



State of Utah

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DIVISION OF OIL, GAS AND MINING

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TO: Internal File

FROM: Priscilla Burton, Soils Reclamation Specialist/Team Lead 

RE: Topsoil Stripping Amendment, Savage Industries Inc., Savage Coal Terminal Mine, C/007/022-AM02A-1

SUMMARY:

On February 28, 2002 the Division received a permit amendment to develop 13.3 undisturbed acres within the permit area for a coal stockpile. The area is located Southwest of the Trail Canyon Truck Dump, within the railroad loop. Maps 3-1, and 3-2 show the location of the storage area. Prior plans were to develop this area as a "Coal Refuse" storage area.

Issues identified in the Division's Technical Review, dated April 1, 2002, were as follows:

- verification of the topsoil stripping depth,
- delineation of the saltgrass/wetland soils for U.S. Army Corps Nationwide 21 permit application, and
- reclamation using best technology available for the salvaged topsoil
- summation of climatological information
- inclusion of recent violation information.

The Permittee delivered a response to the Division on April 15, 2002. The response includes a topsoil survey of the proposed disturbed area (Appendix 8-2), a wetlands delineation (Appendix 9-3) and reclamation cost and bonding information (Appendix 3-5). Also revised with this submittal were Map 3-2 Savage Coal Terminal Facility Map and Plate 3-7 Post Mining Topography and Drainage.

The Permittee has requested that required violation information and climate summary be deferred to the mid-Term review. This approach is reasonable, since the 2002 mid-term review is currently underway. The reclamation of high water table areas will also be handled during the mid-term review.

TECHNICAL MEMO

TECHNICAL ANALYSIS:

GENERAL CONTENTS

VIOLATION INFORMATION

Regulatory Reference: 30 CFR 773.15(b); 30 CFR 773.23; 30 CFR 778.14; R645-300-132; R645-301-113

Analysis:

The last update to the compliance information for the Savage Coal Terminal was July 6, 1995 (MRP Appendix 2-2). In the cover letter received by the Division on April 15, 2002, the Permittee has suggested that this information could be provided during the mid-Term review of the MRP. This timeframe is acceptable to the Division, as the 2002 mid-Term review is currently underway.

Findings:

The requested information will be supplied during the 2002 mid-Term review.

ENVIRONMENTAL RESOURCE INFORMATION

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

CLIMATOLOGICAL RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.18; R645-301-724.

Analysis:

Current climatological information for the Price/Wellington area will be requested as part of the 2002 mid-Term review for Savage Coal Terminal.

Findings:

The commitment to supply the requested information during the 2002 mid-Term review is adequate for the purposes of the Regulations.

SOILS RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.21; 30 CFR 817.22; 30 CFR 817.200(c); 30 CFR 823; R645-301-220; R645-301-411.

Analysis:

Savage Coal Terminal soils were surveyed in 1980 by James P. Walsh and Associates in July 1980 (MRP, Section 8, p8-1). The survey is referred to but not included with the plan. Upon request, the Permittee was not able to locate a copy of the original survey.

The following pedons were described by Mr. James Walsh at the loadout site: Billings Series; Chipeta Series; Disturbed Lands; Killpack Series; Killpack Series High Water Table Variant; Saltair Series (pp 8-3 to 8-11). All are gypiferous soils formed from Mancos shale.

A topsoil thickness survey of the proposed disturbed area was conducted in the spring of 2002 by Mr. Dan Larsen, soil scientist, EIS Environmental Engineering Consultants, Helper, Utah. Mr. Larsen's survey is included as Appendix 8-2. Mr. Larsen confirmed that on the average six inches would be salvaged from the site, but he created a topsoil salvage map to indicate an area of salvage from 4 – 7 inches, and area of salvage from 7 to 9 inches and an area of salvage from 3 – 6 inches thick. This map will be utilized along with the expertise of the soil scientist on site during topsoil salvage (page 8-34).

On page 8-38, the Permittee has indicated that "the disturbed soils can be upgraded as needed to provide a plant growth medium; therefore, no soil substitute is necessary for reclamation of the disturbed soil areas."

Disturbed land is described on pages 8-6 and 8-16 and in Table 8-5. The original surface layer was removed and twelve inches of gravel fill was placed over the subsoil. Below twelve inches the earth is light grayish brown, massive, hard, very sticky and very plastic, calcareous, with numerous gypsum crystals and threads. This information is contradicted by Table 8-5 where the percent clay is listed as 10% and the texture is given as silty loam and the saturation is 37%, typical of loam soil, not clays. Below twelve inches the pH is 7.6 and the EC is 47.9, the SAR is 18.8 and the Nitrogen content is 72%. This soil is toxic (sodic) and will be very difficult to use as germination medium. Consequently, further sampling will be conducted prior to final grading of the site to evaluate the extent of the sodic hazard and to develop a management plan that will provide adequate soil cover for germination and rooting (pages 8-38 and 8-39).

Findings:

The information provided is adequate for the purposes of describing the soil resource as required by Regulation.

TECHNICAL MEMO

OPERATION PLAN

TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-230.

Analysis:

Removal and Storage

A qualified soil scientist will be on site during topsoil stripping to ensure adequate recovery of the soils (page 8-34).

Table 8-6 of the submittal indicates that there will be 8,002 bank cubic yards of topsoil stripped from 9.92 acres of Chipeta soils and 4,138 bank cubic yards of topsoil stripped from the 3.42 acres of Killpack soils for a total of 12, 298 cubic yards. Stripping depth is listed as six inches for Chipeta and nine inches for Killpack.

The MRP indicates in Section 3.5.2, page 3-54 that topsoil and subsoil stockpiles will be roughened with the bucket of a trackhoe to incorporate straw mulch and to create basins that will capture water to aid germination. The MRP also indicates on page 3-54 that the soil salvaged from the proposed coal stockpile disturbance will be placed between the two existing piles and then covered when the existing piles are reconfigured. To expedite establishment of vegetation on the topsoil piles, the Division recommends that the topsoil being salvaged from the coal storage site is placed over the entire surface of the reconfigured topsoil and subsoil piles in a "live-haul" operation. In this manner, the seeds, propagules, microbes and nutrients available in the topsoil being salvaged will be located on the surface of the topsoil pile where the germinating and establishing plants can benefit from them.

Findings:

The information provided is adequate for the purposes of the Regulations.

VEGETATION

Regulatory Reference: R645-301-330, -301-331, -301-332.

Analysis:

Seeding of the topsoil piles has been with the temporary seed mix found in Table 3-1 (MRP, page 3-54 and 3-57). Although page 3-58 indicates that seeding will occur in the fall, a June or early July seeding is acceptable because several of the species are warm season and summer seeding will allow their establishment. If seeded in the fall, warm season species usually cannot compete with the other weed and seeded species and will not be seen. The

Permittee is planning on a summer seeding immediately after the topsoil pile is graded (personal communication with Mr. Dan Guy, April 18, 2002).

Findings:

The information provided is adequate for the purposes of the Regulations.

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:

General

An application for a Nationwide Permit has been submitted to the U.S. Army Corps (Appendix 9-3). EIS Environmental Engineering Consultants of Helper Utah delineated the wetland. Plate 9-1 has not been revised to change size of the wetland, but will be after a determination by the U.S. Army Corps is received (personal communication with Dan Guy, April 18, 2002).

Due to the small size of the wetland and in the interest of time, Savage Industries has proposed installation of a silt fence "around the areas in question at a minimum distance of 25' from the delineation points. The wetland will be protected, as shown on enclosed Plate 3-2. Topsoil stripping would take place on the remainder of the proposed site, leaving the wetland delineation area intact until the Corps completes its review and makes a decision as to whether it can be removed or not."

Findings:

The information provided and proposed is adequate for the purposed of the Regulations.

RECLAMATION PLAN

TOPSOIL AND SUBSOIL

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

TECHNICAL MEMO

Analysis:

Redistribution

Currently, there are 112.6 acres disturbed and 40,475 cubic yards of topsoil and subsoil stored at the site.

Changes to the Topsoil Mass Balance Table 8-9 reflect the additional 13.3 acre disturbance as follows:

- Topsoil available = 61,615 cu yds
- Disturbed area = 125.9 acres
- Post Law Disturbance = 48.7 acres
- Topsoil Required (Post Law) = 39,285 cubic yards, reflecting the commitment to re-apply six inches of topsoil to post-law areas.
- Max area for 6" redistribution = 76.38 acres, reflecting the area that could be covered to a depth of six inches by the stored soil.

Findings:

The information provided is adequate for the purposes of the Regulations.

REVEGETATION

Regulatory Reference: 30 CFR Sec. 785.18, 817.111, 817.113, 817.114, 817.116; R645-301-244, -301-353, -301-354, -301-355, -301-356, -302-280, -302-281, -302-282, -302-283, -302-284.

Analysis:

Standards for success

As shown on Plates 3-2 and 9-1 and discussed in Sections 3.4.4.2 (page 3-48) and 9.3.2.5, the reference area was set up in 1980 for the shadscale phase of the salt desert community to establish revegetation success standards for the entire mine site. Production of the reference area was estimated at 450 lbs/acre air dry and the site was rated in good condition in September 1983 by Mr. Don Andrew, Range Conservationist with the USDA SCS (MRP, Figure 9-1). The Permittee has made a commitment in Section 9.3.2.5 of the MRP to re-evaluate the condition of the condition of the reference area during the 2002 growing season.

The reference area soils are described as Chipeta silty clay slopes 3-20%. The reference area soils differ from much of the permit area including a small acreage of those to be disturbed in that their elevation places them above the water table and they are not subject to accumulations of salt from ponding water as are the Killpack soils that support the wetland salt grass vegetation.

The Division suspects that upon reclamation, sizeable areas of ponded water will exist at the entire site for the following reasons:

- During recent removal of refuse, the Permittee was obliged to remove equipment from areas along the eastern boundary of the permit due to the elevated water table.
- As noted in the MRP Section 9.5 "eventual soil saturation or inundation of the low western permit area is possible upon final reclamation."
- As noted in the MRP Section 9.2.1, page 9-2, "A sedge meadow was mapped during the original study (June 1980), adjacent to the current western permit boundary. Although no such type was actually mapped within the permit area, a low area does exist within the currently mapped Disturbed, Agricultural area, now drained by a French drain."

These wetlands will not likely meet the criteria for success established for higher ground. i.e. diversity. The Permittee has documented the condition of the wetland vegetation within the proposed disturbed area (Appendix 9-3). Reclamation for wetland areas within the permit can be patterned after previously existing wetland descriptions. i.e. the baseline data method described in the Vegetation Information Guidelines.¹ The wetland within the proposed disturbance is one of two last wet areas remaining in the permit area.

No provisions for re-establishment of wetland vegetation will be proposed, unless the U.S. Army Corps makes a determination that a wetland exists. The Division is of the opinion that Savage Industries should develop a wetland mix for lowlands within the disturbed area. This could be a mid-term or permit renewal topic.

The site will receive the final reclamation seed mix as described in Table 3-2 of the MRP: Crested wheat grass, Thickspike wheatgrass, Indian ricegrass, Fairway crested wheatgrass, Squirreltail grass, Russian wildrye, Globemallow, Sunflower, Palmer penstemon, Yellow sweetclover, Kochia, Winterfat, Shadscale, Matbush, Whitestem rubber rabbitbrush, and Four-wing saltbush. As stated on page 3-58 the final mix may undergo alteration depending upon the success of the interim seed mixture.

Savage Industries has made plans for a wetland mix along the Price River Pipeline (page 3-58). This mix is found in Table 3-3. Reclamation of the pipeline will include willow plantings and streambank wheatgrass.

Findings:

The information provided is adequate to address the requirements of the Regulations. The reclamation seed mix will evolve over time, based upon successes at the site. During the mid-term review or permit renewal, the Division will focus attention on reclamation of high water table areas.

¹ Utah Division of Oil, Gas and Mining. February 1992. Vegetation Information Guidelines. p 6.

TECHNICAL MEMO

STABILIZATION OF SURFACE AREAS

Regulatory Reference: 30 CFR Sec. 817.95; R645-301-244.

Analysis:

Previous treatment of soil stockpiles is described in Section 3.5.2 (page 3-47). The piles were smoothly graded and tilled to a depth of 5 inches. Slopes greater than 20% were prepared using a crawler tractor at right angles to the slope to leave grouser tracks parallel to the slope. This sort of treatment has been abandoned. The best technology to date is proposed instead as described on page 3-54 of the MRP: hay mulch will be applied at a rate of 2,000 pounds/acre and incorporated into the surface during the roughening of the pile with a trackhoe. After hydroseeding, wood fiber mulch will be over sprayed at a rate of 2000lbs/acre in combination with 60 lbs of Tac per acre (page 3-54). Mulching is also described in Section 3.5.5.3, page 3-62.

Findings:

The information provided is adequate for the purposes of the Regulations.

RECOMMENDATIONS:

The coal storage amendment should be approved with the following understanding:

1. The delineated saltgrass/wetland (0.05 acres) will remain undisturbed and protected by a fence until such time as the U.S. Army Corps authorizes disturbance of the 0.05 acres.
2. Climatological information will be submitted with the 2002 mid-term review.
3. Violation history information will be submitted with the 2002 mid-term review.
4. Reclamation of high water table areas will be reviewed during the 2002 mid-term review.

The Permittee has agreed to utilize extreme roughening on the surface of the topsoil pile. Specifications for this treatment are explained in the Practical Guide to Reclamation in Utah available on the internet at <http://dogm.nr.state.ut.us>.