T E C H N I C A L M E M O R A N D U M

Utah Coal Regulatory Program

February 28, 2005

TO: Internal File

THRU: D. Wayne Hedberg, Permit Supervisor

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

RE: Replacement of Volume 11 (RILDA Canyon Facilities), PacifiCorp, Deer Creek Mine, C/015/0018, Task ID #2093

SUMMARY:

In 1997 PacifiCorp received approval to expand its mining operations into the North Rilda Area in and adjacent to Rilda Canyon. In 1999, the Mill Fork Tract added 5,562 .82 acres to the Deer Creek Mine permit. Mining expansion into the North Rilda and Mill Fork tracts was anticipated early in the permitting process, and because of this, the North Rilda and Mill Fork areas were included in many of the baseline studies and on many of the mine permit maps prior to their incorporation into the MRP.

PacifiCorp evaluated long-term options to improve access to the coal reserves in the Mill Fork tract. Options considered were:

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

The proposed North Rilda Canyon Portal surface facilities will be located just below 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.

Permittee's Action	Dated	DOGM's Action	Dated
Original submittal	11/04/2003		
		Assigned Task # 1766	
		ACR Determination-incomplete	12/29/2003
.		Additional ACR information	02/04/2004
Withdrawal of amendment	08/20/2004		
		Returned to Permittee without TA	08/23/2004
Complete revision submitted	09/02/2004		
		Assigned Task # 2032	
		Tech Memo - Geology	10/13/2004
		ACR Determination	10/21/2004
		TA	10/21/2004
E-mail requesting withdrawal of amendment.	12/07/2004		
		Returned to Permittee	12/08/2004
New submittal	12/17/2004		
		Assigned Task # 2093	12/21/2004
		ACR Determination	02/28/2005
		Draft Tech Memo – Geology	02/28/2005

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.

VIOLATION INFORMATION

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

Analysis:

The NOV information found in Appendix D of the Legal and Financial Volume was last revised April 18, 2003, so it needs to be updated to the match the date of the proposed amendment.

Findings:

Information provided in the application does not meet the minimum Violation Information section of the regulations. Before approval of this submittal the Permittee needs to provide the following, in accordance with:

R645-301-113, The Permittee needs to update Violation Information for the five years preceding the date of submission of the amendment application.

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.

Findings:

Reporting of Technical Data Information is adequate to meet the requirements of this section of the Coal Mining Rules.

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 has been determined administratively complete.

RESOURCE INFORMATION

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

CLIMATOLOGICAL RESOURCE INFORMATION

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

Analysis:

Information on precipitation, winds, and temperature is discussed in section R645-301-724.400. Baseline climatological information is in Volume 9. The Annual Reports contain updated information from weather stations at the Hunter and Huntington power plants, Electric Lake, and East Mountain.

Findings:

Climatological Resource Information is adequate to meet the requirements of this section 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 from 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 11identify 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, 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 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:

Geological Resource Information is adequate to meet the requirements of this section of the Coal Mining Rules.

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" (Section 723). 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, 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, 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, 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

Section 728 of the Hydrology section of the Volume 11 submittal contains the PHC Determination for the Rilda Canyon portal facilities and adjacent areas. 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. The required PHC findings are addressed, although the statements may be scattered through the text, often outside the PHC determination. Statements of the specific findings that are required by the Coal Mining Rules could be more explicit, but the PHC determination in Volume 11 for the Rilda Canyon portal facilities meets the requirements of the R645 Coal Rules.

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 (Section 728, Hydrologic Balance-Surface Water System).

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 cracking or fracturing of the geologic strata above the mine workings, and local recharge crossing these areas could be lost from the spring recharge system ((Section 728, Spring Impacts, Overall Impact Potential)). 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 (Section 728, C. INTERCEPTION OF GROUNDWATER BY MINE WORKINGS). Impacts to water quality are negligible and may be slightly beneficial (Groundwater System). The potential for mining activities in the North Rilda Area to impact Little Bear Spring is believed to be minimal (Section 728, E. MILL FORK STATE LEASE ML-48258 ACCESS (HIAWATHA SEAM)). The potential for depletion of ground water in fluvial-sandstone channel systems, faults and fractures, and structural low areas is covered in Section 728, Depletion of Storage). If necessary to eliminate water infiltration beneath the right fork of Rilda Creek or from water-bearing faults related to Little Bear Spring, PacifiCorp will use grouting to control ground-water flow into the

mine (Section 728, *Little Bear Spring Mitigation*; Section 731.800). 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 (Section 728, Surface Water System). Subsidence should not cause significant impacts to the surface water system (Section 728, Hydrologic Balance-Surface Water System). Due to the type of mining and no surface disturbance, surface water impacts are limited (Section 728, Surface Water System). Alteration of Rilda Creek morphology; increased sediment, salinity, and flow; interference with the NEWUSSD springs; and alteration of the biologic community are concerns with the proposed Rilda Canyon Portal Facilities (Section 728, Hydrologic Balance-Surface Water System).

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-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 (Section 728, Hydrologic Balance-Groundwater).

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.

The USFS has commented that there is only a brief discussion of using salt on county road C#306 between Highway 31 and the portal facilities area, with no mention of impacts to the creek. The company needs to describe the expected impacts to the creek due to using salt on the road. The discussion in Volume 11, Section 728, states that during winter months, snow removal will be required along the entire length of county road up Rilda Canyon. This is the responsibility of the Emery County Road Department, but PacifiCorp may need to clear snow from the road with its own equipment. PacifiCorp will use a 50/50 mixture of salt and sand on the county portion of the road to make the road safe for mine personnel and other local traffic and to limit the amount of salinity in Rilda Creek. The sand/salt mixture will be stored at the Deer Creek portal facilities; none will be stored at the Rilda Canyon portal facilities, and no salt will be used within the disturbed areas of the Rilda Canyon portal facilities.

According to the Permittee (Volume 11, Section 728, Hydrologic Balance-Groundwater, F. RUNOFF AND GRAY WATER DISPOSAL - ABANDON MINE WORKINGS), Map HM-9 in Volume 9 shows development workings of the Hiawatha Seam (3rd Right) to be within approximately 215 feet of the coal seam outcrop: it isn't clear what area of the mine the

Permittee refers to because HM-9 shows projected workings (to within 50 feet of the coal-seam outcrop in Mill Fork Canyon) and does not identify any of them as 3rd Right. The Permittee states that no springs or seeps occur prior to mining along the contact of the Hiawatha Seam and the Star Point Sandstone. However, damp zones with no flow are indicated by changes in vegetation in side canyons in Rilda Canyon along the boundary between the upper member of the Star Point Sandstone and the Mancos Shale: these zones were not altered during mining of the North Rilda Ridge. The Permittee states that water intercepted by mining in North Rilda and water utilized for dust suppression migrated down dip to the east and accumulated and/or infiltrated into the Star Point Sandstone; however, HM-9 does not identify the workings where the water accumulates: the Permittee needs to refer to a map that shows the actual workings and provide an accurate description of the location of where the water accumulates.

Based on the observations just described, the Permittee believes there is a buffer zone between the abandoned mine workings and outcrop that is adequate to prevent the formation of an un-permitted ground-water discharge. Quantity of water discharge to the abandon mine workings will be monitored and reported quarterly. If changes are detected to the hydrologic balance, PacifiCorp will immediately eliminate discharge to the abandon mine workings and institute the alternative plan. The alternative plan will include disposing of the collected runoff and gray water through the established mine dewatering system and discharging the water at the approved UPD S discharge location in Deer Creek Canyon.

Under Sections B. INCREASED SEDIMENT PRODUCTION TO RILDA CREEK and E. INTERFERENCE TO RILDA SPRINGS (QUALITY) in the PHC are statements that grading and paving will be sloped to the north away from the receiving stream and drain to the sediment pond. This needs clarification, as only a small portion of surface drainage will report to the sedimentation pond: most surface drainage will be pumped underground into abandoned workings.

Groundwater Monitoring Plan

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. This revision of Volume 11 does not affect the water-monitoring plan.

Surface-Water Monitoring Plan

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.This revision of Volume 11 does not affect the water-monitoring plan.

Findings:

Hydrologic Resource Information is not considered adequate to meet the requirements of this section. Before the Division can approve this amendment the Permittee must provide the following information in accordance with:

R645-301-728, There is only a brief discussion of using salt on the county road between Highway 31 and the portal facilities area, with no mention of impacts to the creek. The company needs to describe the expected impacts to the creek due to using salt on the road [USFS].

R645-301-728, Under Sections B. INCREASED SEDIMENT PRODUCTION TO RILDA CREEK and E. INTERFERENCE TO RILDA SPRINGS (QUALITY) in the PHC are statements that grading and paving will be sloped to the north away from the receiving stream and drain to the sediment pond. This needs clarification, as only a small portion of surface drainage will report to the sedimentation pond: most surface drainage will be pumped underground into abandoned workings.

R645-301-728, According to Volume 11, Section 728, Hydrologic Balance-Groundwater, F. RUNOFF AND GRAY WATER DISPOSAL - ABANDON MINE WORKINGS, Map HM-9 shows 3rd Right development workings of the Hiawatha Seam to be within approximately 215 feet of the coal seam outcrop. This section also discusses water migrating down dip to the east and accumulating in the workings or infiltrating into the Star Point Sandstone. HM-9 does not identify the 3rd Right workings, shows projected rather than actual workings (to within 50 feet of the coal seam outcrop in Mill Fork Canyon), and does not identify the workings where the water accumulates. The Permittee needs to refer to a map that shows the actual workings and provide an accurate description of the location of where the water accumulates.

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

The Permittee has submitted maps and tables identifying the local geologic and hydrologic features. Map MFU-1823D in Volume 12 shows the locations and elevations on the surface of all exploration drill holes and test wells within the Mill Fork lease area and the coal crop lines for the Hiawatha and Blind Canyon Seams. Map 600-1 (Drawing DS1882D) in Volume 11 shows the surficial geology of Rilda Canyon and includes a general cross section.

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 the Rilda Canyon portal facilities.. 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, along with drawings of the NEWUSSD collection system. Spring 80-50 is near the Rilda Canyon portal facilities and adjacent to the proposed new ground-water collection system; it is apparently just beyond the area shown on the Rilda Canyon portal facilities 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. ASCAs 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:

Maps, Plans, and Cross Sections of Resource Information are adequate to meet the requirements of the R645 Coal Rules.

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, R645-30I-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 (Volume 11, Section 752), and located to minimize downstream sedimentation and flooding (Volume 11, Section 742.413).

Findings:

As regards hydrology, the Permittee has met the minimum requirements of the road system and other transportation facilities section of the regulations.

SPOIL AND WASTE MATERIALS

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

Analysis:

Disposal 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, 8645-301-745, R645-301-746, R645-301-747 and R645-301-760 (Volume 11, Section 754).

Disposal Of Noncoal Mine Wastes

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 (Volume 11, Section 747.100).

Coal Mine Waste

Coal mine waste may be temporarily stored within the disturbed area of the Rilda Canyon Portal Facilities before being transported to the Deer Creek waste rock site (Volume 11, Section 528). 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 (Volume 11, Section 746).

Excess Spoil

Material removed by building the portals and rock slopes will be topsoil and coal mine waste, not spoil; all coal mine waste will be disposed at the Deer Creek Mine Waste Rock Disposal Facility (Volume 11, Section 746). 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 will be disposed of either at the Deer Creek Mine Waste Rock Site or stored underground (Volume 11, Section 735) 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 (Volume 11, Section 745).

Findings:

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

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 773.17, 774.13, 784.14, 784.16, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-300-140, -300-141, -300-142, -300-143, -300-144, -300-145, -300-146, -300-147, -300-147, -300-148, -301-512, -301-514, -301-521, -301-531, -301-532, -301-533, -301-536, -301-542, -301-720, -301-731, -301-732, -301-733, -301-742, -301-743, -301-750, -301-761, -301-764.

Analysis:

General

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, Section 731). The Rilda Canyon portal facilities monitoring plan is summarized in Volume 11, Section 731.200. Appendix A of Volume 9 contains the complete water-monitoring plan for the PacifiCorp mines. 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 (Volume 11, Section 731.600). 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 (Volume 11, Section 741). Handling earth materials, groundwater discharges, and runoff in a manner that minimizes the potential for pollution will protect surface water quality (Volume 11, Section 731.120).

In Volume 11, Section 721, under subheading A. 8., in the section titled Aquifer Characteristics (on page 19 of the Hydrology Section of the current submittal), the first two sentences of the second paragraph describe three sources of groundwater moving through Rilda Canyon. The sources for this important information (such as studies documented in Volume 9) must be cited or referenced (this comment originated with the USFS).

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 (Volume 11, Section 731.200).

Surface Water Monitoring

Surface water-monitoring stations will continue to be monitored quarterly (when accessible), one sample at low flow and high flow during the first or second week of the quarter 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 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 Permittee 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 NPDES permit (Volume 11, Section 731.200).

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 (Volume 11, Section 726, Hydrologic Balance-Surface Water System, F, Surface Monitoring Plan).

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 and Volume 12 Section 624.230 (Volume 11, Section 624.330).

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, 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 (Volume 11, Section 624.320).

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 discussed in Section 731.500 of Volume 11. Disturbed area runoff and washdown/gray water will report to a 26,000-gallon tank designed to remove sediment. Water will be pumped from this tank to the abandoned 2nd Right workings through a drill hole in the Star Point Sandstone. In the mine, the water will flow downdip to the east to abandoned longwall panels. The pumps will be controlled automatically to minimize the water level in the tank. DOGM and MSHA approval to pump water into the mine has not been obtained at this time. The Permittee states that when MSHA approval is obtained, documentation will be in Volume 11, Engineering Appendix B. This documentation is not yet in the plan.

Gravity Discharges From Underground Mines

For the Rilda Canyon portal facilities, a gravity discharge from the underground mines is addressed under Section 645-301-731.520 of Volume 11. Construction and operation of the Rilda Canyon Portal Facilities will center on two rock slopes and surface breakouts for a mine-fan portal and an intake, access portal. The slopes will extend through the Spring Canyon Member of the Star Point Sandstone to intercept the Hiawatha Coal Seam. Dip of the Hiawatha Seam will prevent mine water from discharging through the portals.

Water intercepted during development of the rock slopes will be collected and diverted through the mine dewatering system and if necessary discharged at the approved UPDES outfall in Deer Creek Canyon. After completion of the rock slopes, if groundwater production continues, ground water will collected and discharge through the mine dewatering system or diverted to the portal facilities collection basin and discharged to the abandoned mine workings. If needed, seals will be installed to prevent post-mine gravity discharge.

Water-Quality Standards And Effluent Limitations

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 (Volume 11, Section 731.500). Runoff from the topsoil piles and outslopes of the road and sedimentation pond will be treated by alternate sediment control methods (Volume 11, Hydrology Appendix B, Section 2.11; Plate 700-1).

Section F in the PHC states that quantity of water discharged into the abandoned workings will be monitored and reported quarterly. If changes are detected to the hydrologic balance, PacifiCorp will immediately eliminate discharge to the abandoned mine workings and institute the alternative plan, which will include disposing of the collected runoff and gray water through the established mine dewatering system and discharging the water at the approved UPD S discharge location in Deer Creek Canyon.

Because the Rilda Canyon portal facilities are on USFS land, there can be no UPDES permit and no point source discharge at this location. The sedimentation pond is designed for total containment of the 10-year, 24-hour event; however, it is designed with both a principal and an emergency spillway. Flow from these spillways will go into undisturbed diversion ditch UD-9, which empties into Rilda Creek (Volume 11, Hydrology Appendix B, Sections 3-1 b and 3.4 g; Maps 700-1 and 700-3). The plan needs to address the possibility that discharges from the sedimentation pond would violate Utah and federal water quality laws and regulations and effluent limitations for coal mining promulgated by the U.S. Environmental Protection Agency set forth in 40 CFR Part 434.

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 tank and then being pumped into the mine, with any excess being fully contained in the sedimentation pond.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. Environmental Protection Agency set forth in 40 CFR Part 434 (Section R645-301-751 in both Volume 11 and Volume 12,). UPDES information is in Appendix B of Volume 9.

Diversions: General

In Section R645-301-732.300, the Permittee commits that construction and maintenance of all diversions will comply with the requirements of R645-301-742.100 and R645-301-742.300. Calculations of runoff volumes and designs for ditches, culverts, or other diversions are in Volume 11, 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. The 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 abandoned sections of the mine. Any excess will report to the sedimentation pond (Section R645-301-742.230).

Diversions: Miscellaneous Flows

Undisturbed ephemeral drainages at the Rilda Canyon portal facilities, on the south-facing slope of North Rilda Ridge, will report to Rilda Creek through a series of culverts passing beneath the facility (Volume 11, Section R645-301-742.330).

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 (Section 645-301-731.600). 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 Rilda Creek, a perennial stream, but there is no plan to divert it. 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 (Volume 11, Section R645-301-728, B).

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 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 (Section 645-301-731.600).

Wellhead protection for the NEWUSSD springs is covered in Volume 11, Section R645-301-728, Hydrologic Balance-Groundwater, B and in Volume 9.

Sediment Control Measures

The Rilda Canyon Portal Facility is near the Rilda Canyon Springs and in an area previously disturbed by coal mining activities. Sediment control measures will be located, maintained, constructed and reclaimed according to plans and designs given under R645-301-732, R645-301-742 and R645-301-760 (Section R645-301-752). 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, Hydrology Appendix B). Volume 11, Hydrology Appendix B contains designs for construction and maintenance of the sediment controls for the Rilda Canyon Portal Facilities.

In Volume 11, Hydrology Appendix B, Section 2.11, the Permittee indicates that at ASCA-4 and ASCA-5 at soil storage areas, silt fences will be removed after vegetation is established or two years. A specified time limit is not acceptable and the two-year limit must be removed from the plan. Sediment control must be designed, constructed and maintained using the best technology currently available, and if vegetation or other methods cannot be shown to be providing adequate sediment control, the silt fencing will need to be maintained.

Siltation Structures: General

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, 8645-301-733.220 through R645-301-733.224, and R645-301-743 (Section 732.100).

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 (Section 742.212).

Details concerning design, construction and maintenance of sediment control measures, siltation structures, sedimentation pond, and impoundments are in Volume 11, 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 25-year, 6-hour event, with a combination of principal and emergency spillways that in combination will safely discharge runoff from a 10-year, 6-hour event (Volume 11, Hydrology Appendix B, 3.4 g)). Sedimentation pond designs will be designed in compliance with the requirements of R645-301-356.300, -356 .400, 513 .200, 742.200 through 742 .240, and –763 (Volume 11, Section R645-301-732.200) and will comply with -742 .220 and qualifying criteria of the MSHA, 30 CFR 77.216(a) (Volume 11, Section R645-301-742.222). Analyses utilized to determine the size and hydraulics related to the construction and operation of the sedimentation pond are in Volume 11, Hydrology Appendix B: Drainage and Sediment Control Plan.

According to Sections 732.200, 733, and 743 of Volume 11, no permanent structures - including sediment ponds - are planned for the Rilda Canyon Portal Facilities; however, Volume 11, Hydrology Appendix B: Drainage and Sediment Control Plan describes in Section 3.5 construction of a temporary pond to be used during construction and a permanent sedimentation pond for mine operation: the Permittee needs to revise Hydrology Appendix B, Section 3.5 so it is clear there will be no permanent impoundment or sedimentation pond at the Rilda Canyon facilities.

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 (v11, Section 732.221.2 through 732.221.39.

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 (Volume 11, Section 742.230).

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, -734, -743, -745 and -760 (Volume 11, Section 753).

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 (Volume 11, Hydrology Appendix B Section 3.4 i))). Riprap or other protection such as culverts or concrete will be placed at all sedimentation pond inlets and outlets to prevent scouring. Riprap will consist of substantial, non-slaking rock material of adequate size (Volume 11, Hydrology Appendix B Section 3.1 f)). No discussion or plans were found for discharge structures at the outlets of the undisturbed-drainage bypass culverts.

Impoundments

Impoundments will be located, maintained, constructed and reclaimed to comply with R645-301-733 -734, -743, -745 and -760 (Volume 11, Section 753). Design and construction specifications for the Rilda Canyon portal facilities sedimentation pond are discussed in Volume 11, Hydrology Appendix B, Sections 3.1 and 3.4; Figures 6-9; and Tables 15-18; and on Plate 700-3.

Reclamation of the clay liner for the sedimentation pond is discussed in Volume 11, Sections 533 and 553 but not in Volume 11, Hydrology Appendix B, which is referred to in Section 533 as the location for the pond design. For clarity and consistency, the construction and reclamation of the clay liner needs to be included in the Drainage and Sediment Control Plan, Volume 11, Hydrology Appendix B.

Section R645-301-521.180 discusses the tank, located on the east side of the parking lot area, that will provide sediment control for the Rilda Canyon portal facilities.. The tank will be divided into two compartments, a 7,541-gallon Tank #l for gray water (boot wash, showers, floor drains, etc.) and an 18,506-gallon Tank #2 for washdown and precipitation runoff. The tanks and pumps will be will be housed in 30-foot x 60-foot pre-engineered building.

Tank #l 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.

Tank #2 will overflow into Tank #1 and be pumped into the mine. If the runoff a storm event is larger than Tank #2 can contain, the water will overflow into the emergency spillway and be piped to the sedimentation pond.

Ponds, Impoundments, Banks, Dams, and Embankments

No permanent structures are planned for the Rilda Canyon Portal Facilities. There will be no banks, dams, or embankments. Temporary impoundments for the Rilda Canyon portal facilities will be located, maintained, constructed and reclaimed to comply with R645-301-733 - 734, -743, -745 and -760 (Volume 11, Section 753).. Design and construction specifications for the Rilda Canyon portal facilities sedimentation pond are provided in Volume 11, Hydrology Appendix B and on Plate 700-3.

Volume 11, Sections 521.180, 532, 728, and 731.500 discuss the 26,000-gallon runoff-collection tank that will provide sediment control for the Rilda Canyon portal facilities. If runoff is larger than the tank can contain, water will overflow into the emergency spillway and be piped to the sedimentation pond.

Water Replacement

The Permittee commits to 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 (Section 731.530).

Rilda Springs is an important source of water for the communities served by NEWUSSD. PacifiCorp monitors the stream and springs in Rilda Canyon for potential mining related impacts

(Section 728, Hydrologic Balance-Groundwater, B-Mitigation). 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.

To alleviate concerns with the proposed Rilda Canyon Portal Facilities, PacifiCorp and NEWUSSD 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 Maps 700-1 and 500-2 (Section 728, Hydrologic Balance-Groundwater, E). PacifiCorp submitted an investigation plan to the Division outlining hydrologic objectives of the site investigation in Volume 11, Hydrology Appendix D. 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:

R645-301-130, In Volume 11, Section 721, under subheading A. 8., in the section titled Aquifer Characteristics (on page 19 of the Hydrology Section of the current submittal), the first two sentences of the second paragraph describe three sources of groundwater moving through Rilda Canyon. The sources for this important information (such as studies documented in Volume 9) must be cited or referenced [USFS, JDS].

R645-301-732.210, 733.200, The Permittee needs to revise Section 3.5of Volume 11, Hydrology Appendix B so it is clear there will be no permanent impoundment or sedimentation pond at the Rilda Canyon facilities.

R645-301-744.100, No discussion or plans were found for discharge structures at the outlets of the undisturbed-drainage bypass culverts. The Permittee needs to include plans for outlet structures for the bypass culverts.

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 states that when MSHA approval is obtained, documentation will be in Volume 11, Engineering Appendix B. This documentation is not yet in the plan.

R645-301-751, The plan needs to address the possibility that discharges from the sedimentation pond would violate Utah and federal water quality laws and regulations and effluent limitations for coal mining promulgated by the U.S. Environmental Protection Agency set forth in 40 CFR Part 434.

R645-301-742, In Volume 11, Hydrology Appendix B, Section 2.11, the Permittee indicates that at ASCA-4 and ASCA-5 at soil storage areas, silt fences will be removed after vegetation is established or two years. A specified time limit is not acceptable and the two-year limit must be removed from the plan. Sediment control must be designed, constructed and maintained using the best technology currently available, and if vegetation or other methods cannot be shown to be providing adequate sediment control, the silt fencing will need to be maintained.

R645-301-733, Reclamation of the clay liner for the sedimentation pond is discussed in Volume 11, Sections 533 and 553 but not in Volume 11, Hydrology Appendix B, which is referred to in Section 533 as the location for the pond design. For clarity and consistency, the construction and reclamation of the clay liner needs to be included in the Drainage and Sediment Control Plan, Volume 11, Hydrology Appendix B.

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

Diversions and impoundments are shown on Plates 700-1 and 700-2. ASCAs are shown in more detail on map 700-5. Snow storage areas are shown on map 700-2.

Monitoring and Sampling Location Maps

HM-1, the Water Monitoring Location Map, is in Volume 9. Map HM-9 shows the five shallow Rilda Canyon wells surrounding the spring collection system. 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 v11, Section 540 and Hydrology Appendix B.

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 Rilda Canyon portal facilities hydrologic reclamation plan is in Volume 11, Hydrology Appendix B, Sections 4.1 – 4.4. 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 (Section 553.100).

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 (Volume 11, Section 752). Before abandoning the permit area or seeking bond release, PacifiCorp will ensure that all temporary structures are removed and reclaimed (Section 760). The road and culverts will be removed during final reclamation from the site and the Forest Development Trail will be re-established (Section 543).

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 (Volume 11, Section 760). 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 (Volume 11, Section728, Hydrologic Balance-Surface Water System, F).

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 (Volume 11, Section 731.200).

Casing and Sealing of Boreholes and Wells

All wells will be managed to comply with R645-301-748 and R645-301-765 (Volume 11, Section 755). Each water well will be cased, sealed, or otherwise managed, as approved by the Division (Volume 11, Sections 551, 631, 731.400, and 755). Plans are to backfill or seal exploration holes or boreholes to prevent acid or toxic drainage from entering water resources, minimize disturbance in the permit and adjacent areas of the permit area. Boreholes will be filled from total depth to the surface with type II portland cement. If circulation cannot be maintained while filling, the borehole will be filled with bentonite chips to within 5 feet of the top, then a cement surface plug with a permanent identification marker will be placed on the top of the hole (Volume 11, Section 631).

CUMULATIVE HYDROLOGIC IMPACT ASSESSMENT (CHIA)

Regulatory Reference: 30 CFR Sec. 784.14; R645-301-730.

Analysis:

The Rilda Canyon portal facilities submittal is a significant revision, so the CHIA needs to be reviewed and updated if necessary.

Findings:

The Division is updating the CHIA to include the South Crandall Lease, Crandall Canyon IBC, and Rilda Canyon portal facilities.

REQUIREMENTS FOR PERMITS FOR SPECIAL CATEGORIES OF MINING

OPERATIONS IN ALLUVIAL VALLEY FLOORS

Regulatory Reference: 30 CFR Sec. 822; R645-302-324.

Analysis:

(See the Tech Memo by Priscilla Burton for additional information.) Based on information provided in the application, the Division finds that there is an alluvial valley holding Rilda Creek in the bottomlands of Rilda Canyon. The extent of the alluvial valley floor is shown on Dwg. 200-1 as map unit A. These streamlaid deposits in the bottomlands have historically been the source of irrigation and culinary water in Emery County. The application must contain additional information, such as a summary list of the characteristics of the alluvium necessary to preserve the hydrologic functions, a quantitative description of the significance of the alluvium (spring collection system) to the community downstream, the likelihood of causing material damage to the quantity or quality of surface or ground waters supplying the alluvial valley floor and in particular the Emery County Water Users springs, and a proposal for environmental monitoring during and after mining to ensure protection and preservation of the hydrologic functions of the alluvium.

Findings:

R645-302-322, -324, The application must contain the following additional information:

- A summary list of the characteristics of the alluvium necessary to preserve the hydrologic functions;
- A quantitative description of the significance of the alluvium (spring collection system) to the community downstream;
- The likelihood of causing material damage to the quantity or quality of surface or ground waters supplying the alluvial valley floor and in particular the Emery County Water Users springs;
- A proposal for environmental monitoring during and after mining to ensure protection and preservation of the hydrologic functions of the alluvium.

RECOMMENDATIONS:

The application is not recommended for approval at this time.

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