

TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

July 6, 2006

TO: Internal File

THRU: D. Wayne Hedberg, Permit Supervisor

FROM: Dana Dean, P.E., Senior Reclamation Hydrologist, Team Lead

RE: Proposed Expansion of Disturbed Area, Task ID#2524, Savage Industries, Inc., Savage Coal Terminal, C/007/0022

SUMMARY:

Savage Industries, Inc. submitted an amendment proposing to expand the disturbed area at the Savage Coal Terminal on May 16, 2006.

The expansion is in conjunction with the proposed re-starting of the coal washing facilities at the site (Division Task ID#2549). Since the static thickener was reclaimed, the Permittee would like to use ponds to remove fine coal from the process water before recycling. The ponds would be located in an area currently within the permit area, but classified as undisturbed. The area totals 6.61 acres, and is located just northeast of the office building. A description of the disturbance is contained in the application, and the accompanying cover letter (2006 Incoming File, Record 13).

This technical memorandum discusses the hydrology related issues pertaining to the application.

The application does not meet the requirements of the relevant hydrology regulations. The Division should not approve it until all required information is provided.

TECHNICAL ANALYSIS:

GENERAL CONTENTS

PERMIT APPLICATION FORMAT AND CONTENTS

Analysis:

Page 7-66 of the application states that hydrologic soil groups were determined from the “oils” map. The Permittee should correct the typographical error so as not to confuse the reader.

The table on page 7-67 of the application is unclear. It appears that the numbers under each curve number type (e.g. Coal Stockpiles, CN = 87) represent the percentage of the total area that matches the description, but that is not inherently clear, nor are there labels. They should be properly labeled.

The total runoff on Table 7-17 (p. 7-69) is mislabeled as acre/ft, it should be acre-ft. The Permittee should clear this up so as not to confuse the reader.

The total number of acres listed on Table 7-17 is much different than the total in the existing MRP. The Permittee needs to better explain this difference. A depiction of how the Co-op road and the Covol plant have “cut-off” the drainage may be helpful.

Findings

R645-301-121.200, The Permittee must clearly label all features in Figures 7-4, and 7-5 or include them in the legend • the Permittee should correct the typographical error on page 7-66 where it says that hydrologic soil groups were determined from an “oils” map. • The Permittee must clarify the table found on page 7-67, so that the reader may understand what each number represents. • The Permittee should correct the label for total runoff on Table 7-17 (p7-69) to say acre-ft, not acre/ft. • The Permittee needs to better explain why the total number of acres on Table 7-17 in the amendment is different than listed on Table 7-17 of the approved MRP (perhaps a better depiction of how the Co-op road and the Covol plant have “cut-off” the B drainage on Figure 7-4 or another figure). • The Permittee must make it clear on page 7-76 whether the water usage mentioned includes the preparation plant operations, or change the amount to include them. • The Permittee must either change the reference to Plate 7-2 found on page 7-77, or update Plate 7-2. The undisturbed area diversion is not clearly marked on Plate 7-2, nor has plate 7-2 been updated with this amendment (which proposes to move the ditch). • The Permittee must clear up all references to Figure 7-2, which does not appear in the amendment or the approved MRP. • The Permittee must update the characteristics of the undisturbed drainage ditch (length, etc.) found on p. 7-77 in light of the re-alignment of said ditch.

ENVIRONMENTAL RESOURCE INFORMATION

TECHNICAL MEMO

HYDROLOGIC RESOURCE INFORMATION

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

Analysis:

Probable Hydrologic Consequences Determination

The Permittee has not met the requirements of R645-301-728. The PHC has not been updated since 1983. The Permittee must update the PHC and discuss the following in regard to all current and planned operations at the site:

- Whether the operation will have adverse impacts on the hydrologic balance.
- Whether acid- and toxic-forming materials that may contaminate surface or groundwater will be present on the site (how will sampling identify such?).
- What impact the operation has/will have on:
 - sediment yield from the disturbed area,
 - acidity,
 - total suspended and dissolved solids,
 - other water quality parameters of local impact,
 - flooding and streamflow alteration, and
 - groundwater and surface water availability.

Findings:

The Permittee has not met the requirements of the Hydrologic Resource section of the Regulations. Before the Division can approve the amendment, the Permittee must address the following:

R645-301-728, The Permittee must provide a new PHC, addressing any potential hydrologic consequences that may result from the thickener ponds, and all other current operations (the PHC has not been updated since 1983).

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 Plan

The Permittee has not met the requirements of R645-301-731.210 because the current groundwater-monitoring plan is not based on a current PHC. The Permittee needs to re-evaluate the groundwater-monitoring plan in light of the current and proposed operations. If it is found to be inadequate to detect probable impacts, it must be updated.

No groundwater information has been collected for the past 8 years, and one of the main reasons the Permittee was allowed to discontinue that monitoring was an assertion that they had no plans to restart the preparation plant at the site, or deposit further refuse on-site (Appendix 7-1 pp. 1, 6, and 7, Division TA May 18, 1998). Since this is no longer true, the Division feels that groundwater monitoring must resume to some degree, to ensure the protection of the hydrologic balance.

Surface-Water Monitoring Plan

The Permittee has not met the requirements of R645-301-731.220 because the current surface water-monitoring plan is not based on a current PHC. The Permittee needs to re-evaluate the surface water-monitoring plan in light of the current and proposed operations. If it is found to be inadequate to detect probable impacts, it must be updated.

Acid- and Toxic-Forming Materials and Underground Development Waste

The Permittee has not met the requirements of R645-301-731.300. They have not included any information in the amendment application concerning the acid- toxic-forming potential of the fines that will be settled in the new ponds. The Permittee must discuss how they will sample for acid- or toxic-forming potential, and include a plan for proper burial and/or treatment of any acid/toxic waste in a timely manner.

Diversions: Miscellaneous Flows

The Permittee has met the requirements of R645-301-742.310 and 742.330 by including design calculations for the undisturbed drainage ditch in Chapter 7 of the MRP.

Siltation Structures: Sedimentation Ponds

The Permittee has not met the requirements of R645-301-733, R645-301-742.220, R645-301-743, or R645-301-121.200. Neither the MRP or the amendment gives a clear and concise picture of how the sedimentation ponds are functioning, nor do they contain all of the necessary design information required in the Rules. The MRP states that Sedimentation Pond 1 works in series with Ponds 2 and 3. The amendment does not mention Ponds 2, 3, or 4, which is also in the MRP. The Permittee must remove all mentions of ponds that are no longer in existence, and ensure that all information required in the Rules is included for each pond in either the MRP or the amendment.

The Permittee has not met the requirements of R645-301-742.220. They claim on page 3-34 of the amendment that the preparation plant will be operated as a closed circuit, unless an emergency discharge is needed; and that "If such an emergency should occur, any discharge from the plant or settling ponds would be contained by the sedimentation ponds on site." If such

TECHNICAL MEMO

use of the sedimentation ponds is allowed in the SPCC plan, the Permittee still needs to demonstrate that no offsite discharge from the plant will occur; *even if the emergency plant discharge and a 10-year 24-hour storm occur at the same time*. Otherwise, the emergency plant discharge must be handled in a different manner.

Impoundments

The Permittee has not met the requirements of R645-301-733 or 743, since no certified, detailed plans are included for the thickener ponds. The Permittee must include all data required under these two regulations.

Findings:

The Permittee has not met the requirements of the Operational Hydrology section of the Regulations. Before the Division can approve the amendment, the Permittee must address the following:

R645-301-731.210, The Permittee must re-evaluate the adequacy of the groundwater-monitoring plan based on the updated PHC. The Permittee was allowed to discontinue all groundwater monitoring in 1998, based partially on the assertion that the Permittee had no plans to restart the preparation plant or store refuse on-site. Since this has changed, the Division feels strongly that some form of groundwater monitoring is important to protect the hydrologic balance.

R645-301-731.220, The Permittee must re-evaluate the adequacy of the surface-water monitoring plan based on the updated PHC.

R645-301-731.300, The Permittee must address how the fines that will be settled in the new ponds will be tested for acid- or toxic-forming potential, and if found to be acid or toxic, how they will be treated/buried and when.

R645-301-742.220, The operator must clearly demonstrate that the sedimentation pond can hold the water and sediment volume from the 10-year 24-hour storm and the “emergency” plant discharge, providing adequate detention time to allow the effluent from the pond to meet Utah and federal effluent limitations. Otherwise a separate pond or facility must be provided to capture and contain the “emergency” plant discharge.

R645-301-121.200, 301-733, 301-742.220, and 301-743, The Permittee must remove all information from the MRP pertaining to ponds no longer in existence, or include appropriate information for Ponds 2, 3, and 4 in the amendment. The Permittee must ensure that all information (including design calculations and certifications) required in the Rules is included for each pond in either the MRP or the amendment.

R645-301-733, and 743, The Permittee must include all required design information required for the thickener ponds. The designs must be certified.

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:

The Permittee has not met the Requirements of R645-301-722.500 or R645-301-141 since Figure 7-4 is not of a sufficient scale to adequately represent the existing land surface configuration of the permit area. The map should provide accurate representation of the range of natural slopes and reflect geomorphic differences of the area to be disturbed. This map should be at a scale of 1:6000 (1"=500') or larger.

The Permittee has not met the requirements of R645-301-141 or 301-512.120 since there is no one map that shows all surface facilities and installations. It is not sufficient to depict the new thickener ponds on the soils map, since there is no context of how they fit in with the sedimentation ponds, the plant, roads, etc. It would be helpful if this map also included adjacent facilities.

Findings:

The Permittee has not met the requirements of the Maps Plans and Cross Sections of Mining Operations section of the Regulations. Before the Division can approve the amendment, the Permittee must address the following:

R645-301-722.500, and 301-141, The Permittee must set Figure 7-4 at a scale of 1:6000 (1"=500') or larger.

R645-301-512.120, and 301-141, The Permittee must include all surface facilities and installations (including the proposed thickener ponds) on one, consolidated map at a scale or 1:6000 (1"=500') or larger. It would be helpful if this map also included adjacent facilities.

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

Analysis:

Hydrologic Reclamation Plan

The Permittee has not met the requirements of R645-301-533.714 or 301-764 because they have not included any reclamation plans for the thickener ponds.

TECHNICAL MEMO

Findings:

The Permittee has not met the requirements of the Hydrologic Reclamation Information section of the Regulations. Before the Division can approve the amendment, the Permittee must address the following:

R645-301-533.714 and 301-764, The Permittee must include reclamation plans for the thickener ponds and newly disturbed area, including maps and timetables.

REQUIREMENTS FOR PERMITS FOR SPECIAL CATEGORIES OF MINING

OPERATIONS IN ALLUVIAL VALLEY FLOORS

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

Analysis:

Essential Hydrologic Functions

The Permittee has not met the Requirements of R645-302-321.210 or R645-301-140 since Plate 6-1 is illegible, and it is not possible to see the relationship between the new disturbed area and any designated alluvial valley floors at such a scale. The Division may require further information regarding the alluvial valley floors, based on a review of the updated Plate. The Permittee will need to supply sufficient information to show whether or not the new disturbance is hydrologically connected to the AVF.

At this time, the Division needs to be able to evaluate the alluvial valley floors in relation to the new disturbed area. Though the original Technical Analysis (TA), the MRP, and the original (and only to date) CHIA fail to mention any alluvial valley floors in the vicinity of the permit area, a 1989 TA mentions one in Sections 1, 2, and 12 of T15S, R10E. These were identified by a reconnaissance study carried out in 1985, and referenced in the TA as Nimick et al., 1985. The Division at that time (1989) found that there was “a low potential for degrading alluvial valley floor ground-water quality because the naturally occurring ground water has such poor quality.” The Division determined that the Savage Coal Terminal: “1. Does not include the extraction of coal; 2. Will not result in a significant disturbance to the surface or groundwater regime; and 3. Occurs on undeveloped rangeland which is not significant to farming, grazing, or any other agricultural activity. At that time the applicant committed to continue monitoring the shallow unconfined aquifer, which they stopped doing in 1989 (See discussion under “Operation Plan – Groundwater Monitoring Plan”).

Monitoring

The Permittee has not met the requirements of R645-302-324.300 because they have not “maintained and operated a monitoring system ...on all alluvial valley floors during coal mining and reclamation operations and continued until all bonds are released.’ In 1989 the applicant committed to continue monitoring the shallow unconfined aquifer, which they stopped doing in 1998 (See discussion under “Operation Plan – Groundwater Monitoring Plan”).

Findings:

The Permittee has not met the requirements of the Operations in Alluvial Valley Floors section of the Regulations. Before the Division can approve the amendment, the Permittee must address the following:

R645-302-321.210 and R645-301-140, The Permittee must update Plate 6-1, which is essential to the alluvial valley floor discussion and set it at a scale no smaller than 1:6000 (1” = 500’). The map should include a clear outline of the permit area, and clear township/range/section boundaries in addition to geologic units. Besides the permit and other adjacent areas, Sections 1, 2, and 12 of T15S, R10E should be included. The Division may require further information regarding the alluvial valley floors, based on a review of the updated Plate.

R645-302-324.300, The Permittee must re-establish (and continue until bond release) a monitoring system on the alluvial valley floors adjacent to the permit area.

CUMULATIVE HYDROLOGIC IMPACT ASSESSMENT

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

Analysis:

The Cumulative Hydrologic Impact Assessment (CHIA) has not been updated since 1983. It should be updated with this amendment, but the Division cannot do so until all data required by the regulations has been provided.

Findings:

The Division will update the CHIA when all data is received.

TECHNICAL MEMO

RECOMMENDATIONS:

The application does not meet the requirements of the relevant hydrology regulations. The Division should not approve it until all required information is provided.

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