



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

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June 30, 1999

TO: File

THRU: Daron Haddock, Permit Supervisor *DORH*

FROM: Wayne H. Western, Senior Reclamation Specialist *WHW*

RE: Revision to Reclamation Plan, PacifiCorp, Deer Creek Mine, ACT/015/018-AM99C, File #2, Emery County, Utah

Summary:

On May 26, 1999, the Division received, from PacifiCorp, a revised reclamation plan for the Deer Creek Mine. The Division reviewed the revised plan and found several deficiencies. The engineering deficiencies involve the backfilling and regrading, and highwall elimination plans.

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:

The Permittee submitted a revised reclamation plan for the Deer Creek Mine on May 26, 1999. The Division reviewed the reclamation plan and made the following general findings.

- The Permittee did not give the Division a detailed timetable for all reclamation activities.
- The Permittee did not give the Division a detailed reclamation cost estimate. Prior to the submitting the revised reclamation plan the Permittee and the Division agreed to allow the Permittee to submit the reclamation cost estimate after the reclamation plan was approved.
- The backfilling and regrading plan has several deficiencies. See the backfilling and regrading section of this TA for details.
- The Permittee did not adequately address how acid- and toxic-forming materials would be handled during final reclamation.
- The Division has concerns about the water discharge from the intake portal at the Deer Creek

site. The Permittee did not include information about the portal closures except at the Deer Creek site.

Findings:

Information provided in the proposed amendment is not considered adequate to meet the requirements of this section. Prior to approval, the Permittee must provide the following in accordance with:

The Division will not address the specific deficiencies in this section. See the remaining sections of the TA of specific deficiencies.

APPROXIMATE ORIGINAL CONTOUR RESTORATION

Regulatory Reference: 30 CFR Sec. 784.15, 785.16, 817.102, 817.107, 817.133; R645-301-234, -301-270, -301-271, -301-412, -301-413, -301-512, -301-531, -301-533, -301-553, -301-536, -301-542, -301-731, -301-732, -301-733, -301-764.

Analysis:

On Page 5-8 of the May 26, 1999 submittal, the Permittee said that all areas will be reclaimed to AOC except some highwall areas and parts of the refuse piles in Deer and Elk Canyon. The Permittee did not identify the highwall areas and areas of the refuse piles that will not be reclaimed to the AOC. Neither did the Permittee state why AOC could not be achieved. Without supporting information that shows there is insufficient material to reclaim the highwalls, or that the reclaimed highwalls would be unstable or that disturbance of settled and revegetated fills would cause environmental problems the Division cannot approve the amendment.

Findings:

Information provided in the proposed amendment is not considered adequate to meet the requirements of this section. Prior to approval, the Permittee must provide the following in accordance with:

R645-301-553.500 and R645-301-553.600, The Permittee must demonstrate that the reclamation plan will eliminate all highwall to the extent practical. Highwalls can only be left if there is insufficient material to reclaim them or the reclaimed highwall would not be stable.

R645-301-537, The Permittee must reclaim the refuse piles to AOC standards unless they the areas can be excluded under the settled and revegetated fill provision of R645-301-537.

R645-301-121.200, The Permittee must identify each existing highwall and each proposed highwall remnants that will be left after final reclamation.

BACKFILLING AND GRADING

Regulatory Reference: 30 CFR Sec. 785.15, 817.102, 817.107; R645-301-234, -301-537, -301-552, -301-553, -302-230, -302-231, -302-232, -302-233.

Analysis:

General.

Slope stability: The Permittee used the stability charts from Rock Slope Engineering to show that the reclaimed slopes would be stable. The charts are based on the assumption that the material in the slope is homogeneous. The Permittee needed to show that the failure surfaces would occur in homogeneous material (provide detailed cross sections). Information in the approved MRP and the amendment show, some slopes will not have homogeneous soils. For example the refuse piles will be covered with 4 feet of material that may have different properties than the refuse. The stability charts are also based on the assumption that the failure surface will be circular. The Permittee must address the possibility that non circular failure could occur.

The slope stability analyses were done under the assumption that the soil was unsaturated. There are at least two sources of groundwater in the areas to be backfilled, the seeps by the French drains and the intake portal. The Permittee must analyze the slope for saturated conditions or show why they would remain unsaturated.

Settled and Revegetated Fills: On Page 5-8 of the May 26, 1999 submittal, the Permittee stated that the refuse piles in Deer Creek and Elk Canyon will not be reclaimed to AOC. The Permittee did not state why the refuse piles would not be reclaimed to AOC standards. The only reason why the Division could allow the refuse pile to not meet AOC standards is if the Permittee demonstrated that:

- the refuse piles are composed of nonacid-or-nontoxic forming materials
- the refuse piles will not be detrimental to the environment, or public health and safety.
- the refuse piles have a safety factor of at least 1.3
- vegetation standards have been met

Exposed coal seams, acid- and toxic-forming materials: The Permittee stated on Page 5-9 of the May 26, 1999 submittal that the refuse pile would be covered with less than 4 feet of material. However, on Page 3-67 of the approved MRP the Permittee committed to cover the refuse piles with 4 feet of materials. The Permittee did not show that the refuse piles needed less cover. Information in the MRP shows that some areas of the refuse piles have high acid-forming potential.

Minimize erosion and water pollution: The Permittee did not address how erosion and water pollution would be minimized. The proposed slopes in the amendment are straight. Slopes that are concave tend to reduce erosion and minimize water pollution better than straight slopes. The Permittee will have to show that straight slopes will minimize erosion and water pollution prior to approval of the backfilling and grading plan.

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Findings:

Information provided in the proposed amendment is not considered adequate to meet the requirement of this section. Prior to approval, the Permittee must provide the following in accordance with:

Slope stability

R645-301-552.130, The Permittee must show that the assumptions used for the stability charts are valid for the reclaimed slope. The assumption used the Permittee are that the soils will be homogeneous and dry. The refuse piles will be covered with 4-feet of cover so the slope may not be homogenous. Also, some slopes have the potential to become saturated such as the areas by the French drain and the intake portal.

Settled and Revegetated fills

R645-301-537, The Permittee must either backfill and regrade the refuse piles (waste rock piles) to meet AOC standards or show that the refuse piles meet the requirements of R645-301-537 and should be left as settled and revegetated fills.

Exposed coal seams, acid- and toxic-forming materials

R645-310-553.300, The Permittee must show how the requirements of R645-301-553.300 will be met. That regulation requires that all coal seams and acid- and toxic-forming materials will be adequately covered to control surface impact or contaminate surface or groundwater.

Minimize erosion and water pollution

R645-301-553.140, The Permittee did not show how erosion and water pollution would be minimized. The proposed slopes are straight rather than concave. Concaved slopes tend to minimize erosion more that straight slopes.

MINE OPENINGS

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:

The portals will be sealed after the mine has been shut down. The general portal closure plan is shown on Figure 5-1. A block seal will be placed in the portal 25 feet from the entrance and then backfilled. The general portal sealing and backfilling plan is adequate for all portals in the Deer Creek site except for the intake portal.

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The intake portal is located down dip from the aquifers. The Permittee does not want to place a hydrologic seal in the portal because the surrounding rock is fractured and water would seep around the seal. The Permittee proposes to place a pipe behind the seal and let the water flow through the pipe into the stream channel.

The Permittee needs to describe how the portal discharge will be monitored during the bond liability period and what steps would be taken if the drainage system failed. The Division is concerned that if the pipes clog then water would flow through the portal backfill. The pipes could be clogged from silt or chemical precipitations.

The Abandoned Mine Reclamation staff reviewed the portal closure plan for the intake portal. They determined that:

- One pipe would not be adequate because it could get plugged. They recommended that two to four pipes be used and that some of the pipes be placed above the floor.
- Instead of having the pipe go from the portal to the Deer Canyon drainage have the pipe go to a French drain near the portal. Water from the French drain would then flow into the Deer Canyon drainage. The AMR staff believes that over time the pipe in the proposed plan would become plugged and that the water would then find a new path.

The Permittee did not address how the portals outside the Deer Creek facility would be sealed. The Division needs to know how and when the other portals will be sealed. The Permittee did not include the reclamation of the portals outside the Deer Creek site in the timetable.

Findings:

Information provided in the proposed amendment is not considered adequate to meet the requirements of this section. Prior to approval, the Permittee must provide the following in accordance with:

R645-301-551, The Permittee must provide the Division with portal closure plans for all portals including those not at the Deer Creek site. Those additional portals include but are not limited to the North Fork Meetinghouse Canyon site, the Grimes Wash Canyon site and Rilda Canyon. See the analysis section of the TA for detailed concerns.

R645-301-551, The Permittee must show that the designs for the intake portal at the Deer Creek site are adequate for long term discharge from the mine. The Division concerns are if one pipe is used it could get clogged, that a long pipe will clog more easily than a short pipe (see analysis for details), how the system will be monitored and what type of remediation could be done.

R645-301-542.100, The Permittee must include the reclamation of all portal areas in the reclamation timetable.

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TOPSOIL AND SUBSOIL

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

Analysis:

NA Engineering

Findings:

NA Engineering

ROAD SYSTEMS AND OTHER TRANSPORTATION FACILITIES

Regulatory Reference: 30 CFR Sec. 701.5, 784.24, 817.150, 817.151; R645-100-200, -301-513, -301-521, -301-527, -301-534, -301-537, -301-732.

Minimum Regulatory Requirements:

Analysis:

On Page 7-1 of the May 26, 1999 submittal the Permittee state that the fan pad access road will be reclaimed as reclamation activities proceed down the Deer Creek Canyon. The mine access road will also be reclaimed, as it is no longer needed for hauling fill material. The mine access road will be removed to the point where the county road terminates in the canyon. At this point, a vehicle turnaround will be developed.

The road accessing the C1 and C2 balkline will be restored as outlined in the typical cross-section in Drawing DS-1782-D in Appendix 5-C. The culvert passing under the C1 balkline road will be removed and the channel returned to its original position.

The Permittee did not state if there are any roads associated with the other portal site. If roads exist at the other portal sites, the Permittee must describe how the roads will be reclaimed.

The Permittee plans to reclaim all roads at the Deer Creek mine site. They also plan to reclaim the access road for the C1 and C2 belt line. The cross sections for the C1 and C2 belt line access road on Map DS1782D were not drawn to scale and do not show the county road. The Division needs to have typical cross sections that are drawn to scale and show the county road.

The Permittee did not include the reclamation of the C1 and C2 belt line access road in the reclamation timetable.

Findings:

Information provided in the proposed amendment is not considered adequate to meet the

requirements of this section. Prior to approval, the Permittee must provide the following in accordance with:

R645-301-542.100, The Permittee needs to include the reclamation for the C1 and C2 access roads in the reclamation timetable.

R645-301-542.200 and R645-301-533, The Permittee must include detailed typical cross sections for the reclamation of the C1 and C2 belt line access road. The cross sections must be drawn to scale and show the county road and the drainage system.

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:

Affected area boundary maps.

Bonded area map.

The Permittee shows some of the areas that are covered by the reclamation bond on Map DS1782D (Deer Creek Mine Disturbed Area Final Reclamation Contour Map), Map CE-10884-FM (Deer Creek Mine Rilda Canyon Final Reclamation of Surface Facilities and Access Road). Map DS1782D does not show the disturbed area boundaries. The disturbed area boundaries must include full length of the conveyor belt as well as the mine site.

Map CE-10884-FM does show the disturbed area boundaries for the Rilda Canyon area. That map is considered adequate.

The Permittee does not show the disturbed area boundaries for the North Fork Meetinghouse Canyon portals or the Grimes Wash Canyon portals. The Permittee must include in the amendment reclamation maps of the North Fork Meetinghouse Canyon portals and the Grimes Wash Canyon that show the disturbed area boundaries.

Reclamation backfilling and grading maps.

Map DS1782D shows the proposed final surface configuration for the Deer Creek Mine Site. The cross sections for the Deer Creek Mine are shown on Drawing DS1783D (2 sheets) and Drawing DS1784D (1 sheet). The Permittee did not include final surface topographic maps or cross section for the North Fork Meetinghouse Canyon portal area or the Grimes Wash Canyon portal area.

The deficiencies for Map DS1782D are listed below:

- The contour lines do not extend 100-feet outside the disturbed area boundaries. In some parts of

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- the disturbed area boundary there are no contour lines (upper ledge).
- The Permittee does not identify the location of the waste rock sites. The Division needs this information to evaluate the refuse pile reclamation plan.
- All areas that are proposed to have highwall remnants must be identified.
- The contour interval in the disturbed area and the area 100 feet outside the disturbed area must be no larger than 5-feet.

The deficiencies for Cross Section DS1783D and DS1784D are listed below:

- The disturbed area boundaries area not shown on the cross section.
- The cross sections do not extend 100-feet from the disturbed area boundaries.
- The locations of the remaining highwalls are not shown.
- The location of coal seams and acid-and toxic-forming materials must be shown.
- The location of the refuse piles must be shown.
- Some disturbed areas are not shown on the cross sections, such as the upper terrace and the conveyor belt line.

Reclamation facilities maps.

The Permittee proposes to remove the structures and most of the facilities from the permit area. The Permittee plans to leave the coal mine waste facilities (refuse piles) on the mine site. They did not show the location of the refuse piles or other facilities that will be left after final reclamation.

Final surface configuration maps.

The Permittee did not provide the Division with sufficient final surface configuration maps. The contour map of the Deer Creek facility did not show the contour for the entire disturbed area and the area 100 feet beyond the disturbed area boundaries. The Permittee did not give the Division contour maps for the other disturbed areas (portal areas).

Reclamation monitoring and sampling location maps.

Reclamation surface and subsurface manmade features maps.

The Permittee must show the location of each public road that will be located within 100 feet of the permit area. The Permittee did not show the location of the county road that is next to the conveyor belt on the reclamation maps.

Reclamation treatments maps.

Findings:

Information provided in the proposed amendment is not considered adequate to meet the requirement of this section. Prior to approval, the Permittee must provide the following in accordance with:

Bond area maps

R645-301-542 and R645-301-521.163 The Permittee must show the disturbed area boundaries on the reclamation maps and cross sections. Some disturbed areas not shown on the Deer Creek mine site include the conveyor from the Deer Creek mine to the power plant, the North Fork Meetinghouse Canyon portal area and the Grimes Wash Canyon portal area. Unless the Permittee identifies the disturbed area boundaries on the maps and cross sections, the Division will be unable to evaluate the reclamation plan.

Reclamation backfilling and grading maps

R645-301-542.310, The Permittee must show the final surface configuration extending 100 feet outside the disturbed area boundaries for all reclaimed areas. Map DS1782D does not show the contours in and around the reclaimed areas at the Deer Creek site. Specifically, the Permittee did not show the contour lines in the upper bench at the Deer Creek site, nor at the other portal locations and the conveyor belt line from the mine to the power plant.

R645-301-542.310, The Permittee must show the final surface configuration for all reclaimed areas. Drawings DS1783D and DS1784D do not show the cross sections for all areas of the Deer Creek site. The Permittee did not show the cross sections for the upper bench at the Deer Creek site, nor at the other portal locations. Specifically, the Permittee did not show the cross section for the upper bench at the Deer Creek site, nor at the other portal locations and the conveyor belt line from the mine to the power plant.

R645-301-553.260 and R645-301-542.200, The Permittee must show the location of the coal mine waste disposal areas (refuse piles) on the reclamation maps and cross sections.

R645-301-553.300 and R645-301-542.200, The Permittee must show the location of each coal seam, acid-and toxic-forming materials and combustible materials on the reclamation contour maps and cross sections.

R645-301-553.200 and R645-301-542.200, The Permittee must show the location of all highwalls that will not be fully reclaimed on the final surface contour maps and cross sections. The Permittee must show the actual cross sections of all highwall remnants that will be left not typical cross sections.

R645-301-542.300, The contour intervals on the reclamation maps must be no greater than 5 feet intervals.

Reclamation facilities maps

R645-301-542.320, The Permittee will show the location of each permanent feature that will be left after final reclamation. Such features include but are not limited to the coal mine waste disposal area (refuse pile and waste rock sites).

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Final surface configuration maps

R645-301-521.150 and R645-301-542.300, The Permittee must show the final surface configuration for all reclaimed areas. Drawings DS1783D and DS1784D do not show the cross sections for all areas of the Deer Creek site. The Permittee did not show the cross sections for the upper bench at the Deer Creek site, nor at the other portal locations. Specifically, the Permittee did not show the cross section for the upper bench at the Deer Creek site, nor at the other portal locations and the conveyor belt line from the mine to the power plant.

Reclamation surface and subsurface manmade features maps

R645-301-521.123, The Permittee must show the location of each public road that is within 100 feet of the reclaimed areas. The Permittee does not show the location of the county road next to the reclaimed conveyor belt.

BONDING AND INSURANCE REQUIREMENTS

Regulatory Reference: 30 CFR Sec. 800; R645-301-800, et seq.

Minimum Regulatory Requirements:

Analysis:

Form of bond. (Reclamation Agreement)

NA

Determination of bond amount.

The Permittee did not include a revised reclamation cost estimate in the amendment. The Division was informed by the Permittee that a cost estimate would not be included until the reclamation plan was approved. The Division agreed with the concept since the reclamation bond estimate must be based on the approved plan.

Terms and conditions for liability insurance.

NA

Findings:

Information provided in the proposed amendment is not considered adequate to meet the requirements of this section. Prior to approval, the Permittee must provide the following in accordance

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with:

R645-301-830.130, The Permittee did not include a detailed reclamation cost estimate in the amendment. The Permittee informed the Division that the reclamation cost estimate would not be submitted until the reclamation plan was approved. The Division agreed to that procedure. Prior to final approval the Permittee must submit a detailed reclamation cost estimate.

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