps**

Certifications and north arrows were added to maps and corrections were made to point where field verification can be conducted.

##### **Well Maps**

This map is not being reviewed at this time. It is assumed the operational well maps and related information are accurately represented based on previous approvals.

##### **Contour Maps**

Some contour information and corrections were made to point where field verification can be conducted.

#### **Findings:**

The plan meets the minimum requirements of this section.

## TECHNICAL ANALYSIS

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# RECLAMATION PLAN

## GENERAL REQUIREMENTS

Regulatory Reference: 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:

In Division Order 97A the Division required the Permittee to provide a detailed timetable for the completion of each major step of reclamation, including but not limited to, a description of the removal of equipment, demolition of structures, backfilling and grading of all disturbed areas. This may require adding to or modifying Table III-9 or another such table to include Slurry Pond 5A and the South Fork facilities.

Since Division Order 97A was issued, the permit was transferred. The new Permittee plans to reopen the mines. The New Permittee wants to evaluate the property to determine which facilities and areas will be reclaimed and which will be used for mine. The revised reclamation time table is given in Table V-7.

In Table V-7 the new Permittee states that the North Fork Canyon will be reclaimed when no longer needed. Since the portals in North Fork Canyon have been reclaimed and are not needed for future mining the remaining facilities (pipeline) should be reclaimed as soon as practical. The new Permittee must state the year in which North Fork Canyon will be reclaimed or state why the existing facilities are needed. The Division finds that the information in Table V-7 is inadequate regarding the reclamation of the North Fork Canyon.

### Findings:

Information provided in the response to Division Order 97A for giving the Division a detailed reclamation timetable is inadequate. Prior to approval, the Permittee must provide the following in accordance with:

**R645-301-542.100**, The Permittee must provide the Division with specific dates in the reclamation timetable (including the year) when the North Fork Canyon will be reclaimed.

## TOPSOIL AND SUBSOIL

## TECHNICAL ANALYSIS

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

### Analysis:

#### Reclamation of Coal Waste

Exhibit V-9A, Hiawatha Processing Plant and Waste Disposal Sites Post and Pre-Law, illustrates the extent of disturbance in the Hiawatha area. Hiawatha Coal Company does not accept responsibility for areas designated as pre-law which have not been redisturbed by the post-law operations. Exhibit II-4A illustrates three locations (affected areas) where coal waste will be vacuumed or scraped from the soil surface and permanently placed in Slurry Pond 5, cell 5A. Any additional areas identified by the Division or the Permittee will be treated in the same manner (see Chapter 5, page 56).

Slurry Pond 5A and Slurry Pond 1/Refuse Pile 1 will be graded to final reclamation contour, topsoiled with 16 inches of substitute topsoil, surface gouged or otherwise roughened and seeded. The plan indicates on page 40 of Chapter 2 that Slurry Pond 1/Refuse Pile 1 will be resampled and analyzed for pH, EC, SAR, Na, Mg, Ca, Se, B, Al, Fe, Mn, Zn, and acid/base potential. The metals were added to the list due to high levels of Al, Fe, Mn and Zn and low pH values being previously recorded in some samples from Pond 1 and Pond 4 (see Tables II-2, II-5).

#### Soil Redistribution

Reclamation of Borrow Areas is described on pages 41 and 43 of Chapter 2, and pages 58-60 of Chapter 3. In general, the sites will be graded (Exhibit V-13), ripped, disced, raked, seeded, fertilized and mulched. Pages 41 and 43 of Chapter 2 clearly indicates that the top 12 inches of soil from a from a borrow site will be returned to that site to expedite reclamation of the borrow area. This information should be repeated where borrow areas are again discussed within the text on pages 58-60, to ensure that the permittee understands this procedure and to ensure that the DOGM inspector has the correct information at hand.

### Findings:

The permittee must provide the following, prior to approval, in accordance with the requirements of:

**R645-301-242**, The MRP should clearly indicate that the top 12 inches of soil from a from a borrow site will be returned to that site to expedite reclamation of the borrow area. This information should be repeated in the MRP wherever the reclamation of substitute topsoil is addressed. i.e. pages 58-60.

## HYDROLOGIC INFORMATION FOR RECLAMATION

Regulatory Reference: 30 CFR Sec. 784.14, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49,

## TECHNICAL ANALYSIS

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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:**

#### **Ground-water Monitoring.**

This information was not reviewed at this time. It is assumed the ground water monitoring and related information are accurately represented based on previous approvals.

#### **Surface-water Monitoring.**

This information was not reviewed at this time. It is assumed the surface water monitoring and related information are accurately represented based on previous approvals.

#### **Acid and Toxic-forming Materials.**

The slurry ponds and embankments were sampled and results indicate that Slurry Ponds 1, 3, 4 and 5 have selenium levels which vary from 0.91 to 1.93 ppm. Slurry Pond 4 has a high iron level at 15.8 p.m. and is slightly acidic. The coal refuse sampled in pond #4 has a 6.8 pH value. Other sample(s) have pH levels from 7.35 to 7.5.

Complete analysis of this information was not reviewed at this time. It is assumed related information is accurately represented based on previous approvals.

#### **Transfer of Wells.**

Information pertaining to transfer of wells for reclamation was not reviewed at this time. It is assumed the related information is accurately represented based on previous approvals.

#### **Discharges into an Underground Mine.**

No discharge into an underground mine are approved for the reclamation period.

#### **Gravity Discharges.**

Information contained in the Technical Analysis associated with the first permitting action at the Hiawatha mine states:

Generally, mine water flows southerly, away from active mining, and is discharged by gravity flow at the inactive Mohrland portal [sic.] into Cedar Creek.

## TECHNICAL ANALYSIS

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The Mohrland portal entry was used prior to January 21, 1981 and therefore, the regulatory requirement (R645-303-731.522), preventing any gravity discharge from the mine, does not apply at this entry. Specifics on the controlled discharge were not reviewed at this time and were not found in the initial TA. This discharge point is regulated under the National Pollutant Discharge Elimination System (NPDES) permit UT-0023094. Future reviews will compare water quality standards and long-term discharge compliance according to the performance standards in the R645 regulations.

Surface openings to the Hiawatha No. 1 mine and King 4 and 5 mines are in a down dip direction to preclude gravity discharges. Although these portals are currently inactive, future operations propose using the King 5 portals for access.

### **Water Quality Standards and Effluent Limitations.**

No specific problems are identified to date, however, TDS has increased. The Division will make the necessary comparisons with state and federal requirements through time and prior to any bond release.

### **Diversions.**

Within the Processing Plant area railroad and road surfaces not needed for postmining land use need to be regraded to promote drainage from upstream drainages through down gradient locations. The area north and west of the 24" CMP culvert (34) including the area down gradient of the 36" culvert (6), sedimentation pond 003, and ASCA catch basin 1 are shown to be retained features. A specific discussion that relates the post mining land use to all features to be retained needs to be provided. A reference to the text where specific postmining land use discussions are provided, or text discussing the post mining hydrology configurations relation to specific postmining land use is needed.

The North Fork stream diversion and pipeline to the King 2 mine portal will be reclaimed using in situ soils (Chapter 2, pg 36). Information contained in Section R645-301-732 and Section R645-301-540, indicate the stream diversion is proposed to be permanent. Some records suggest initial permitting action approved the diversion on the basis that it's retention meets post-mining land use requirements. Currently the North Fork stream diversion is not demonstrated to be needed for post mining land use. Plans for removal must be provided in accordance with R645-301-541.300. Since, this structure has not been shown to be needed for the authorized purpose, it is considered a temporary diversion and needs to be removed in accordance with R645-301-742.313. Approval for the diversion as a permanent structure was stated to be based on the approval included in Appendix V-14, however, no statement approving this as a permanent structure was found in the letter.

### *Roads*

Appendix VII-19 is amended to include post-mining drainage controls using culverts and

## TECHNICAL ANALYSIS

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water bars along the North Fork Road. Map VII-19 provides the locations for water drainage including waterbars and culverts along the North Fork road. These locations were provided in response to DO 97A. The road existed prior to enactment of SMCRA up to a location near the stream crossing (shown on exhibit VII-18-D). The road currently crosses the stream with gravel fords. The water bars and culverts given for the existing road drainage controls are also proposed for reclamation configuration. Water bar design information is found within Appendix VII-19.

The plan proposes the North Fork road fords will be replaced with culverts at the stream crossings. Although the designs are provided to meet minimum regulatory requirements the continued function of these culverts is questionable. The map shows the stream crossings in two locations, both of which are adjacent to the stream location according to the topographic information in Exhibit VII-19. It appears as though a section of the stream became diverted along the road rather than being retained in the pre-existing stream channel. The proposed road and culvert locations will require field verification prior to determining whether this road section meets R645-742.412, -742.42, -742.423.3 and 742.423.5. Depending on the field determination, either the road or stream channel may need to be relocated.

Chapter 5, page 5-48 states that any roads to be reclaimed will be ripped. However, any of these "reclaimed" roads that are in areas with slopes that may direct the water along the road need to be regraded. In the plan it is unclear which roads will be reclaimed in this manner. A table and specific map designations and labels identifying the areas to be ripped needs to be provided prior to determining that requirements of R645-301-762 are met.

### **Stream Buffer Zones.**

According to Chapter 2, under **Reclamation Plan-Substitute Topsoil Requirements**, should the proposed substitute topsoil area be utilized, HCC commits to consult with the regulatory authority prior to commencing with soil salvage and access road development through the riparian area.

The plan indicates Borrow area B and C will be disturbed within 50 feet of the Miller creek channel. **Approval to disturb the soil in Borrow area B and C, within 100 ft of Miller Creek, will be required under R645-301-731.600 prior to disturbance.**

### **Sediment Control Measures.**

#### *Sediment Control for Topsoil Piles*

Topsoil piles will be constructed during site regrading. Topsoil piles are stated to be protected by diverting channelized flows away from the stockpile. However, the locations where topsoil may be temporarily stockpiled during the reclamation period are not known presently. In Chapter 2, page 2-25 and page 2-30 the permit commits to submit designs for diversions around the topsoil stockpiles in the Middle Fork and South Fork areas prior to stockpiling the materials. Meanwhile, existing topsoil piles are revegetated and have berms and ditches for sediment control

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## TECHNICAL ANALYSIS

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measures and are assumed to meet requirements based on earlier approvals.

### **Siltation Structures.**

#### *Sedimentation Ponds and Diversion Structures*

After vegetation is established the permit commits to re-grade sediment ponds and diversion structures. The existing sedimentation pond and collector cutoff ditches will remain until successful revegetation is obtained and approved by DOGM for that drainage area. After approval they will be removed, regraded and revegetated (chapter 2, section 234.200). The Middle Fork Pond (RA-24) will utilize the material in the pond embankment for pond reclamation (Chapter 2, pg 36). Sedimentation ponds 011 and 009 (RA-21, Exhibit II-4B) will be also reclaimed using the soil material in the pond embankments (Chapter 2, pg 36).

Information in Chapter 2 conflicts with information presented in Appendix VII-6 for the Middle Fork area: impoundments are proposed to be removed prior to vegetation establishment. Specific information for Alternate Sediment Controls (ASC) to be employed needs to be supplied and the ASC area needs to meet criteria of R645-301-740. Areas with increased regraded slope may require additional measures. Precautions to be conducted in relation to seasonal thunderstorm periods and operations during a wet period need to be discussed. Plans, designs and maintenance for the erosion control methods need to be provided and the sediment storage capacity of practices in and downstream from the disturbed area should be used to predict the degree to which the successful mining and reclamation techniques are applied. Specific information also needs to be supplied for the ASC measures to be employed following pond removal, for locations where the pond is to be retained until vegetation is adequate to control erosion, and in the savage truck yard, gravel storage and general ASCA's during reclamation.

#### *Slurry Impoundments*

Slurry ponds #1 and #5A will be regraded. The refuse embankment outslopes will be used to fill and re-grade slurry pond #5. The projected regrading is presented on Exhibit V-13 (A, B, and C) in Chapter V. If coal fines are not available to meet the proposed design, an amendment will be submitted to the division prior to making substantial changes to the regrading plan (Chapter 2, section 234.200 **Regrading refuse materials 1/26/99**).

### **Other Treatment Facilities During Reclamation.**

Currently there are no other treatment facilities at the site. No reclamation requirements are applicable.

### **Exemptions from Siltation Structures During Reclamation.**

No exemptions from siltation structures during reclamation have been requested or granted in this amendment.

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### **Reclamation Discharge Structures.**

No discharge structures are proposed to vary from the existing designs from the sedimentation ponds. It is assumed these are complete and accurate based on previous approvals.

### **Impoundments at Reclamation.**

No permanent impoundments are proposed for the post mining land use.

### **Casing and Sealing of Wells.**

Casing and sealing of wells was not reviewed at this time. It is assumed this information is complete and accurate based on previous approvals.

### **Findings:**

The plan does not meet the requirements of this section. The permittee must provide the following in accordance with:

**R645-301-541.300.** Plans to remove the North Fork stream diversion must be provided.

This structure has not been shown to be needed for the authorized purpose it needs to be removed in accordance with R645-301-742.313.

**R645-301-762.** In the plan it is unclear which roads will be reclaimed by ripping. A table or specific map designations and labels identifying the areas to be ripped needs to be provided prior to determining that requirements of R645-301-762 are met.

**R645-301-761.** The railroad and road surfaces which are not needed to meet the post mining land should be regraded to promote upstream drainage through down gradient locations. Specific information for retention of each road or railroad structure intended for a post mining land use should be provided. A reference to the description should be contained in the hydrology reclamation section to support a determination as whether the requirements of R645-301-761 are met.

**R645-301-740.** Specific information for Alternate Sediment Controls (ASC) to be employed needs to be supplied for reclamation areas, and needs to meet the criteria of R645-301-740. Precautions that will be conducted during wet periods need to be discussed. Plans, design, and maintenance for the erosion control methods need to be provided and should consider additional measures in areas such as steep slopes. The reclamation map should be specific to the ASC measure to be employed in each area, and the sediment storage capacity of practices in and downstream from the disturbed area should be used to predict the degree to which the successful mining and reclamation techniques are applied. Information also needs to be supplied for the ASC measures to be employed following pond

## TECHNICAL ANALYSIS

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removal (where the pond is to be removed following vegetation establishment), and in general reclamation ASC areas such as the savage truck yard and gravel storage area.

**R645-301-120.** Information in Chapter 2 (Section 234.200) conflicts with information presented in Appendix VII-6 for the Middle Fork area where impoundments are proposed to be removed prior to vegetation establishment.

## REVEGETATION

Regulatory Reference: R645-301-341

### Analysis:

The revegetation methods in the plan have been previously reviewed. The permittee may want to make some adjustments to the seed mixes depending on the results of 1996 and 1997 revegetation efforts.

A few areas near the refuse piles are within the disturbed area but are not disturbed in the sense that topsoil and vegetation have been removed. They have natural vegetation, but they have been heavily affected by wind-blown coal fines. The permittee has committed to mitigate this disturbance in two areas shown on Exhibit V-9C. In Chapter 5, Section R645-301-541 under the heading "Hiawatha Processing Plant and Waste Disposal Sites Reclamation," the permittee commits to vacuum or scrape the areas to remove fine coal particles then scarify and reseed them. While the plan does not specify which seed mixture would be used to seed the area, seed mix 2 is for use on refuse disposal areas and would be appropriate for these areas. Other aspects of this remediation plan are acceptable.

Other areas besides those shown on Exhibit V-9C have also been affected by coal fines, but, as far as the Division is aware, none of these either need to be or should be remediated. In some areas, there are very few fines. In other areas, although there may be quite a few fines, it appears there would be more damage than benefit from remediation.

To reduce compaction in the upper layers, refuse materials will be ripped about every five feet to a depth of 18-24 inches. In the past, the refuse has been ripped at much greater intervals.

Hydroseeding and broadcast seeding will be the preferred seeding methods, but drill seeding could also be used. If drill seeding is used, the Division will be contacted to determine if additional measures are needed during planting since some species require a shallow seeding depth.

With the Division and the Natural Resources Conservation Service (NRCS), the permittee has examined some of the existing reference areas and proposed different areas to be used as

## TECHNICAL ANALYSIS

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revegetation success standards. These and all other reference areas and the areas to which they will be compared are shown on Table III-9. A letter from the NRCS showing production and site conditions of the reference areas (except MCR2) is in Appendix III-3.

It was impossible to locate reference area SBR3, so a new reference area was marked in the field and evaluated by the NRCS. While this area is dominated by basin big sage, it does have grass and forb understory, and the NRCS rated the range condition as "good." Exhibits III-4 and III-5 previously showed this reference area in different locations, but this discrepancy has now been corrected.

The other new reference area is a riparian area in South Fork. The site condition was rated as "fair" which is adequate for using it as a revegetation success standard. This area will be used for comparison to areas near reclaimed stream channels at the King 4, 5, and 6 Mines. The location of this reference area is shown on Exhibit III-5.

Other reference areas had been previously established but were evaluated by the NRCS representative. SBR12 was in "fair" condition," and MBR1 and PJR4 were both in "good" condition. The only area not rated was the mixed conifer reference area in Middle Fork which still had snow on it at the time of the evaluation. This reference area was previously evaluated, and it is not anticipated the rating would change.

The reference areas all have vegetation typical of the area although portions of SBR3 have been previously disturbed. Since all of the reference areas are in fair or better condition, they are considered acceptable success standards. Reference area PJR5 has been deleted.

### **Findings:**

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

## **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:**

#### **Final Surface Configuration Maps.**

The final surface configuration maps now present the proposed postmining configuration more clearly.

## TECHNICAL ANALYSIS

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### **Findings:**

The plan contains the proposed final surface configuration map.

## **BONDING AND INSURANCE REQUIREMENTS**

Regulatory Reference: R645-301-800.

### **Analysis:**

#### **Determination of bond amount.**

In Division Order 97A the Permittee was required to include the reclamation costs for reclaiming the railroad load out area and the associated haul road. In a letter from Mr. Daron Haddock to Mr. Elliot Finley date May 13, 1998 the Division stated that the railroad load out will not be required to be part of the permit area and that no bond will be required for that area.

### **Findings:**

The Permittee met the minimum requirements of this section.