



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

Michael O. Leavitt
 Governor
 Kathleen Clarke
 Executive Director
 Lowell P. Braxton
 Division Director

1594 West North Temple, Suite 1210
 PO Box 145801
 Salt Lake City, Utah 84114-5801
 801-538-5340
 801-359-3940 (Fax)
 801-538-7223 (TDD)

January 27, 2000

TO: Internal File

THRU: Paul Baker, Team Lead

FROM: Sharon Falvey, Senior Reclamation Specialist *SFK*

RE: Division Order 97A, Hiawatha Coal Company, Hiawatha Complex, ACT/007/011-97A3, Carbon County, Utah

SUMMARY:

This amendment provides information pertinent to the existing facilities at the site and provides changes associated with some contemporaneous reclamation. New MSHA designations and related changes were submitted, as well as information to address deficiencies from the previous Technical Analyses conducted for the DO97A submittals. Further permit applications are expected as the Hiawatha Coal Company proceeds in developing plans for mining.

TECHNICAL ANALYSES:

OPERATION PLAN

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:

Water Quality Standards and Effluent Limitations

A current copy of the UPDES permit UT0023094 was provided in pdf format by e-mail to the Division (the copy incorporated as Appendix VII-5 in the plan is no longer current). This

permit became effective on October 11, 1999 and expires September 30, 2004. The permit is issued to Hiawatha Coal Company for two discharge points: 1) the Moreland Portal discharge to Cedar Creek, and 2) the Hiawatha Discharge to Miller Creek from a pipe along the road inside the compound. This means all sedimentation ponds are considered to be full containment structures and cannot discharge.

Diversions

Appendix VII-19 is submitted with design calculation for drainages within the Hiawatha Mine permit area. The CN's used for the watersheds were provided and diversion design tables are submitted for reference. Designs were submitted with certification by Charles Reynolds, a professional engineer.

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 low flow channel and constructed a swale to convey the design flow within the existing channel. This design will transport most flows through the culvert while providing controlled discharge through the flood plain for higher flows. Therefore the channel will contain the 100-year, 6-hour design event within the channel bank and flood plain, while meeting the requirements of R645-301-742.422. The application included information and designs associated with the stream crossing and committed to submit the stream alteration permit upon approval in Appendix VII-16, North Fork Stream Alteration, "Summary, North Fork Stream Crossing Culverts".

Ditches and Culverts

The methods and calculations to arrive at the CN's were presented in Table 1. The first few values were compared with the runoff curve numbers for other agricultural lands from TR-55, USDA Soil Conservation Service, 1986 and appear reasonable. The soil units, however, were not provided in the table and the Hydrologic group was not compared to the soils map in the watershed area. It is assumed this information was compiled to build the table. The disturbed area CN of 90 could be considered low depending on the amount of impervious area present within the disturbed area. For dirt and gravel the number is acceptable.

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.

The ditch designs are stated to be presented with 3 inches of freeboard which is slightly less than standard minimum design practices. Drainage ditch dimensions and capacity are presented in Table 3. These designs were spot checked. Although, the applicant committed to maintain a 3 inch freeboard on ditches, standard engineering freeboard capacity criteria are for a 0.3 ft minimum freeboard. The minimum ditch freeboard, as determined from designs presented in the table varies between 0.23 and .44 feet. If it is noted that these existing ditches exceed capacity during the operation period, standard engineering freeboard capacity criteria may be required. All design criteria were not reviewed on every ditch; therefore, all criteria should be checked on any ditch where capacities are noted to be exceeded during inspections. The following ditches have less than 0.3 feet of freeboard according to Table 3 design information DD5, UD6, UD7, DD9, UD9, DD10 up, DD11, DD12A, DD15, DD16, DD16A, DD18, DD20, DD21 steep, UD27, UD28, UD31, UD41, UD44, UD49, DD54, DD58. **Some of these ditches are close enough to the standard that measuring error could make up the difference; therefore, no deficiency is identified.**

Most culverts were sized using 0.024 for the roughness coefficient or the construction material was otherwise described and the roughness coefficient was adjusted. 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 require temporary diversions to 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. This culvert had continual 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 Analyses 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 locations according to UMC 817.57 Hydrologic Balance: Stream Buffer Zones.

Sediment Control Measures

A summary of the sediment control measures provided for disturbed areas associated with the Hiawatha Mine are presented in Table 1. 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 sedimentation 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 and approved previously.

Table 1

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

^ currently mining coal waste and storage area.

* reclamation commenced

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

Vegetation is established in the North Fork Canyon in reclaimed areas. These areas use alternate sediment control measures (ASCM).

Sedimentation Ponds

Sedimentation pond designs were previously approved, and were not reviewed at this time. Four small catchbasins were approved for areas below the reclaimed refuse piles. There exists some confusion in the plan between the Sedimentation Ponds and sediment traps that were previously approved by another reviewer. This issue was not considered in this review.

Impoundments

Three refuse piles, created as slurry impoundments during historic coal possessing activities, exist in the permit area and are presented on Exhibit V-9. Hiawatha mine is actively removing pond fines from slurry impoundment #1(refuse pile number 4). This refuse pile is also used for storing coal waste and non-combustible materials. Impoundment #5 was regraded, topsoiled, and reseeded during the fall 1998 and 1999, while impoundment # 4 was regraded topsoiled and seeded during the fall 1996. Slurry Pond #3 no longer exists. The embankment from Slurry pond #2 is outside of the disturbed area and remains exposed along the north slope at the base of refuse pile No.2. The main cell of slurry impoundment #5, also referred to as slurry pond No. 5, is partially reclaimed and cell 5A is an active sedimentation pond on the impoundment. MSHA numbers for slurry impoundments/refuse piles are presented in Table 2.

Table 2. MSHA Impoundments

Impoundment	MSHA #	Previous MSHA #
Refuse Pile No. 1	1211-UT-08-02157-01	
Slurry Impoundment No.1	1211-UT-09-02157-04	1211-UT-09-0098-02
Refuse Pile No.2	Released	
Slurry Impoundment No.4	Released	1211-UT-09-0098-02
Slurry Impoundment No. 5	1211-UT-09-02157-03	1211-UT-09-0098-03

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.

Findings:

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

R645-301-742.422. The plan should include the current UPDES permit.

RECLAMATION PLAN

HYDROLOGIC INFORMATION FOR RECLAMATION

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:

Diversions

Within the Processing Plant area, railroad and road surfaces not needed for post-mining land use need to be regraded to promote drainage from upstream drainages through down gradient locations. The following are shown to be retained for the post mining land use: 1) The area north and west of the 24" CMP culvert (34) including the area down gradient of the 36" culvert (6), 2) sedimentation pond 003, and 3) ASCA catch basin 1 are shown to be retained features. Page 5-48 provides a discussion indicating the post mining land use for this area is a historic district and the area will be retained to preserve the railway corridor.

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 statements in correspondence suggest the initial permitting action approved retaining this diversion on the basis that it meets post-mining land use requirements. In the approval letter, Appendix V-14, no statement approving this as a permanent structure was found. 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.

The cover letter "3rd Response to Outstanding Deficiencies- Division Order 97A", page 2, references Table V-7. Table V-7 indicates the North Fork Diversion will be retained until it is no

longer needed. The applicant stated in the memo that it is possible the Diversion will be needed throughout the life of the mine. At this point the Division can accept the retention of the structure for future use; however, additional pipeline and structure reconfiguration may be necessary to make the diversion functional.

Drainage ditch dimension and capacity are presented in Table 3, Appendix VII-19 in the amendment for postmining ditch designs. These designs were spot checked. It was noted the applicant committed to maintain a 3 inch freeboard on ditches; however, the minimum ditch dimension identified varies between 0.2 and 0.81 feet or 2.4 inches to 9.7 inches.

Ditches UD10, DD13, UD31 and UD 37 have less than 0.3 feet of freeboard. Information in the plan indicate UD10 design information is incorrect in Table 3. Peak flows for Watershed UA-9 does not match the values presented in Table 2. Watershed DA-14 draining to DD13 was not found on Table 2, which presents the Watershed and Storm Runoff Characteristics. UD31 is a road ditch and only needs to be designed for the 10 - year, 6 - hour event and therefore is considered adequate. UD37 presented a flow depth that differs from what the division obtained for the same ditch parameters presented in Table 3. UD37 flow depth presented as 0.23 should be 0.32. No minimum ditch dimensions were presented for DD1A.

Roads

Appendix VII-19 is amended to include post-mining drainage controls using culverts and 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. 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. Map information is insufficient at this time to reflect actual site conditions. On the existing map 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 North Fork, Middle Fork, South Fork and the heavy equipment shop roads to Highway 122 are proposed to remain for post mining land use. Chapter 5, page 5-48 clarifies that other roads to be reclaimed will be regraded as necessary to promote upstream drainage through down-gradient locations. Assuming these regraded roads including reshaping to complement the drainage pattern and they meet the needs for post-mining land use the requirements of R645-301-762 specific to regrading reclaimed roads will be met.

Stream Buffer Zones

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

The plan indicates Borrow area B and C will be disturbed within 50 feet from 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. 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 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 no longer conflicts with information presented in Appendix VII-6 for the Middle Fork area: impoundments are proposed to be removed after vegetation establishment unless they are approved for ASCA treatment measures. Areas with increased regraded slopes exceeding 2H:1V will be protected by providing erosion control matting. The ASC measures to be employed following pond removal, for locations where the pond is to be retained until vegetation is established, and in the savage truck yard, gravel storage and general ASCA's will be provided by silt fences placed around the downstream perimeter and along the

restored stream channels in Middle and South Forks during reclamation. In general silt fences alone do not adequately control onsite erosion; however, it is the combination of surface roughening, mulching and vegetation establishment can result in successful ASC measures. Sediment control measures for the reclaimed lands non-refuse areas include mulching at a rate of 1.5 ton/acre either crimp-disked or tackified with hydromulch (chapter 2, pg.38). Proposed sediment control measure success will be determined under field inspection.

Findings:

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

R645-301-121.200. Correct Tables 3 and 2 in Appendix VII-19 in the plan for the following 1) UD10 design information is incorrect in Table 3. Peak flows for Watershed UA-9 do not match the values presented in Table, 2) Watershed DA-14 draining to DD13 should be included in Table 2, 3) Flow depth for UD37 presented as 0.23 should be 0.32, 4) Include appropriate minimum ditch dimensions for DD1A.

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 map V-13 was submitted. The road shown crossing the Slurry pond No. 5 main cell is assumed to be a mapping remnant of where the road was located and not a proposed retained road. The catch basin at the south end of Slurry pond No. 5 main cell is assumed to be a mapping remnant, not a proposed retained impoundment on the refuse pile. Other existing ponds are removed from the base of the Slurry Pond structures.

Findings:

The plan contains the proposed final surface configuration map. Certain assumptions were made and identified within this TA about the maps and were based on text included in the plan and R645-301 requirements.

RECOMMENDATION:

Some stipulations which remain could be submitted with the clean version if the applicant co-ordinates with the Division and there are not significant changes resulting from corrections to Watershed DA-14. Specific findings can not be made on portions of the reclamation plan until a finding is made on postmining land use issues.

sm

O:\007011.HIA\FINAL\sfd097a3-2.wpd