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Technical Analysis and Findings

Utah Coal Regulatory Program

PID: C0070012
TaskID: 4773
Mine Name: WELLINGTON PREPARATION PLANT
Title: FINES REMOVAL FOR RECLAMATION

Summary

Price River Terminal, LLC (the Permittee) submitted an amendment to the Wellington Prep Plant's Mining and Reclamation Plan (MRP) on December 31st, 2014. The Permittee wants to initiate excavation of the slurry material located on the east side of the Price River. The fines are to be extracted and taken to the Sunnyside Cogeneration Plant in Sunnyside, UT by Salvage Services.

Deficiencies have been identified that must be addressed prior to final approval.

schriste

Environmental Resource Information

General

Analysis:

Price River Terminal (PRT) is planning to have the slurry fines on the east side of the Price River removed as part of their continuing reclamation activities. The fines will be extracted and taken to the Sunnyside Cogeneration Plant in Sunnyside, Utah by Salvage Services.

This Technical Analysis addresses the amendment to Wellington's Mining & Reclamation Plan (MRP) that describes these operations.

lreinhart

Historic and Archeological Resource Information

Analysis:

The amendment does not contain any changes that impact Historic and Archaeological resources.

lreinhart

Vegetation Resource Information

Analysis:

The amendment does not contain any mine changes regarding vegetation.

lreinhart

Fish and Wildlife Resource Information

Analysis:

The amendment does not contain any changes that impact Fish or Wildlife Resources.

lreinhart

Land Use Resource Information

Analysis:

The amendment does not contain any mine changes that impact land use.

lreinhart

Operation Plan

Air Pollution Control Plan

Analysis:

The amendment does not meet the R645 State of Utah Coal Rules relative to Air Quality. The approved Mining and Reclamation Plan (MRP) discusses air quality in Chapter 4, Section 4.2. The MRP indicates that the Permittee is operating under an approval order (AO) from the State of Utah, Department of Environmental Quality, Division of Air Quality (DAQ).

Approval order DAQE-997-92 is provided in the MRP. Upon review of the air quality sections of the MRP, it appears that AO DAQE-997-92 was last revised in April of 1997 when the holder was changed from Castle Valley Resources to Earthco. The revision was made to the approval order approved in October of 1992. The approval order contemplates coal processing and loading at the property via conveyor systems, feed hoppers, manual Grizzly's, front-end loaders, bulldozers etc. On page 6 of AO DAQE-997-92 it's stated that "Any future modifications to the equipment and operating practices approved by this order must also be approved in accordance with R307-1-3.1.1." The Permittee will need to coordinate with the Utah Division of Air Quality and revise their approval order with up to date information (including but not limited to the equipment and operating practices as well as the contact and legal information for Price River Terminal, LLC.

Upon demonstrating the coordination with the Utah Division of Air Quality to the Division (per R645-301-422), the Permittee will need to address R645-301-423 or R645-301-424 (dependent upon the projected production rates per year).

Deficiencies Details:

R645-301-422: The amendment must contain a description of coordination and compliance efforts which have been undertaken by the applicant with the Utah Division of Air Quality.

R645-301-423, -301-424: Depending on whether the projected production rate is less than or greater than 1,000,000 tons per year, the Permittee will must address either R645-301-423 or R645-301-424.

schriste

Coal Recovery

Analysis:

The Permittee submitted revisions to the MRP text in Section 522-Coal Recovery and Section 523- Mining Methods that updated the approved reclamation operation of removing the coal refuse fines from the slurry ponds prior to the Wellington Prep Plant reclamation.

Section 522 Coal Recovery included edits removing the text that described various previous alternative scenarios considered for reclamation of the slurry ponds. All of the text describing these alternatives was removed. Text describing how a modular coal fines wash plant was once used on the west bank of the Lower Slurry Pond by Coval and later Techmat remains. This section now primarily details the selected approach of removing the coal fines in the slurry ponds at the Wellington site to the Sunnyside Cogeneration Power Plant.

Section 523-Mining methods edits describe the selected reclamation approach of removing the coal fines from the various slurry ponds in more detail. Text was added to this section detailing the historical use of the ponds and the process of how the fines arrived at the current site in general terms. Relevant text describing the previously considered alternate methods has been removed from this section. The section also details the type of heavy construction equipment that will be utilized along with a general scope of how the fines will be removed from the site in a safe and stable method. Old text describing alternative coal recovery methods no longer being considered was removed. Quantiles and quality of coal waste removed is expected to vary, and records will be maintained to account for the amount removed, transported, and quality of refuse coal waste.

Deficiencies Details:

The application does not meet the minimum requirements of the Coal Mining Rules. The Division recommends sending the proposed amendment back deficient according to:

- R645-301-523 Requires at a minimum a narrative description of the type and method of coal mining procedures and proposed engineering techniques, anticipated annual and total production of coal, by tonnage and the major equipment to be used for all aspect of those operations. The Permittee failed to describe the potential scenario that the coal refuse quality is too poor to be transported to Sunnyside Cogeneration plant and must remain at site. The narrative must include what the proposed operations and reclamation plans are for such material.

cparker

Fish and Wildlife Protection and Enhancement Plan

Analysis:

The amendment does not contain any changes that impact Fish or Wildlife Resources.

lreinhart

Vegetation

Analysis:

The amendment does not contain any mine changes that impact vegetation.

lreinhart

Spoil Waste Coal Mine Waste

Analysis:

The figure included in Section 5.23 illustrates the slurry fines re-mining operation proposed in 2014. Savage Services will use track hoes, scrapers, and trucks. The coal fines will be removed lifts from the 81.2 acre upper slurry pond. Material from the nearby coarse refuse pile will be pushed down into the slurry pond to be loaded into dump trucks. Drilling of refuse test holes is planned to obtain coal quality information and to insure that minimum levels of quality are met.

Boron levels in the slurry and SAR values in the Coarse Refuse and Coarse slurry have been demonstrated to be at unsuitable levels and require four feet of cover in accordance with R645-301-553.260. (Refer to the 2012 mid-term review, task 4043 for further evaluation of the sampling).

Re-mining of the slurry ponds is encouraged to minimize the foot print of the slurry ponds and to reduce required cover for final reclamation. However, the Permittee must demonstrate through sampling that the chemical characteristics of the slurry are non-toxic and non-acid forming (R645-301-553.252). Removal of the fines will expose new layers of slurry to air and water, creating opportunity for oxidation of minerals, changing pH and solubility of metals and salts within the surface four feet. During operations, the Permittee is required to identify, store and bury toxic waste (R645-301-731.300).

It is therefore recommended that a commitment be included in the plan to provide for analysis of the slurry and refuse chemical characteristics every five years, with the results of the sampling and analysis to be filed in the annual report beginning in 2016. Samples would be taken from the surface four feet of the upper slurry operations area. A diagram of the sampling plan and a description of the sampling protocol should be included in the narrative. The parameters to be sampled should be those described in Tables 3 and 7 of the Divisions 2008 Guidelines for Soil and Overburden Sampling. This Guideline also provides detailed information on recommended sampling protocol and frequency.

Deficiencies Details:

R645-301-553.252, The Permittee must provide a commitment in the MRP for additional sampling of the slurry material. The commitment must outline additional sampling and analysis of the slurry and refuse chemical characteristics every five years. The commitment should outline that the results of the sampling will be provided to the Division starting with the annual report for 2016 (with subsequent sampling every five years thereafter). Samples should be obtained from four feet below the surface of the excavation areas. A diagram of the sampling plan and a description of the sampling protocol should be included in the narrative.

Additionally, please include in the commitment a final sampling event of the slurry material that will remain on site once slurry excavation activities have been terminated (i.e. any slurry material that will remain on site during final reclamation of the site). This final sampling event could aid in determining final reclamation requirements.

Parameters to be analyzed should include those identified in Table 3-Analytical Methods for Baseline Soil Characterization and Table 7-Additional Analyses Required for Substitute Topsoil, Overburden, Spoil and Coal Mine Waste located in the Division of Oil, Gas and Mining's Guidelines for Management of Topsoil and Overburden.

pburton

Hydrologic General

Analysis:

The amendment meets the State of Utah R645 Rule requirements for Hydrologic General information.

The water sampling protocols listed in sections 7.24.1 and 7.24.2 in the approved Mining and Reclamation Plan (MRP) will be able to detect potential ground and surface water issues that may arise as result of potentially acid/toxic leachate migrating from the slurry ponds.

Total and dissolved selenium and boron are required operational parameters for the ground and surface water monitoring sites located adjacent to the slurry impoundments.

schriste

Hydrologic Acid and Toxic forming Materials

Analysis:

The amendment does not meet the State of Utah R645 Coal Mining Rules requirements for Hydrologic Acid and Toxic Forming Materials.

As documented in the approved Mining and Reclamation Plan (MRP), approximately 400-acres within the property boundaries have been disturbed by coal cleaning operations since 1958 (See Section 1.00, Introduction and Brief History). From 1958 to 1985, the operations at the property consisted of receiving coal by rail, preparation of coal (coal cleaning) and shipping blended product by rail. According to the amendment, the cleaning process during that time consisted of refuse (in a slurry mixture) being transported from the coal cleaning plant to the east side of the Price River via a pipeline. The slurry was then routed to a series of settling ponds where the finer textured material was allowed time to settle out. It is this slurry/coal fine material that is now to be removed/re-mined from the site.

Upon review of the data provided in the MRP, elevated levels of boron and selenium exist in areas of the refuse slated for removal, thus there is the potential for acid toxicity issues. It's unclear (based on the review of the slurry chemical data provided in the MRP) as to whether the chemical sampling of the material has been conducted to its maximum depth (approximately 20-30 feet in areas based on discussions with the Permittee). Sampling data obtained from approximately 8' to 14' below the surface are provided in the MRP. It's likely that the composition of the slurry material is not homogenous based on the variety of processes and stock material that was deposited in the slurry ponds over time. As a result, if the excavation of the material proceeds, it's reasonable to conclude that material deposited during the 1950's and 1960's could potentially be exposed. As excavation of the slurry material advances, additional sampling of the older exposed material would facilitate the identification of unforeseen issues; particularly in the slurry material that has not heretofore been sampled or its chemical composition documented in the MRP.

In order to provide some safeguards for both the Permittee and the Division, additional sampling of the slurry material is

requested.

The Permittee must provide a commitment in the MRP for additional sampling of the slurry material. The commitment must outline additional sampling and analysis of the slurry and refuse chemical characteristics every five years. The commitment should outline that the results of the sampling will be provided to the Division starting with the annual report for 2016. Samples should be obtained from four feet below the surface of the excavation areas. A diagram of the sampling plan and a description of the sampling protocol should be included in the narrative.

Additionally, please include in the commitment a final sampling event of the slurry material that will remain on site once slurry excavation activities have been terminated (i.e. any slurry material that will remain on site during final reclamation of the site). This final sampling event could aid in determining final reclamation requirements.

Parameters to be analyzed should include those identified in Table 3-Analytical Methods for Baseline Soil Characterization and Table 7-Additional Analyses Required for Substitute Topsoil, Overburden, Spoil and Coal Mine Waste located in the Division of Oil, Gas and Mining's Guidelines for Management of Topsoil and Overburden.

Deficiencies Details:

R645-301-731.300, -731.310, -731.311: The Permittee must provide a commitment in the MRP for additional sampling of the slurry material. The commitment must outline additional sampling and analysis of the slurry and refuse chemical characteristics every five years. The commitment should outline that the results of the sampling will be provided to the Division starting with the annual report for 2016 (with subsequent sampling every five years thereafter). Samples should be obtained from four feet below the surface of the excavation areas. A diagram of the sampling plan and a description of the sampling protocol should be included in the narrative.

Additionally, please include in the commitment a final sampling event of the slurry material that will remain on site once slurry excavation activities have been terminated (i.e. any slurry material that will remain on site during final reclamation of the site). This final sampling event could aid in determining final reclamation requirements.

Parameters to be analyzed should include those identified in Table 3-Analytical Methods for Baseline Soil Characterization and Table 7-Additional Analyses Required for Substitute Topsoil, Overburden, Spoil and Coal Mine Waste located in the Division of Oil, Gas and Mining's Guidelines for Management of Topsoil and Overburden.

schriste

Reclamation Plan

PostMining Land Use

Analysis:

The amendment does not contain any mine changes that impact land use.

lreinhart

WildLife Protection

Analysis:

The amendment does not contain any changes that impact Fish or Wildlife Resources.

lreinhart

Backfill and Grading General

Analysis:

R645-301-553.252 Requires four feet of best available cover material. Edits to the MRP were limited to the operational plan, while the reclamation of the slurry ponds was left unchanged. Section 5.42.2 Thru 5.42.7.2 Backfilling and grading

plan in the current MRP states that the plant coarse refuse pile, coarse slurry pond, upper and lower refuse basins will be covered with 48 inches of tops soil meeting requirements state in R645-301-553.252.

R645-301-553.252 Also states that the Division may allow less than four feet of cover material based on physical and chemical analyses which show that the requirements of R645-301-244.200 and R645-301-353 through R645-301-357 are met. The Division would approve cover material less than four feet if sampling the newly exposed coal refuse material at the temporary cessation of operations, midterm, and prior to final reclamation activities was found to meet the requirements stated above.

cparker

Topsoil and Subsoil

Analysis:

In accordance with R645-301-553.252, the redistribution plan requires four feet of cover over the coarse refuse, the coarse slurry pond and the fine slurry pond. The redistribution plan is described in Section 2.41 including best and worst-case scenarios.

Section 2.41 states that about 4,000 yd3 of topsoil are stockpiled for reclamation. (The surveyed piles actually contain 4,935 yd3.). To cover the upper and lower refuse ponds with 4 ft of cover will require 1,034,400 yd3 (p. 1, Sec 2.41). Section 2.41 states that under the best-case, the need for borrow can be reduced down to 539,300 yd3 by using the soil in the Clearwater pond and the lower Refuse Dike. According to the Division's calculations, see CALCULATION NOTES below, these dikes will provide only 152,478 yd3 of additional soil cover and the remainder of the reduction in cover must come from complete removal of the coarse slurry.

Cover Requirements are outlined in Section 2.41 for the slurry ponds are as follows:

• Worst-case scenario requires the Upper (81.2 acres) and Lower (71.5 acres) slurry ponds to be covered with 985,000 yd3 total. The first two feet of cover is fine grained subsoil from Topsoil Borrow Area E (492,500 cu yd) followed by two ft of coarse-grained topsoil from Topsoil Borrow Areas D, G, and H as well as from both of the dikes. The difference in texture will help to provide a capillary barrier.

• Best-case scenario assumes remining of most of the Coarse slurry pile. The remaining Coarse slurry would be graded over the top of the Upper Slurry Pond. Soils beneath the coarse slurry would be used as the first two feet of cover for the upper slurry pond. Uncovered subsoil in the 71.5 acre coarse slurry pile location would be used as the final reclamation surface, reducing the four foot cover requirement by 461,413 yd3.

• Clearwater dike will be removed and suitable soil materials used for cover. Unsuitable material in outer layer of dike and pond bottom sediments will be removed to upper slurry pond and covered. There is a commitment in the plan that dike materials will be sampled on site during excavation for pH, EC, SAR, and texture to determine suitability.

• Lower refuse dike will be regraded to a 5:1 slope making 29,700 yd3 material available. Two feet of surface will be removed for topsoil cover over slurry ponds.

Under the best-case scenario, the four foot cover requirement is reduced from 985,000 yd3 down to 583,527 yd3 over an area 81.2 acres due to re-mining (Sec. 2.41, p. 2). App. J, Bonding Item 2.06 outlines this approach, but the 2008 Bonding Earthwork Item 9 reflects the worst case scenario of placing 4 ft of cover over both upper and lower slurry ponds at a cost of $1,564,899.)

The Division notes that the Clearwater Dike and Lower Refuse Dike will provide 152,478 yd3 of soil cover as calculated below, leaving 371,109 yd3 of soil to be recovered from borrow areas. This equates to one foot from a 230 acre area or 2 ft. from a 115 acre area.

CALCULATION NOTES: Clearwater Dike construction is provided in E9-1764 showing a trapezoid with a 20 ft wide top, a 155 ft wide base, a height of 35 ft. Length of 1,200 ft is shown on Dwg D9-515. The volume in the Clearwater Dike is therefore 3,315,000 ft3 or 122,778 yd3.

The Lower Refuse Dike was originally planned as a trapezoid with a 20 ft wide top, a 140 ft wide base, a height of 30 ft. (Dwg. E9 1764 original (1957) detail). But, the As-Constructed Dwg. E9-3460 indicates the soil material within the dike is a trapezoid with a 20 ft wide top, a 75 ft wide base, a height of 15 ft. Dwg. D9-515 indicates the length of the dike is 1,500 ft. Based upon the as-built drawing, the volume of the soil material in the dike is likely 1,218,750 ft3 or 45,138 yd3. The reclamation does not indicate total removal of the dike, but reduction of the slope of the dike to 5h:1v which could provide

the 29,700 yd3 volume, but would first require removal of the coarse refuse slurry which is shown covering the soil of the original dike on Map E9-3460 Lower Refuse Dike As Constructed.

Dwg E9-1764 dated 1957 states that the dike is of sandy or silty loam texture and refers reader to Dames and Moore Report and Plate 7. Approximate ground level shown on Dwg. E9-3460 as 5,365 – 5,355 feet in the vicinity of the dike between lower refuse and clear water ponds.

Proposed Topsoil Borrow Areas described in Section 2.41:
Borrow Area B was removed from the permit area based upon the sale of the land which did not occur (Section 2.41 p. 4). Area B is no longer identified as a borrow area on Plate E9-3341 Surface Facilities Map. Area B has long held promise for the reclamation of NEICO, see “Future topsoil salvage and borrow areas” shown on archived map Dwg. E9-3339 (1983) Soils Map and Disturbed Area. Borrow areas shown on this archived map were just west of the main access road on the western edge of the permit area and a smaller area downstream of the coarse refuse pile. Future topsoil salvage was in the vicinity of the coarse refuse pile and on the north east side of the upper slurry pond. Site operations have changed since the reclamation plan in Section 2.41was written. The potential for the soils of Borrow Area B could be evaluated again after re-mining.

This amendment makes no changes to the above describe reclamation plan in Section 2.41.

pburton