

#3880
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TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

August 2, 2011

TO: Internal File

THRU: Jim Smith, Permit Supervisor

FROM: Steve Christensen, Environmental Scientist *SKC*

RE: Permit Boundary Amendment, Sunnyside Cogeneration Associates, Sunnyside Refuse/Slurry, C007/0035, Task #3880

SUMMARY:

On July 28th, 2011 the Division of Oil, Gas and Mining (the Division) received an amendment to the Sunnyside Refuse and Slurry MRP (SCA) from Sunnyside Cogeneration Associates (the Permittee).

The amendment proposes to reduce the SCA permit area by removing approximately 67.9 acres. The intent is to remove the undisturbed or previously reclaimed areas (Old Coarse Refuse Road, Phase III Bond Release Task ID #3718- Final approval June 2nd, 2011). The amendment was submitted previously (Task ID #3821) and returned deficient on June 30th, 2011. For tracking purposes, this amendment has been assigned a Task ID #3880.

In the previous amendment, the Permittee submitted an example of a public notice. However; the public notice regulations (R645-300-121) do not apply in this instance. The Permittee is not requesting a change in the post-mining land use. As such, the amendment does not require public notice.

The following is the technical analyses relative to deficiencies identified by Steve Christensen and Kevin Lundmark during the previous review. Mr. Lundmark was the hydrologist who reviewed the amendment initially. However; Mr. Lundmark left the Division in early June.

The Permittee has addressed the hydrologic and land-use deficiencies identified during the previous technical analysis (Task ID #3821). The application is recommended for approval.

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TECHNICAL ANALYSIS:

ENVIRONMENTAL RESOURCE INFORMATION

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

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:

Permit Area Boundary Maps

A deficiency was identified in the previous submittal of the amendment. The Permittee was directed to revise Plate 1-1, *SCA Permit Area Legal Description*. Upon review of the plate, it appeared that the depicted permit boundary encompassed the main surface facility and did not correspond to the call out of Parcels A, B and C in the bottom left corner of the plate.

The Permittee has addressed the deficiency and revised the depicted permit boundary.

Surface Water Resource Maps

Surface water resources are shown on Drawing 7-2, which has been revised to show the modified permit area. Drawing 7-2 has also been modified to include labels for surface water resources near the permit area: Icelander Creek and Grassy Trail Creek.

Well Maps

The location of the East Carbon City well (a.k.a. Well-1 or Dragerton Well) is shown on Drawing 7-2, which has been revised to show the modified permit area.

Findings:

The application meets the Maps, Plans and Cross Sections of Resource Information requirements of the State of Utah R645-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:

Diversions: General

The previous technical analysis identified several deficiencies associated with the diversion information presented in the approved mining and reclamation plan (MRP).

Diversions and associated watersheds are shown on Drawing 7-1 and 7-1F. These drawings have been updated to reflect the proposed modified permit area. However, the previous analysis determined that the Graphic Scales identified on the drawings (1 inch = 200 feet) did not agree with the scale bar (1 inch = 400 feet) and a comparison of the drawings revealed that different scales were used. The Permittee was directed to revise the scale information for Drawings 7-1 and 7-1F. Upon reviewing the amendment, the Permittee has corrected the scales on the drawings.

Appendix 7-3D was revised to reflect the mining which has occurred at the pile and the associated changes to sediment control and temporary diversions associated with the Railcut sediment pond. Watershed runoff modeling and flow routing calculations are provided for 10-year / 24-hour, 25-year / 6-hour and 100-year / 6-hour precipitation events. R645-301-742.323 specifies 10-year / 24-hour and 100-year / 6-hour precipitation events as the design criteria for temporary and permanent diversions, respectively. To be conservative, diversion and culvert design criteria assumed a 100-year / 6-hour precipitation event. Runoff, sediment yield and flow routing modeling was performed using the SEDIMOT program.

The previous analysis identified several discrepancies in Appendix 7-3D.

The Permittee was directed to revise the cover sheet for Appendix 7-3D. The cover sheet referenced drawings 7-1 (Hydrologic Index Map), 7-1G (Clean Water and East Slurry Cell Drainage) and 7-9 (Pasture Pond Record Drawing) for the Railcut Sediment Pond. However, the appropriate references for Appendix 7-3D are 7-1 (Hydrologic Index Map) and 7-8 (Railcut Pond and Topsoil Pile Record Drawing). The Permittee has revised the cover sheet accordingly.

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The Permittee was directed to revise the last sentence of Page 1, 1st paragraph for the introduction of Appendix 7-3D. The last sentence of the paragraph stated that the Railcut Pond treats runoff from a 114-acre watershed; however, based on the Hydrologic Index Map (Drawing 7-1) and the table Sub Watershed Characteristics (Appendix 7-3D, page 3), the total area treated by the Railcut Pond is 133.7 acres. The Permittee has revised the acreages to accurately reflect the sub-watershed areas contributing to the Railcut Pond. The sub-watershed acreages depicted on Drawing 7-1 and listed on page 3 of Appendix 7-3D are the same.

The previous technical analysis also identified a deficiency relative to the SEDIMOT model inputs for sub-watersheds RC-SWS 1 and RC-SWS 2 ('Rail Cut 10yr 24hr' Page 2, 'Rail Cut 25yr 6hr' Page 2 and 'Rail Cut 100yr 6hr' Page 2). The areas identified as model inputs for RC-SWS1 and RC-SWS2 are 13.00 acres and 64.90 acres, respectively, which appeared to be transposed compared to the area values identified on the Hydrologic Index Map (Drawing 7-1) and the table Sub Watershed Characteristics (Appendix 7-3D, page 3). SEDIMOT input values for times of concentration for RC-SWS1 and RC-SWS2 (0.250 hour and 0.600 hour, respectively) also appeared to be transposed compared to the values identified on the Hydrologic Index Map (Drawing 7-1) and the table Sub Watershed Characteristics (Appendix 7-3D, page 3). Additionally, the curve number identified in the SEDIMOT input files for RC-SWS2 is 70.00, which did not agree with the curve number identified in the table Sub Watershed Characteristics (Appendix 7-3D, page 3). The Permittee has revised the aforementioned discrepancies.

Siltation Structures: Sedimentation Ponds

Sediment pond locations are shown on Drawing 7-1, which has been updated to show the modified permit area. Revised drawings showing the modified permit area submitted for the Coarse Refuse Toe Pond (Drawing 7-7), Railcut Pond (Drawing 7-8) and the Old Coarse Refuse Road Pond (Drawing 7-10). Revise drawings were not necessary for the Pasture Pond (Drawing 7-9), Borrow Area Pond (Drawing 7-12) or Coal Pile Pond (7-18).

The East Slurry Cell and Clearwater ponds are no longer present at the site. The as-built drawings for these ponds (Drawing 7-4 and Drawing 7-12, respectively) should be removed from the MRP. The Permittee revised the C1/C2 form with the most recent amendment to reflect the removal of Drawings 7-4, *Clear Water Sediment Pond Drawing* and Drawing 7-12, *East Slurry Cell Record Drawing*.

Design calculations and criteria for sediment ponds are provided in Appendix 7-3. A revised Appendix 7-3D (Railcut Pond) was submitted with this amendment revised to reflect the mining which has occurred at the pile and the associated changes to sediment control and temporary diversions associated with the Railcut sediment pond. The Railcut Pond has been designed to meet the design standards required under R645-301-742.221.

Findings:

The information submitted meets the requirements of the Utah R645 Coal Mining Rules.

RECLAMATION PLAN

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, -301-743, -301-750, -301-751, -301-760, -301-761.

Analysis:

Hydrologic Reclamation Plan

The hydrologic reclamation plan is described in Section 800 of the MRP and shown on Drawing 8-3, *Permit Term Reclamation Plan Drainage and Diversion Plan*. The Permittee submitted a revised version of Drawing 8-3 with the amendment. This drawing has been updated to reflect the modified permit area. The hydrologic reclamation design is presented in Appendix 8-1 of the MRP. The Permittee submitted a revised Appendix 8-1D – *Railcut Pond Permit Term Reclamation Plan* to replace prior calculations for this pond. The update was based, in part, on an updated topographic base map for the site.

The previous technical analysis identified several deficiencies associated with Appendix 8-1D- *Railcut Pond Permit Term Reclamation Plan*.

The cover sheet referenced drawings 8-3, *Permit Term Reclamation Plan Drainage and Diversion Plan* and 7-9, *Pasture Pond Record Drawing* for the Railcut Sediment Pond. The references have been revised to reflect the appropriate drawings (i.e. Drawing 8-3 and 7-8, *Railcut Pond and Topsoil Pile Record Drawing*).

The introduction to Appendix 8-1D (page 1, 1st paragraph) had identified a 110-acre watershed associated with the Railcut pond; however, the sum of acreages associated with each sub-watershed on the Sub Watershed Characteristics Table (page 3) is 109.1 acres. The Permittee has revised the acreage on the introduction page.

The Sub Watershed Characteristics Table (page 3) had identified sub-watershed RC-SWS8 as 13.5 acres; however, Drawing 8-3 identified this sub-watershed as being 13.9 acres. Drawing 8-3 has been revised to reflect the correct acreage for sub-watershed RC-SWS8.

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During the previous technical analysis, multiple discrepancies were noted between the model inputs and the text in Appendix 8-1D. The discrepancies were noted for all five model simulations (10-year / 6-hour Phase 1, 10-year / 24-hour w, 25-year / 6-hour Phase 1, 10-year / 6-hour Phase 2 and 100-year / 6-hour Phase 2). The discrepancies were noted as follows:

Sub Watershed	Parameter	App 8-1D Text	App 8-1D Model Input
RC-SWS1	t_c	0.51 hrs	0.50 hrs
RC-SWS3	Area	11.2 acres	11.1 acres
	t_c	0.43 hrs	0.40 hrs
RC-SWS4	Area	18.3 acres	18.4 acres
	t_c	0.35 hrs	0.37 hrs
RC-SWS5	t_c	0.16 hrs	0.14 hrs
RC-SWS8	Area	13.5 acres	12.1 acres
	t_c	0.31 hrs	0.30 hrs

The Permittee has addressed the discrepancies accordingly.

Drainage control for the Final Reclamation Plan is described in MRP Section 10.6 and Appendix 10-1. No revisions to Appendix 10-1 were included with the amendment because the design criteria (e.g., diversions, sub-watershed areas) have not changed. Drawing 10-5 presents the Final Reclamation Drainage and Diversion Plan, and has been updated to reflect the modified permit area.

The Permittee was directed to revise the labels for the diversions and sub-watersheds depicted on Drawing 10-5. Although still difficult to decipher, the labels have been marginally improved.

Findings:

The information meets the requirements of the Utah R645 Coal Mining Rules.

RECOMMENDATIONS:

The amendment is recommended for approval at this time.