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TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

October 12, 2004

OK

TO: Internal File

FROM: James D. Smith, Environmental Scientist, Team Lead *DS*

RE: Replacement Of Volume 11 (RILDA Canyon Facilities), PacifiCorp, Deer Creek Mine, C/015/0018, Task ID #2032

SUMMARY:

In 1997 PacifiCorp received approval to expand its mining operations in and adjacent to Rilda Canyon. Mining expansion into the North Rilda Area was anticipated early in the permitting process. Because of this, the North Rilda Area was included in many of the baseline studies and on many of the mine permit maps. Leasing of the Mill Fork Tract added 5,562 .82 acres to the Deer Creek Mine permit. Access to the Mill Fork lease is through a set of main entries in the Hiawatha seam.

PacifiCorp evaluated long-term options to improve access to the coal reserves located to the northwest of the North Rilda Area. Options considered were:

- Acquisition of Crandall Canyon Mine;
- New portal facilities in Mill Fork Canyon; and
- New portal facilities in Rilda Canyon.

PacifiCorp and Andalex Resources were unable to arrive at a workable agreement utilizing the Crandall Canyon Mine

From extensive investigation, including in-seam horizontal drilling, PacifiCorp selected new portals facilities in Rilda Canyon as the best option. Initially, the facilities were proposed in an area disturbed by previous mining operations; however, due to concerns related to culverting approximately 1,500 feet of perennial stream PacifiCorp chose to move the proposed facility site up canyon approximately 1/2 mile.

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The proposed North Rilda Canyon Portal surface facilities will be located near the intersection of the Right and Left forks of Rilda Canyon. The proposed Rilda Canyon facilities are designed to minimize surface disturbance, covering approximately 12.1 acres, 9.0 acres at the portal area with and 3.1 acres for soil storage further down the canyon.

Underground access from the North Rilda Canyon Portal Facilities will be through two rock slopes through the Spring Canyon Member of the Star Point Sandstone. There will be two separate surface breakouts, one for a mine fan and another for intake access, located near the intersection of the Right and Left forks of Rilda Canyon. The slopes will connect with to extensions of the 1st Right Submains in the Hiawatha Seam. Excavated material from the slopes, mainly sandstone, will be stored within the mine.

Surface facilities in Rilda Canyon include the existing mine fan in the Left Fork of the canyon. Surface related facilities at the proposed North Rilda Canyon Portal Facilities include a bathhouse/office/warehouse, underground vehicle parking garage, fuel dock, water and sewer stations, rock dust silo, employee parking area, fan, sediment pond, covered and open storage area.

Coal will continue to be shipped through the existing Deer Creek mine workings to the portal in Deer Creek Canyon, from where it will be transported to the Huntington Power Plant coal storage area via the existing overland beltline. Surplus production beyond the Huntington Plant needs will continue to be trucked from the plant on state highway 31.

TECHNICAL ANALYSIS:

GENERAL CONTENTS

General Contents information is already in the Supplemental Volume, Legal and Financial and is not affected by this revision of Volume 11. A description of the permit is included with the Volume 11 revision in order to keep all permit amendment documents related to the proposed Rilda Canyon portal facilities together. Upon approval, the permit description will be inserted into its proper location of the Supplemental Volume, Legal and Financial Volume.

REPORTING OF TECHNICAL DATA

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

Analysis:

References cited are listed at the end of the Table of Contents for the Geology section and at the end of the Hydrology section, and some are identified within the text. The following sources are cited in Geology and Hydrology sections but are not adequately identified in either the text or a References table in Volumes 1, 2, 9, or 11:

- Southeastern Utah Association of Governments, 1977
- Mundorff, 1972
- Price and Waddell, 1973
- Theis (1957, p. 3)
- Vaughn Hansen Associates, 1979

Findings:

R6450301-122, The Permittee needs to provide explicit citations for referenced published materials, including but not limited to: Southeastern Utah Association of Governments, 1977; Mundorff, 1972; Price and Waddell, 1973; Theis (1957, p. 3), and Vaughn Hansen Associates, 1979.

COMPLETENESS

Regulatory Reference: 30 CFR 777.15; R645-301-150.

Analysis:

Because OSM has determined that this amendment is a Mine Plan Modification, an ACR has been done.

Findings:

The MRP amendment is not administratively complete.

RESOURCE INFORMATION

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

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CLIMATOLOGICAL RESOURCE INFORMATION

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

Analysis:

Information on precipitation, winds, and temperature is in section R645-301-724.400. Data from weather stations at the Hunter and Huntington power plants, Electric Lake, and East Mountain is updated in the Annual Reports.

Findings:

Climatological Resource Information is adequate to meet the requirements of the Coal Mining Rules.

GEOLOGIC RESOURCE INFORMATION

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

Analysis:

Geologic information for the permit and adjacent areas has been collected since 1971. This information has come from exploratory drilling, field investigations, field sampling, surface geologic mapping, aerial photography, and underground mapping of mine workings (Hydrology, p. 6-1).

Geologic information in the current MRP (especially Volumes 8, 9, and 12) and this submittal of a new Volume 11 (North Rilda Canyon Portal Facilities) is sufficient to assist in determining the probable hydrologic consequences of the proposed North Rilda Canyon Portal Facilities operation upon the quality and quantity of surface and ground water in the permit and adjacent areas, including the extent to which surface- and ground-water monitoring is necessary. It is also sufficient for determining all potentially acid- or toxic-forming strata down to and including the stratum immediately below the coal seam to be mined; determining whether reclamation can be accomplished and whether the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area; and preparing the subsidence control plan. Geologic information includes a description of the geology of the proposed permit and adjacent areas down to and including the stratum immediately below the lowest coal seam to be mined.

Geologic information includes the Star Point Sandstone, which is considered by some to be an aquifer, although water production from the Star Point Sandstone is typically from

fractures in the rock rather than the rock matrix itself. Fractures in the Star Point Sandstone contribute a portion of the flow at Rilda Springs, but the bulk of the flow is from the alluvium in the Right and Left Forks of Rilda Canyon (Hydrology, p. 45).

The geologic description includes areal and structural geology of the permit and adjacent areas and how these may affect the occurrence, availability, movement, quantity, and quality of potentially impacted surface and ground water. The description is based on maps and plans provided as resource information for the mine plan. There is site-specific information. Geophysical studies and consultant's reports are in Volume 9 (Hydrology, p. 13).

At this time, the Division has not determined it necessary to require the collection, analysis, and description of additional geologic information to protect the hydrologic balance, to minimize or prevent subsidence, or to meet the performance standards.

The alluvium just above the confluence of the Left and Right Forks is being investigated for the possibility of moving the CVSSD water collection system above the proposed disturbed area. However, the current proposal does not rely on this relocation and the outcome of the geologic investigations at the Proposed Spring Collection area does not affect the feasibility of the Rilda Canyon Facilities project as proposed.

The Permittee has not requested that the Division waive requirements for borehole information or analysis. Several maps, including HM-9 in Volume 9 – Hydrology and map 600-1 in Volume 11 identify the locations of boreholes near Rilda Canyon from which geologic information and sampling was conducted.

Appendix A lists Existing Exploration Drillhole Completion Details for the North Rilda Permit Area. Energy West Mining Company collected samples of Star Point Sandstone from boreholes drilled from the 2nd Right development entries at cross-cuts #6 and #10, near where the rock slopes are planned. Analysis results are in Volume 11 Appendix Volume - Geology Appendix B. None of the samples are considered acid- and toxic-forming according to the specifications listed DOGM's "Guidelines for Management of Topsoil and Overburden for Underground and Surface Coal Mining". Excavated material, mainly sandstone, from slope development will be stored within the mine.

(Volume 12 - Geology Appendix A lists average values for proximate analysis, fusion temperatures, and ash analyses for Hiawatha and Blind Canyon coal. Volume 12 – Geology Appendix B of tabulates basic information for boreholes for the Mill Fork Extension, which includes boreholes in and adjacent to Rilda Canyon: one representative lithologic log is included. Several additional logs are in Volume 8 – Geology, and all logs are available at the Energy West office in Huntington, Utah. Energy West collected exploration drilling and in-mine samples of roof and floor for the Blind Canyon and Hiawatha Seams for the North Rilda and Mill Fork extensions of the Deer Creek Mine, including Rilda Canyon and adjacent areas. Appendix C of

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the Geology Section of Volume 12 contains a table of the results of these chemical analyses up to 1999 and analysis results for the 2001 drilling program. Additional analyses results are in Volume 8 - Geology.)

Information on thickness and engineering properties of clays or soft rock in the stratum immediately above and below each coal seam to be mined is not in the MRP, including the Volume 11 submittal. Standard room-and-pillar mining methods are to be used for development of entries and in some areas where longwall mining cannot be done (Engineering, p. 21). Rock mechanics and roof control studies by the Permittee, its contractors, and the former Bureau of Mines have been extensive. Rock strength, entry stress distribution, abutment loads, and roof support design are consistently evaluated. All data are continually processed for efficient layout and design of the Deer Creek Mine (MRP – Part 3, page 17.)

On page 6-1 it states “The geology within and adjacent to the permit area is discussed in Sections R645-301-621 through R645-301-627.” There is no section labeled 621, although this seems to be a simple omission as geologic information begins under 645-301-620 ENVIRONMENTAL DESCRIPTIONS in the submittal. For clarity, the Permittee needs to add a heading for section R645-301-621.

Findings:

R645-301-621, -121.200, On page 6-1 it states “The geology within and adjacent to the permit area is discussed in Sections R645-301-621 through R645-301-627.” There is no section labeled 621, although this seems to be a simple formatting omission because geologic information begins under 645-301-620 ENVIRONMENTAL DESCRIPTIONS in the submittal. For clarity, the Permittee needs to include a heading for section R645-301-621.

HYDROLOGIC RESOURCE INFORMATION

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

Analysis:

Sampling and Analysis

Water quality sampling and analysis of samples collected by PacifiCorp will be done according to the "Standard Methods for the Examination of Water and Wastewater" (Hydrology, p. 34). Reference is made to Volume 9 Appendix A for sample documentation and analytical methods and detection.

Baseline Information

Ground-Water Information

Section R645-301-721 contains a description of the ownership of existing wells, springs, and other groundwater resources, including seasonal quality and quantity of groundwater and usage. Quality and quantity data sufficient to demonstrate seasonal variation and water usage are in Volume 9, the Annual Reports, and the Division's database. Locations are on map HM-1 in Volume 9. Additional ground-water information is in Volume 9.

The alluvium just above the confluence of the Left and Right Forks is being investigated for the possibility of moving the CVSSD water collection system above the proposed disturbed area. However, the current proposal does not rely on this relocation and the outcome of the geologic investigations at the Proposed Spring Collection area does not affect the feasibility of the Rilda Canyon Facilities project as proposed.

Surface-Water Information

Section R645-301-721 includes a description of all surface water bodies. Quality and quantity data sufficient to demonstrate seasonal variation and water usage are in Volume 9, the Annual Reports, and the Division's database. Locations are on map HM-1 in Volume 9. There are no discharges into any surface-water body in the proposed permit and adjacent areas. Additional surface-water information is in Volume 9.

Supplemental information

To evaluate and document the geomorphology characteristics of Rilda Creek, PacifiCorp retained EarthFax Engineering to conduct a field geomorphology investigation of Rilda Creek from above the forks to below the proposed location of the sediment pond. The objectives were to establish permanent benchmarks and cross sections along Rilda Canyon; survey channel cross sections and gradients at the established locations (in accordance with USFS guidelines) and plot the surveyed cross section and profile data; collect information and classify the stream sections in accordance with the Rosgen procedure; gather information concerning stream bed materials, evaluate piezometer data collected previously by PacifiCorp (supplemented by field observations); calculate flood-flow magnitudes based on regional regression equations; and - based on field observations and data collected by Mt. Nebo Scientific - plot various streambank zones on a plan map of the canyon. A complete discussion related to the geomorphology characteristics of Rilda Creek refer to Volume 11 Appendix Volume - Hydrology Appendix C.

UDWR conducted biological organism and habitat study of Rilda Creek. The Division asked representatives of the UDWR Southeastern Region to participate in an on-site meeting,

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discuss the impacts of this project on the biota within Rilda Canyon, and aid in the development of a comprehensive EA. During this and subsequent meetings it was decided that UDWR would conduct pre and post-disturbance evaluations of macroinvertebrate populations and identify resident fish populations in Rilda Creek. The "Preliminary Report on Surveys Conducted to Determine Potential Impacts of Rilda Surface Facility Development in Rilda Canyon During 2004" in Volume 11 Appendix Volume - Biology Appendix C marks the completion of the predisturbance work. This report includes details on macroinvertebrate and fish sampling methodologies and a limited results section. When the final report is completed, a copy will be included.

Baseline Cumulative Impact Area Information

The proposed Rilda Canyon facilities will be within the existing Deer Creek Mine permit area boundary and the East Mountain CIA. Supplemental information on biological organisms and habitat and stream geomorphology will be included in information used to update the East Mountain CHIA.

Modeling

There is no modeling involved in the proposed Rilda Canyon facilities plan.

Probable Hydrologic Consequences (PHC) Determination

Pages 37 to 60 of the Hydrology section of the Volume 11 submittal contain the PHC Determination for the permit and adjacent areas, including the proposed Rilda Canyon facilities. This PHC Determination section is based on hydrologic, geologic, geomorphologic, biologic, and other information collected for initial permitting and during subsequent operation of the Deer Creek Mine, and the PHC section restates much of this information.

Although information pertinent to the PHC Determination is discussed, often in more than one place, this PHC Determination does not contain clear, concise statements for all of the specific findings that are required by the Coal Mining Rules.

Some findings are partially addressed, although the statements are scattered through the text and need to be more complete, clear, and concise.

- *Whether adverse impacts may occur to the hydrologic balance;*
- *What impact the proposed coal mining and reclamation operation will have on acidity, suspended and total dissolved solids, and other water quality parameters of local importance*

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- *What impact the proposed coal mining and reclamation operation will have on ground-water and surface-water availability*
- *Whether the proposed SURFACE COAL MINING AND RECLAMATION ACTIVITY will proximately result in contamination, diminution or interruption of an underground source of water within the proposed permit or adjacent areas that is used for domestic, agricultural, industrial or other legitimate purpose*
- *Whether the proposed SURFACE COAL MINING AND RECLAMATION ACTIVITY will proximately result in contamination, diminution or interruption of a surface source of water within the proposed permit or adjacent areas that is used for domestic, agricultural, industrial or other legitimate purpose*

During periods of high runoff changes in quality are insignificant; however, in low flow conditions some degradation is likely due to the fact that the mine discharge waters are higher in TDS than the surface waters (Hydrology, p. 40). Water discharged from the mine might be of higher quality than if left in the natural system (Hydrology, p. 60).

Little impact to spring flow may actually occur unless geologic conditions change as a result of mining. Total elimination of flow from alluvium and other sources to the NEWUSSD springs is one potential impact. Subsidence could potentially result in the development of cracking or fracturing of the subsurface geologic stratum above the mine workings and local recharge crossing these areas could be lost from the spring recharge system (Hydrology, pp. 50-51). Ground water intercepted by mine workings in the permit area is from storage and any decrease in the natural discharge of the ground-water system is considered to be minor (Hydrology, p. 52). Impacts to water quality are negligible and may be slightly beneficial (Hydrology, p. 43). The potential for mining activities in the North Rilda Area to impact Little Bear Spring is believed to be minimal (Hydrology, p. 56). The potential for depletion of ground water in fluvial-sandstone channel systems, faults and fractures, and structural low areas is covered on pages 57 through 60: water-bearing faults may be encountered, requiring grouting to control ground-water flow into the mine (Hydrology, p. 54). Ground-water storage might be depleted (Hydrology, p. 60).

Impacts to surface water due to the underground operations of Deer Creek - North Rilda area will be minor, both in terms of quality and quantity (Hydrology, p. 38). Subsidence should not cause significant impacts to the surface water system (Hydrology, p. 40). Due to the type of mining and no surface disturbance, surface water impacts are limited (Hydrology, pp. 38-39); however, concerns with the proposed Rilda Canyon Portal Facilities are alluded to but not described (Hydrology, pp. 41-42 and 52).

Mining within the North Rilda area will have negligible impact on the regional hydrologic balance but there could be some possible local impact. There is possible mining-

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related impact on the hydrologic balance due to: subsidence of the perched aquifer systems, mining in the NEWUSSD Springs area, and interception of ground water by mine workings, mining below the Right Fork of Rilda Canyon, and access to Mill Fork (state lease ML-48258) through the Hiawatha Seam.

Other required findings do not seem to be addressed, at least not explicitly:

- *Whether acid-forming or toxic-forming materials are present that could result in the contamination of surface- or ground-water supplies;*
- *What impact the proposed coal mining and reclamation operation will have on sediment yield from the disturbed area;*
- *What impact the proposed coal mining and reclamation operation will have on flooding and streamflow alteration;*
- *Whether the UNDERGROUND COAL MINING AND RECLAMATION ACTIVITIES conducted after October 24, 1992 may result in contamination, diminution or interruption of State-appropriated Water in existence within the proposed permit or adjacent areas at the time the application is submitted*

Acid- and toxic-forming materials and soil loss and sediment yield are discussed in other sections of the MRP; however, the PHC determination does not address whether acid- or toxic-forming materials are present that could result in the contamination of surface or ground water supplies. Neither does it have findings on what impact the proposed operation will have on sediment yield from the disturbed area, acidity, total suspended and dissolved solids, and other important water quality parameters of local impact; on flooding or streamflow alteration; and on ground-water and surface-water availability.

The alluvium just above the confluence of the Left and Right Forks is being investigated for the possibility of moving the CVSSD water collection system above the proposed disturbed area; however, the current proposal does not rely on this relocation and the outcome of the geologic investigations at the Proposed Spring Collection area does not affect the feasibility of the Rilda Canyon Facilities project as proposed. The PHC mentions this study and the possible move, but there are no PHC determination findings for this relocation.

Groundwater Monitoring Plan

Page 62 of the Hydrology section states that locations of all ground-water monitoring sites and sampling schedules are in Appendix A of Volume 9 - Hydrologic Section. The detailed Hydrologic Monitoring Program in Volume 9 gives monitoring locations, the monitoring schedule, and water-quality analysis parameter lists, but it is out of date (January 2002); the most

recent version (March 2003) is in Appendix A of Volume 12. This revision of Volume 11 does not affect the water-monitoring plan.

Surface-Water Monitoring Plan

Page 63 of the Hydrology section states that locations of all surface monitoring sites and sampling schedules are in Appendix A of Volume 9 - Hydrologic Section. The detailed Hydrologic Monitoring Program in Volume 9 gives monitoring locations, the monitoring schedule, and water-quality analysis parameter lists, but it is out of date (January 2002); the most recent version (March 2003) is in Appendix A of Volume 12. This revision of Volume 11 does not affect the water-monitoring plan.

Findings:

R645-301-731.200, Reference is made to Volume 9 Appendix A for sample documentation and analytical methods and detection, but the detailed Hydrologic Monitoring Program in Volume 9 Appendix A that gives monitoring locations, the monitoring schedule, and water-quality analysis parameter lists is out of date (January 2002); the most recent version (March 2003) is in Appendix A of Volume 12.

R645-301-728.300, The Permittee needs to clearly and concisely state in the PHC Determination each of the specific findings that are required by the Coal Mining Rules. A new discussion is not required if the information used to arrive at these findings is already discussed in the MRP, neither a further explanation of possible mitigation; merely a definitive statement of each finding.

R645-301-731.611, The discussion on Wellhead/Drinking Water Source Protection and Figure HF-41 need to be updated to include the proposed Rilda Canyon facilities surface disturbance adjacent to the NEWUSSD springs.

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:

Resource maps in sections 700 are certified by a registered professional engineer.

Coal Resource and Geologic Information Maps

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The geology map, 600-1, shows the coal crop lines for the Hiawatha and Blind Canyon Seams. It does not indicate strike and dip of the seams. A licensed professional geologist prepared the map.

Strike and dip of the coal seams are shown by structural contours on the Hiawatha and Blind Canyon Seams, Maps MFU 1827D and MFU 1828D in the Geology section of Volume 12. The strike of the coal seams varies as the coal beds and surrounding strata are folded by the different structures. The dip of the coal beds in this area is usually gentle, with dips rarely exceeding 4 or 5 degrees.

There are no new coal resources associated with this amendment. Coal resource maps and mine workings maps are in other volumes of the MRP.

Monitoring and Sampling Location Maps

HM-1, the Water Monitoring Location Map, is in Volume 9 - Hydrologic Section. There is no new monitoring for the Rilda Canyon facilities.

Subsurface Water Resource Maps

Map 700-1 shows the locations of the water-supply intakes for the NEWUSSD. Detailed information on the alluvial aquifer is in Volume 9 - Hydrologic Section of the Deer Creek Mine MRP (Hydrology, p. 67), along with drawings of the NEWUSSD collection system.

Spring 80-50 is not shown on any of the maps.

Surface Water Resource Maps

Map 700-1 and other maps show locations of the surface waters that will receive discharges from affected areas in the proposed permit area. Streams and constructed culverts and ditches are also shown. Drainages that will contribute disturbed and undisturbed drainage are outlined on map 700-2. Alternate sediment control areas (ASCA) are shown on map 700-5.

Well Maps

There are no gas or oil wells in the Rilda Canyon facilities area. Water monitoring wells at the NEWUSSD system are shown on maps in Volume 9.

Findings:

R645-301-722.200, Spring 80-50 needs to be shown on 700-1 if it is within the area shown on that map, and shown other maps as appropriate.

OPERATION PLAN

ROAD SYSTEMS AND OTHER TRANSPORTATION FACILITIES

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

Analysis:

Performance Standards

Roads will be located, designed, constructed, reconstructed used, maintained and reclaimed according to R645-301-732.400, R645-301-742.400 and R645-301-762 and to achieve the following: control or prevent erosion, siltation, and the air pollution attendant to erosion by vegetating or otherwise stabilizing all exposed surfaces in accordance with current, prudent engineering practices; control or prevent additional contributions of suspended solids or stream flow or runoff outside the permit area; neither cause nor contribute to, directly or indirectly, the violation of effluent standards given under R645-301-751; minimize the diminution to or degradation of the quality or quantity of surface- and ground-water systems; and refrain from significantly altering the normal flow of water in streambeds or drainage channels (Hydrology, p. 77).

Findings:

SPOIL AND WASTE MATERIALS

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

Analysis:

Disposal of Excess Spoil, Coal Mine Waste and Noncoal Mine Waste. Disposal areas for excess spoil, coal mine waste and noncoal mine waste will be located, maintained, constructed and reclaimed to comply with R645-301-735, R645-301-736, R645-301-745, R645-301-746, R645-301-747 and R645-301-760 (Hydrology, p. 78).

Disposal Of Noncoal Mine Wastes

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Noncoal mine waste, including but not limited to grease, lubricants, paints, flammable liquids, garbage, machinery, lumber and other combustible materials generated during coal mining and reclamation operations will be placed and stored in a controlled manner in a designated temporary storage site and disposed of at a state-approved solid waste disposal area. Map 500-2 shows the location of the non-coal waste storage site (Hydrology, p. 76).

Coal Mine Waste

The location of coal mine waste temporary storage area is on map 500-2 in Volume 11. It will be constructed and maintained to comply with R645-301-746. All coal mine waste generated at the Rilda Canyon Facility will be disposed of at the Deer Creek Waste Rock Facility (Hydrology, p. 76).

Excess Spoil:

The material generated by building the portals and rock slopes will be coal mine waste, not spoil; all coal mine waste will be disposed at the Deer Creek Mine Waste Rock Disposal Facility (Hydrology, p. 76). Details on the Waste Rock Site are in Volume 10.

Nevertheless, it states in Volume 11 that excess spoil material generated during the construction of the return and intake portals to access the Hiawatha coal seam will be disposed of either at the Deer Creek Mine Waste Rock Site or stored underground (Hydrology, p. 69) or that an area designated for the disposal of excess spoil and excess spoil structures will be constructed and maintained to comply with R645-301-745 (Hydrology, p. 76).

Findings:

Information on spoil and waste materials is sufficient to meet the requirements of the Coal Mining Rules.

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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

PacifiCorp has submitted a plan to minimize disturbance to the hydrologic balance, to prevent material damage, and to support approved post-mining land use. Volume 11- North Rilda Area details the plan to minimize disturbance to the hydrologic balance related to the Rilda Canyon Portal Facilities, to prevent material damage, and to support approved post-mining land use (Hydrology, p.61).

Water quality of Rilda Creek will be protected from potential impacts associated with the Rilda Canyon Portal Facilities through a combination sediment control structures and revegetation (Hydrology, p. 67). Sediment control methods include, but are not limited to: retaining sediment within disturbed areas; diverting runoff away from disturbed areas; diverting runoff using protected channels or pipes through disturbed areas so as not to cause additional erosion; using straw dikes, riprap, check dams, mulches, vegetative sediment filters, dugout ponds and other measures that reduce overland flow velocities, reduce runoff volumes or trap sediment (Hydrology, p. 70). Handling earth materials, groundwater discharges, and runoff in a manner that minimizes the potential for pollution will protect surface water quality (Hydrology, p. 61).

Ground Water Monitoring

Monitoring of the described ground-water resources will proceed through mining and continue during reclamation until bond release. Appendix A in Volume 9 - Hydrologic Section, Monitoring gives the details of the monitoring. Equipment and structures used in conjunction with monitoring the quality and quantity of ground water on- and off-site will be properly installed, maintained, operated, and will be removed by PacifiCorp when approved by the Division. Data will be submitted in an electronic format to the Division's Coal Water-Quality Database quarterly for each monitoring location. Monitoring submittals will include analytical results from each sample taken during the quarter. When the analysis of any groundwater sample indicates noncompliance with the permit conditions, PacifiCorp will promptly notify the Division and immediately take actions provided for in R645-300-145 and R645-301-731 (Hydrology, p. 62).

Reference is made to Volume 9 Appendix A for sample documentation and analytical methods and detection, but the detailed Hydrologic Monitoring Program in Volume 9 Appendix A is out of date (January 2002); the most recent version (March 2003) is in Appendix A of Volume 12.

Surface Water Monitoring

Surface water-monitoring stations will continue to be monitored quarterly (when accessible) throughout the operational phase of the mine. Parameters analyzed, locations of all surface monitoring sites, and sampling schedules can be found in Appendix A of Volume 9 - Hydrologic Section. Long-term monitoring sites in Rilda Canyon have been equipped with

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Parshall style flumes to facilitate monitoring. Monitoring equipment and structures used in conjunction with monitoring the quality and quantity of surface water on- and off-site will be properly installed, maintained, operated, and will be removed by the PacifiCorp when approved by the Division.

Surface water will be monitored and data will be submitted in an electronic format to the Division's Coal Water-Quality Database quarterly for each monitoring location. Monitoring submittals will include analytical results from each sample taken during the quarter. When the analysis of any surface water sample indicates noncompliance with the permit conditions, PacifiCorp will promptly notify the Division and immediately take actions provided for in R645-300-145 and R645-301-731. For point source discharges, monitoring will be conducted in accordance with 40 CRF Parts 122 and 123, R645-301-751 and as required by the Utah Division of Environmental Health for National Pollutant Discharge Elimination System permit.

Monitoring will continue until the release of the reclamation bond or until an earlier date to be determined after appropriate consultation with local, state, and federal agencies (Hydrology, p. 42).

Reference is made to Volume 9 Appendix A for sample documentation and analytical methods and detection, but the detailed Hydrologic Monitoring Program in Volume 9 Appendix A is out of date (January 2002); the most recent version (March 2003) is in Appendix A of Volume 12.

Acid- and Toxic-Forming Materials and Underground Development Waste

Chemical analyses for the Blind Canyon and Hiawatha coal seams within the permit area are available from drill cores from Energy West drill holes and run-of-mine coal sampling; reference is made to Volume 8 - Geology and Volume 12 - Geology Appendix A. Data on sulfur for the Blind Canyon and Hiawatha Seams are available from drill cores and run-of-mine coal samples; reference is made to Volume 8 - Geology and Volume 12 - Geology section R645-301-624.230 (Hydrology, p. 6-14).

Volume 12 - Geology Appendix C contains a table of analyses for acid- and toxic-forming or alkalinity-producing materials above and below the coal seams to be mined. Volume 11 Appendix Volume - Geology Appendix B includes analyses of acid- and toxic-forming or alkalinity-producing materials related to the Upper Member of the Star Point Sandstone: this is representative of the underground development waste that will be generated during construction of the rock slopes (Hydrology, p. 6-14).

Transfer of Wells

In section R645-301-731.400, the Permittee commits that before final release of bond, exploratory or monitoring wells will be sealed in a safe and environmentally sound manner in accordance with 8645-301-631, R645-301-738, and R645-301-765. Wells will be transferred to another party for further use only with the prior approval of the Division, and the conditions of such transfer will comply with Utah and local laws. The Permittee will remain responsible for the proper management of the well until bond release in accordance with R645-301-529 R645-301-551, R645-301-631, R645-301-738, and R645-301-765.

Discharges Into An Underground Mine

Discharges into an underground mine are prohibited unless specifically approved by the Division. Water is one of the materials that can be discharged into a mine, but the discharge must minimize disturbance to the hydrologic balance on the permit area, prevent material damage outside the permit area, and otherwise eliminate public hazards resulting from coal mining and reclamation operations; not result in a violation of applicable water quality standards or effluent limitations; be at a known rate and quality that will meet the effluent limitations of R645-301-751 for pH and total suspended solids (except that the pH and total suspended solids limitations may be exceeded if approved by the Division); and meet with the approval of MSHA.

The plan lists the requirements given in the previous paragraph, followed by a description of the system that will be used to discharge into the mine, but does not specify how the requirements will be met. Section R645-301-513 does not indicate that MSHA has approved this discharge into the mine.

Gravity Discharges From Underground Mines

Two rock slopes will provide access from the Rilda Canyon Portal Facilities to the 1st Right Submains in the Hiawatha Seam. All rock slope development will be in the Hiawatha Seam or the Star Point Sandstone. Two separate surface breakouts will be constructed, one for the mine fan and the other for intake access. The dip of the Hiawatha seam will prevent water from the mine from discharging at the portal facilities. If groundwater is intercepted during the development of the rock slopes, seals will be installed prior to final reclamation to prevent post mine gravity discharge: the plan does not address handling or disposal of this water during construction and operation of the Rilda Canyon facilities.

Water-Quality Standards And Effluent Limitations

Because this facility is on USFS land, there can be no point source discharge. As currently designed, it does not appear there will be any non-point source discharge either, with all drainage from the road and pad areas reporting to the sediment basin and then being pumped into the mine, with any excess being fully contained in the sedimentation pond.

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Gray water and most runoff will be collected and pumped underground into abandoned areas of the mine. If the initial collection and pumping system fails, the sedimentation pond is designed to fully contain runoff from a 10-year, 24-hour storm event (Hydrology, pp. 65, 72).

Discharges of water from areas disturbed by coal mining and reclamation operations will be made in compliance with all Utah and federal water quality laws and regulations and with effluent limitations for coal mining promulgated by the U.S. EPA set forth in 40 CFR Part 434 (Hydrology, p. 77).

Diversions: General

The submittal contains general commitments to follow the Coal Mining Rules for diversions. Calculations of runoff volumes and designs for ditches, culverts, or other diversions are in Volume 11 Appendix Volume - Hydrology Appendix B.

Diversions: Perennial and Intermittent Streams

The creek in Rilda Canyon is intermittent above the NEWUA ground-water capture system and perennial below. A previous plan for the Rilda Canyon facilities included culverting 1,500 feet of the stream. The present proposal does not include any culverting or other diversion of the Rilda Canyon stream.

Separate drainage systems will be provided at the Rilda Canyon Portal Facility for undisturbed and disturbed collection systems. The undisturbed system will collect water above the portal site and from side slopes adjacent to the site and will convey it past the disturbed area into Rilda Creek. The disturbed system will collect runoff from portal area, parking lots, storage areas and bathhouse area and will convey it to the sedimentation pond (Hydrology, p. 73).

Diversions: Miscellaneous Flows

Undisturbed ephemeral drainages on the south-facing slope of North Rilda Ridge will report to Rilda Creek through a series of culverts passing beneath the facility (Hydrology, p. 67).

Stream Buffer Zones

No land within 100 feet of a perennial stream or an intermittent stream will be disturbed by coal mining and reclamation operations unless the Division specifically authorizes coal mining and reclamation operations closer to or through such a stream. The Division may authorize such activities only upon finding that coal mining and reclamation operations will not cause or contribute to the violation of applicable Utah or federal water quality standards and will not adversely affect the water quantity and quality or other environmental resources of the stream; and if there will be a temporary or permanent stream channel diversion, it will comply

with R645-301-742.300. The area not to be disturbed will be designated as a buffer zone, and the operator will mark it as specified in R645-301-521.260.

Mine construction and operations will be within 100 feet of a perennial stream. The Permittee states in section R645-301-731.600 that stream buffer zones will be maintained along Rilda Creek, and signs will be installed to indicate the area beyond which no disturbance shall take place. Water quality of Rilda Creek will be protected from potential impacts associated with the Rilda Canyon Portal Facilities through a combination of sediment control structures and revegetation. Interim revegetation is described in section R645-301-300 Biology and the drainage and sediment control plan is in Volume 11 Appendix Volume - Hydrology Appendix B.

Disturbance will be held to the minimum required to allow construction of the mine entries, bathhouse pad, parking and ancillary facilities on relatively flat areas. All grading and paving will be sloped to the north away from the receiving stream and drain to the sediment pond to minimize potential impacts. Trees and existing vegetation will be left as feasible (Hydrology, pp. 40-41).

When the MRP was amended for underground access to the North Rilda and Mill Fork tracts, a stream buffer zone was established to protect the alluvial/colluvial system of the Right Fork of Right Fork of Rilda Canyon. It was based on the extent of the riparian zone and the angle of draw from the Hiawatha Seam, the lowest seam to be mined (Hydrology, p. 67).

Sediment Control Measures

The Rilda Canyon Portal Facility is near the Rilda Canyon Springs and in an area previously disturbed by coal mining activities. The Permittee states that the drainage and sediment control for the Rilda Canyon Portal Facilities has been designed to conform to the recommendations of the Forest Service and the North Energy Water Users Association and the Utah Coal Mining Rules (Volume 11 Appendix Volume - Hydrology Appendix B, p. 1). The general concept of the plan is:

- A portion of the mine site yard will be paved with asphalt or concrete;
- The mine site and county road will be sloped to the north away from the stream;
- Natural runoff water from the north hillside will be diverted around and beneath the disturbed area via properly sized ditches and culverts;
- Runoff water from the disturbed area will be collected in an engineered, asphalt or concrete ditch and culverts along the north side of the mine site, channeled to a 5,000 gallon runoff collection tank, and pumped into the mine;
- Any overflow from the runoff collection tank will flow into a buried culvert and directly into the sediment pond to be constructed below the mine site;

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- In the unlikely event of a simultaneous failure of the pump and overflow pipe at the collection tank, any disturbed area runoff would still flow to the sedimentation pond via a surface ditch;
- A berm and chain link fence will be installed along the south side of the mine site;
- A jersey barrier and fence will also be used to separate the undisturbed and disturbed area drainages along the north side of the mine site.

Siltation Structures: General

On page 68 of the Hydrology Section, the Permittee commits that siltation structures will be constructed and maintained to comply with R645-301-742.214. Any siltation structure that impounds water will be constructed and maintained to comply with R645-301-512.240, R645-301-514.300, R645-301-515.200, R645-301-533.100 through R645-301-533.600, R645-301-733.220 through R645-301-733.224, and R645-301-743.

Siltation structures for an area will be constructed before beginning any coal mining and reclamation operations in that area and, upon construction, will be certified by a qualified registered professional engineer to be constructed as designed and as approved in the reclamation plan (Hydrology, p. 71).

Details concerning design, construction and maintenance of sediment control measures, siltation structures, sedimentation pond, and impoundments are in Volume 11 Appendix Volume - Hydrology Appendix B: Drainage and Sediment Control Plan.

Siltation Structures: Sedimentation Ponds

A temporary sediment pond will be constructed below the proposed surface facilities. It is designed to contain runoff from a 10-year, 24-hour event, with a combination of principal and emergency spillways that in combination will safely discharge runoff from a 10-year, 6-hour event.

Although all of these do not apply to a full-containment pond, the Permittee commits that the pond will be as close as possible to the disturbed area and out of perennial streams and be designed, constructed, and maintained to provide adequate sediment storage volume; provide adequate detention time to allow the effluent from the ponds to meet Utah and federal effluent limitations; provide a nonclogging dewatering device adequate to maintain the detention time required under R645-301-742.221.32; minimize, to the extent possible, short circuiting; provide periodic sediment removal sufficient to maintain adequate volume for the design event; ensure against excessive settlement; be free of sod, large roots, frozen so and acid- or toxic-forming coal processing waste; and be compacted properly (Hydrology, pp. 71-72)p. .

Preliminary plans for the Rilda Canyon Portal Facilities include construction of single sedimentation pond. Sedimentation pond designs will comply with R645-301-742 .220 and qualifying criteria of the MSHA, 30 CFR 77.216(a). Analyses utilized to determine the size and hydraulics related to the construction and operation of the sedimentation pond are in Volume 11 Appendix Volume - Hydrology Appendix B: Drainage and Sediment Control Plan (Hydrology, pp. 71 – 72).

Sedimentation ponds, whether temporary or permanent, will be designed in compliance with the requirements of R645-301-356 .300, R645-301-356 .400, R645-301-513 .200, R645-301-742.200 through R645-301-742 .240, and R645-301-763. According to page 69 of the Hydrology section, no permanent structures - including sediment ponds - are planned for the Rilda Canyon Portal Facilities; however, page 43 of Volume 11 Appendix Volume -Hydrology Appendix B: Drainage and Sediment Control Plan describes construction of a temporary pond to be used during construction and a permanent sedimentation pond for mine operation: the Permittee needs to revise page 43 so it is clear there will be no permanent impoundment or sedimentation pond at the Rilda Canyon facilities.

Siltation Structures: Other Treatment Facilities

There is no Other Treatment Facility planned for the Rilda Canyon portals. A large tank is planned as part of the sediment control; however, this is not an Other Treatment Facility as defined in the Coal Mining Rules because it will not have a point source discharge.

Domestic waste or *black water* will be held on site in a holding tank then transported to a treatment facility (Hydrology, p. 72).

Siltation Structures: Exemptions

All disturbed areas at the Rilda Canyon facilities that do not report to the sedimentation pond will be treated with ASCAs. The Permittee does not identify any areas for exemption to the requirements of R645-301-742.200 and -763.

Discharge Structures

Section R645-301-744 states that discharge from the sedimentation pond, temporary impoundments, and diversions will be controlled by energy dissipators, riprap channels, and - where necessary - other devices. Discharge structures will be designed according to standard engineering design procedures.

Discharge structures will be located, maintained, constructed and reclaimed to comply with R645-301-733 R645-301-734, R645-301-743, R645-301-745 and R645-301-760 (Hydrology, p. 78).

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Reference is made to Volume 11 Appendix Volume - Hydrology Appendix B: Drainage and Sediment Control Plan. The culvert outlet from the sedimentation pond will be equipped with an adequately sized riprap apron to slow the combined flow sufficiently to prevent erosion of the downstream channel (Hydrology, p. 42). Riprap or other protection such as culverts or concrete will be placed at all inlets and outlets to prevent scouring. Riprap will consist of substantial, non-slaking rock material of adequate size (Hydrology, p. 33).

Impoundments

Impoundments will be located, maintained, constructed and reclaimed to comply with R645-301-733 R645-301-734, R645-301-743, R645-301-745 and R645-301-760 (Hydrology, p. 78).

Section R645-301-530 discusses a temporary basin, located on the east side of the parking lot area, that will provide sediment control for the 9 acres of the portal facilities area. The basin will be divided into two compartments, a 7,541-gallon Basin #1 for gray water (boot wash, showers, floor drains, etc.) and an 18,506-gallon Basin #2 for washdown and precipitation runoff. The containment basins and pumps will be housed in 30-foot x 60-foot pre-engineered building.

Basin #1 will be pumped directly into an abandoned area of the underground mine workings, which dip to the east away from any potential public water source in Rilda Canyon. The waterline into the mine will be installed by drilling approximately 800 feet through the Star Point Sandstone to the abandoned workings of the 2nd Right longwall panel. The drill hole will be cased with steel or HDPE pipe.

Basin #2 will overflow into Basin #1 and be pumped into the mine. If the runoff a storm event is larger than Basin #2 can contain, then Basin #2 will overflow into the emergency spillway and flow through an 18-inch CMP culvert to the sedimentation pond at the east end of the disturbed area.

The description of this system in section 731.512.7 indicates there will be a 10,000-gallon tank for washdown and runoff, which will report to a collection basin, from where the water will be pumped into the mine.

The general concept of this system is described in the plan, but some important aspects are not clear. Is this going to be tanks or "basins" – indicating ponds? If tanks, will they be buried or above the surface? Will runoff need to be pumped or will it flow directly into the tank or basin? Is there a separate 10,000-gallon tank before the collection basin for washdown and gray water? Will any of the water pumped into the mine eventually be discharged at the Deer Creek Mine portals; will it be used for mine operations?

Ponds, Impoundments, Banks, Dams, and Embankments

No permanent structures including impoundments are planned for the Rilda Canyon Portal Facilities. A temporary sedimentation pond and containment berms will be designed and constructed as specified by the R645-301-733 and R645-301-743. Design specifications are in Volume 11 R645-301-743 and Volume 11 Appendix Volume - Hydrology Appendix B (Hydrology, p. 69).

There will be no banks, dams, or embankments.

Water Replacement

The Permittee will promptly replace any State-appropriated water supply that is contaminated, diminished or interrupted by UNDERGROUND COAL MINING AND RECLAMATION ACTIVITIES conducted after October 24, 1992, if the affected water supply was in existence before the date the Division received the permit application for the activities causing the loss, contamination or interruption. The baseline hydrologic and geologic information required in R645-301-700 will be used to determine the impact of mining activities upon the water supply (Hydrology, p. 66).

In 1993, PacifiCorp and NEWUSSD agreed upon mitigation plan that included construction of a slow sand water treatment plant with a 0.5 million-gallon storage reservoir. Construction of the plant and reservoir was completed and the plant brought on-line in November 1994. Rilda Springs as one of the sources of water. PacifiCorp monitors the springs in Rilda Canyon for potential mining related impacts (Hydrology, p. 51).

To alleviate concerns with the proposed Rilda Canyon Portal Facilities, PacifiCorp and NEWSSD are investigating re-location of the Rilda Canyon Springs collection system from their current location to the mouth of the right fork of Rilda Canyon above the portal facilities. The proposed collection system study is shown on Engineering Section Map 500-2. PacifiCorp will submit an investigation plan to the Division outlining hydrologic objectives of the site investigation.

The current proposal does not rely on this relocation, and the outcome of the geologic investigations at the Proposed Spring Collection area does not affect the feasibility of the Rilda Canyon Facilities project as proposed.

Findings:

R645-301-732.210, 733.200, The Permittee needs to revise page 43 of Volume 11 Appendix Volume -Hydrology Appendix B: Drainage and Sediment Control Plan

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so it is clear there will be no permanent impoundment or sedimentation pond at the Rilda Canyon facilities.

R645-301-742, The general concept of the water collection and sediment control system is described in the plan, but the Permittee needs to clarify some information, especially in sections R645-301-530, 731.512.7, and 728 (the PHC). Is this system to use tanks or "basins", which can indicate ponds? If tanks, will they be buried or above the surface? Will runoff need to be pumped or will it flow directly into the tank or basin? Is there a separate 10,000-gallon tank before the collection basin for washdown and gray water? Will all of the water pumped into the mine eventually be discharged at the Deer Creek Mine portals, or will there be separate systems for mine discharge and surface water pumped underground? Will water pumped underground be used for mine operations?

R645-301-731.511, The Permittee needs to specify how requirements 731.511.1 through 731.511.4 will be met. Section R645-301-513 does not indicate that MSHA has approved discharge into the mine.

R645-301-731.520, The plan does not address handling or disposal of water discharging from the rock slope tunnels during construction and operation of the Rilda Canyon facilities.

R645-301-731.200, Reference is made to Volume 9 Appendix A for sample documentation and analytical methods and detection, but the detailed Hydrologic Monitoring Program in Volume 9 Appendix A is out of date (January 2002); the most recent version (March 2003) is in Appendix A of Volume 12.

R645-301-121.200, 743.120, The runoff collection tank or basin is described as 5,000 gallons in some places, as 10,000 gallons in others. The Permittee needs to clarify the size and design of this tank or basin.

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:

Mining Facilities Maps

Alternate sediment control areas (ASCA) are on map 700-5. Snow storage areas are on map 700-2.

Monitoring and Sampling Location Maps

HM-1, the Water Monitoring Location Map, is in Volume 9 - Hydrologic Section. There is no new monitoring for the Rilda Canyon facilities.

Certification Requirements

A registered professional engineer certified the maps in sections 600 and 700.

Findings:

Maps, plans, and cross sections of mining operations meet the requirements of the Coal Mining Rules.

RECLAMATION PLAN

GENERAL REQUIREMENTS

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

Analysis:

Before abandoning a permit area or seeking bond release, PacifiCorp will ensure that all temporary structures are removed and reclaimed, and that all sedimentation ponds, diversions, impoundments and treatment facilities meet the requirements of R645-301 and R645-302 for permanent structures, have been maintained properly, and meet the requirements of the approved reclamation plan for permanent structures and impoundments. PacifiCorp will renovate such structures if necessary to meet the requirements of R645-301 and R645-302 and to conform to the approved reclamation plan. Information related to the reclamation plan for the Rilda Canyon Portal Facilities is in R645-301-540 and Volume 11 Appendix Volume - Hydrology Appendix B (Hydrology, p. 78).

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

Analysis:

Casing and Sealing of Wells

All wells will be managed to comply with R645-301-748 and R645-301-765. Each water well will be cased, sealed, or otherwise managed, as approved by the Division (Hydrology, p. 78).

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:

Hydrologic Reclamation Plan

The reclamation plan is in section R645-301-540. All slopes will be compatible with the postmining land use of the area and will provide adequate drainage. Because the subdrainage areas in the reclaimed area are ephemeral and rarely receive flow, the drainage systems through the site will be armored with rock but not designed as a riprapped channel. Final surface configuration will channel any drainage that may occur from undisturbed areas through the reclaimed armored channels. Drainage will then be conveyed to road culverts that are piped to Rilda Creek. Silt fences or straw bales will be located in the reclaimed drainage to treat and control sedimentation (Engineering p. 46).

Siltation structures and diversions will be located, maintained, constructed and reclaimed according to plans and designs given under R645-301-732, R645-301-742 and R645-301-763 (Hydrology, p.77). Before abandoning the permit area or seeking bond release, PacifiCorp will ensure that all temporary structures are removed and reclaimed (Hydrology, p. 78). The road and culverts will be removed during final reclamation from the site and the Forest Development Trail will be re-established (Engineering p. 39).

All permanent sedimentation ponds, diversions, impoundments and treatment facilities meet the requirements of R645-301 and R645-302 for permanent structures, have been maintained properly, and meet the requirements of the approved reclamation plan for permanent structures and impoundments (Hydrology, p. 78). As far as is known, there are no permanent structures at the Rilda Canyon facilities.

Monitoring

Surface water-monitoring stations (Appendix A) will continue to be monitored quarterly (when accessible) throughout the operational phase of the mine. Post-mining monitoring of surface water will continue at representative stations determined with the aid and approval of DOGM. Representative surface water stations will be monitored biannually during high and low flow conditions. Monitoring will continue until the release of the reclamation bond or until an earlier date to be determined after appropriate consultation with local, state, and federal agencies (Hydrology, p. 42).

Monitoring of the described ground-water resources will proceed through mining and continue during reclamation until bond release. Removal of the Rilda Canyon piezometers will be approved by the Division in conjunction with the Utah State Division of Water Rights (Hydrology, p.62).

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:

Reclamation Monitoring And Sampling Location Maps

HM-1, the Water Monitoring Location Map, is in Volume 9 - Hydrologic Section. There is no new monitoring for the Rilda Canyon facilities.

RECOMMENDATIONS:

The application is not recommended for approval at this time.