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

Utah Coal Regulatory Program

August 9, 2005

TO: Internal File

THRU: Pamela Grubaugh-Littig, Permit Supervisor

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

RE: Appendix XVI, Phase 3 Area Reclamation Plan (Sediment Pond), PacifiCorp, Des-Bee-Dove Mine, C/015/0017, Task # 2176

SUMMARY:

Grading, recontouring, and seeding for the Phase 1 and 2 areas of the Des Bee Dove Mines reclamation were completed in 2002 and 2003. Grading, recontouring, and seeding at the pump house area were done in 2000. The sedimentation pond was left in place during this work to provide sediment control while these areas stabilized and vegetation became established. Phase 3 is the reclamation of 4.6 acres at the sedimentation pond and 2.27 acres along the 4,000-ft length of the pond-access road.

Although vegetation does not yet meet bond-release standards in the Phase 1, Phase 2, and pump house areas, it appears to be doing well enough that augmented seeding of large areas is not anticipated.

In addition to vegetation, extreme surface roughening in the form of deep pocking provides sediment control. RUSLE modeling for the Phase 1 and Phase 2 areas indicates the roughening alone should be adequate to prevent erosion and off-site sedimentation, equivalent to conditions on adjacent undisturbed areas. Because of the smaller size and gentler slopes of the Phase 3 area, results of RUSLE modeling from the Phase 1 and 2 has been applied for Phase 3 reclamation.

TECHNICAL ANALYSIS:

ENVIRONMENTAL RESOURCE INFORMATION

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

HYDROLOGIC RESOURCE INFORMATION

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

Analysis:

Modeling

The Permittee used RUSLE, developed by the NRCS, to estimate sediment contribution from undisturbed and reclaimed watersheds at Des-Bee-Dove, similar to what was done at the nearby Deer Creek Mine. A discussion of RUSLE and the calculation results are found in Appendix XIV, Section R645-301-700, Appendix B. Input values used by the Permittee were checked and appear realistic. The values for soil loss and sediment yield calculated by the Permittee seem to be reasonable approximations (RUSLE is not intended for calculations of soil loss from steep slopes, but provides at least a calculated estimate of the expected sediment levels as a starting point should further evaluation be needed).

Probable Hydrologic Consequences Determination

The Permittee has determined in the PHC that impacts to surface and ground water will be minimal. The drainage is small and ephemeral, and no ground-water resources exist in the area. Pocking and gouging, rock litter, and soil stabilization with mulch, tackifier and bonding agents will control sedimentation and erosion. The areas will be monitored monthly and during and after storms: if soil is being eroded, silt fences will be installed and if necessary the surface will be enhanced and seeded.

Groundwater Monitoring Plan

There are no ground-water resources in the Des Bee Dove area.

Surface-Water Monitoring Plan

The only surface-water resources in or adjacent to the Des Bee Dove Mine, including the sedimentation pond and sedimentation-pond road, is the ephemeral stream channel that drains the minesite and reports to the sedimentation pond.

Findings:

Hydrologic Resource Information is sufficient to meet the requirements of the Coal Mining Rules.

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:

Existing Structures and Facilities Maps

No structures or facilities will remain after removal of the sedimentation pond.

Existing Surface Configuration Maps

The existing surface configuration of the sedimentation pond and adjacent area is shown on Drawing 500-1. The post-reclamation surface configuration is shown on Drawings 500-5 and 700-1 in Appendix XVI. The configuration of the road is shown with cross sections and a centerline profile on Drawings 500-3 and 500-4.

Monitoring and Sampling Location Maps

There is only one sampling location at the Des Bee Dove Mines, the UPDES discharge point for the sedimentation pond. With removal of the pond, there will no longer be UPDES permitted discharge. There is no plan to monitor the ephemeral stream after removal of the pond.

Surface and Subsurface Manmade Features Maps

No manmade features, other than the recontoured surface, will remain in the area.

Surface Water Resource Maps

The unnamed ephemeral stream is the only surface-water resource. Both pre- and post-reclamation configurations are shown on Drawings 500-1, 500-5, and 700-1 in Appendix XVI.

Well Maps

There are currently no oil, gas, or water wells in the area.

Findings:

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

OPERATION PLAN

HYDROLOGIC INFORMATION

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

Analysis:

Groundwater Monitoring

There are no ground-water resources in or adjacent to the Des Bee Dove Mine, including the sedimentation pond and sedimentation-pond road.

Surface Water Monitoring

The only surface-water resource in or adjacent to the Des Bee Dove Mine, including the sedimentation pond and sedimentation-pond road, is the ephemeral stream channel that drains the minesite and reports to the sedimentation pond. The only sampling location at the Des Bee Dove Mines is the UPDES discharge point for the sedimentation pond. With removal of the pond, there will no longer be UPDES permitted discharge.

Water-Quality Standards And Effluent Limitations

The only sampling location at the Des Bee Dove Mines is the UPDES discharge point for the sedimentation pond. With removal of the pond, there will no longer be UPDES permitted discharge.

Diversions: General

The ditch that controls runoff from the soil pile will be removed during this phase of the reclamation. The channel of the ephemeral stream will be restored to approximate pre-mining location and conditions.

Diversions: Miscellaneous Flows

The channel of the ephemeral stream will be restored to approximate pre-mining location and conditions.

Sediment Control Measures

After removal of sedimentation pond and ASCA and grading and recontouring, surface pocking and vegetation will be the only means of providing sediment control.

Siltation Structures: General

No siltation structures will remain after removal and reclamation of the sedimentation pond and road. Pocking and vegetation will provide sediment and erosion control.

Siltation Structures: Sedimentation Ponds

The sedimentation pond is to be removed during this Phase 3 reclamation.

Discharge Structures

Discharge structures associated with the sedimentation pond are to be removed during this Phase 3 reclamation.

Impoundments

Other than the sedimentation pond, there are no other impoundments.

Ponds, Impoundments, Banks, Dams, and Embankments

The sedimentation pond is to be removed and the area reclaimed during this Phase 3 reclamation. There are no other impoundments, banks, dams, or embankments.

Findings:

Hydrologic Operation Information is sufficient to 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:

Reclamation of the sedimentation pond and sedimentation–pond road is being done in a manner that minimizes disturbance of the hydrologic balance within the permit and adjacent areas, prevents material damage to the hydrologic balance outside the permit area, and supports approved postmining land uses in accordance with the terms and conditions of the approved permit and performance standards. The Division is not requiring additional preventative, remedial, or monitoring measures. Mining and reclamation practices that minimize water pollution and changes in flow are being used.

Findings:

The Reclamation Plan is sufficient to meet the General Reclamation requirements of the Coal Mining Rules.

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 amendment, Appendix XVI, contains a plan to restore the natural drainage pattern of the sedimentation pond and adjacent areas, including the pond access road. All structures will be removed. Natural drainage patterns will be restored, and all cut and fill slopes reshaped to be compatible with the postmining land use and match the drainage pattern of the surrounding terrain.

Ongoing quarterly surface-water monitoring is described in Section R645-301-731.200, but there is no description of the monitoring site nor is one identified on maps. The status of surface-water monitoring after reclamation of the pond needs to be clarified.

The Permittee has created a watershed model using RUSLE (created by the NRCS) to demonstrate the effectiveness of the sediment controls control techniques applied to the Des Bee Dove site. This model was developed for the Phase 1 and Phase 2 areas. The model demonstrates that implementation of the Sediment Control Plan will result in average annual sediment yields that will not be greater than the sediment yield levels from pre-mined, undisturbed conditions. The RUSLE modeling indicates that the requirements of R645-301-731.224 will be met. Because of the smaller size and gentler slopes at the Sedimentation Pond and pond-access road with respect to the Phase 1 and 2 areas, sediment loss should be much lower, described as "negligible" in the narrative in Appendix XVI, Section R645-301-752, and a new RUSLE model was not generated for this area.

In Section R6745-301-762.100, in the last sentence under Discharge Methodologies, Appendix A is cited as the location for all channel design calculations. Appendix A contains a Storm hydrograph printout. The last page of Appendix A is a title sheet for Trapezoidal Channel Design, but there is nothing following. Appendix B is labeled Channel Design Information and it contains photos, FlowMaster printouts, and cross sections for the main channel. The Permittee needs to clarify where the channel design calculation s are located.

Findings:

The Hydrologic Reclamation Plan is not adequate to meet the requirements of the R645 Coal Mining Rules. Before the amendment can be approved, the Permittee must provide the following in accordance with:

R645-301-121.200, -731.200, Ongoing quarterly surface-water monitoring that "will be" done is described in Section R645-301-731.200, but there is no description of the monitoring site nor is one identified on maps in Appendix XVI. This statement

undoubtedly refers to current operational monitoring, but the indication in this reclamation amendment that this monitoring "will be" done is potentially confusing. The status of surface-water monitoring after removal of the pond needs to be clarified.

R645-301-121.200, In Section R6745-301-762.100, in the last sentence under Discharge Methodologies, Appendix A is cited as the location for all channel design calculations. Appendix A contains a Storm hydrograph printout and the last page is a title sheet for Trapezoidal Channel Design, but there is nothing following this sheet. Appendix B is labeled Channel Design Information and it contains photos, FlowMaster printouts, and cross sections for the main channel. The Permittee needs to clarify in Section R6745-301-762.100 where the channel design calculations are located.

MAPS, PLANS, AND CROSS SECTIONS OF RECLAMATION OPERATIONS

Regulatory Reference: 30 CFR Sec. 784.23; R645-301-323, -301-512, -301-521, -301-542, -301-632, -301-731.

Analysis:

Final Surface Configuration Maps

The post-reclamation surface configuration is shown on Drawings 500-5 and 700-1 in Appendix XVI. The configuration of the road is shown with cross sections and a centerline profile on Drawings 500-3 and 500-4.

Reclamation Monitoring And Sampling Location Maps

With removal of the pond, there will no longer be UPDES permitted discharge. Ongoing quarterly surface-water monitoring is described in Section R645-301-731.200, but there is no description of the monitoring site nor is one identified on maps. The status of surface-water monitoring after reclamation of the pond needs to be clarified.

Reclamation Surface And Subsurface Manmade Features Maps

No manmade features, other than the recontoured surface, will remain in the area.

Certification Requirements.

Maps submitted in Appendix XVI are certified.

Findings:

Maps, Plans, and Cross Sections of Reclamation Operations are adequate to meet the requirements of the R645 Coal Mining Rules.

CUMULATIVE HYDROLOGIC IMPACT ASSESSMENT

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

Analysis:

The Des Bee Dove Mines are in the East Mountain CIA. The latest version of the East Mountain CHIA is dated August 2005. Removal of the sedimentation pond is not a significant revision of the MRP, and the Division has determined the CHIA does not need to be updated for this amendment.

Findings:

The current CHIA determination is adequate to meet the requirements of the R645 Coal Rules.

RECOMMENDATIONS:

The amendment should not be approved until the deficiencies identified in this and other Tech Memos are adequately addressed.

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