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

Utah Coal Regulatory Program

February 1, 2006

TO: Internal File

FROM: Priscilla W. Burton, Environmental Scientist III/Soils, Team Lead

RE: MRP Rewrite, Andalex Resources, Inc, Wildcat Loadout, C/007/0033, Task ID #2371

SUMMARY:

The site of the Wildcat Loadout is found on the "Standardville" U.S. Geological Survey 7.5 minute quadrangle map in Township 13 South, Range 9 East, Section 33 (see also Figure 1, Section 2). The site is located three miles west of highway 6 on Consumer's Road, within a BLM Right of Way granted in 1992. Andalex has held the permit for the Wildcat Loadout since 1985. The permit area covers 100.19 acres of which 60.9 acres are disturbed and 12.5 acres are under lease to the Utah Railway by the BLM (Section 2, page 1-2 and Section 4, pg 3-4). Exhibit A of the permit describes a bonded area of 63.7 acres. The revised MRP states that **the facility can now handle 5.5 million tons per year** through-put of coal (Section 1, pg 1-23).

This revision of the MRP was first received April 8, 2004 and has been reviewed as tasks 1911, 2089, 2277, and presently as Task #2371. The recent information being reviewed was received on November 18, 2005 and November 22, 2005.

Previous submittals revised Plates 1-Surface Facilities and Plate 2-Surface Facilities Topography, but these plates are being withdrawn (personal communication with Mike Glasson on 1/11/06). All of the following were previously reviewed and are included in the overall submittal, but were not resubmitted with the November 2005 information:

Plate 13-Top Soil Storage Piles
Section 1, Legal and Financial
Section 7 Table VII-3 Prevailing Wind Direction
Appendix B (including the bond calculations)

MRP text including Sec. R645-301-212 Topsoil Stockpiling and Redistribution and R645-301-240 Reclamation Plan describes roughening and gouging as the final surface treatment and the Addendum to Appendix D, a soil survey conducted under the direction of Mr. James Nyenhuis for Mt. Nebo Scientific in March 2003.

The MRP does not include the two refuse analyses referenced in Sec. R645-301-711.100 p. 7-4. They were included in the 1994 Annual Report.

The plan indicates in Sec. R645-301-212 (p 2-7) that the revegetation test plot areas A – D represent the whole of the disturbed area. Thus, when 73,000 cu yds are moved (Table II-1) during grading, whatever material winds up on the surface will be suitable for reclamation. These test plots will be quantitatively evaluated again in 2006.

TECHNICAL ANALYSIS:

REQUIREMENTS FOR PERMITS FOR SPECIAL CATEGORIES OF MINING

COAL PREPARATION PLANTS NOT LOCATED WITHIN THE PERMIT AREA OF A MINE

Regulatory Reference: 30 CFR Sec. 785.21, 827; R645-302-110**,** R645-302-260, et seq.

Analysis:

As outlined in the subsequent sections of this technical analysis, the application was reviewed under the Utah Rules for Coal Processing Plants Not Located Within the Permit Area of a Mine, R645-**302-260**. All provisions of R645-300 and R645-301 apply to this category of mining unless otherwise specified under R645-302.

Findings:

As discussed in this Technical Analysis, the information provided meets the minimum requirements for Coal Processing Plants Not Located Within the Permit Area of a Mine. The Division's Findings are outlined under the R645-301 headings that follow.

GENERAL CONTENTS

IDENTIFICATION OF INTERESTS

Regulatory Reference: 30 CFR 773.22; 30 CFR 778.13; R645-301-112

Analysis:

The MRP meets the requirements for Identification of Interests because the principal stockholders and officers of the Parent Companies are identified in Section R645-301-112, along with the percentage ownership and addresses and principal shareholders.

The Resident Agent, Michael Glasson, is identified as the Resident Agent for the Wildcat Loadout (C/007/033) in Section R645-301-112.200 page 1-5.

The application indicates in Section 1, p. 1-6 that Andalex Resources Inc. is 100% owned and controlled by Andalex Hungary, Ltd.; Andalex Hungary, Ltd. is owned by Andalex Investments BV; Andalex Investments BV is owned by Misland (Cyprus) Investments Limited and A&A investments Ltd.; and A&A Investments Ltd is owned by the Mitchell Green Family Trust.

Affiliated coal mining operations within the United States are listed in Sec. R645-301-112.320.

Section 1, page 1-5 of the MRP lists present and past corporate personnel of Andalex Resources, Inc.; 45 West 10000 South; Sandy, Utah 84070. The employer identification number is provided in Sec. R645-301-112.320.

Findings:

Information provided in the MRP meets the Identification of Interests requirements for Coal Processing Plants Not Located Within the Permit Area of a Mine.

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 MRP meets the requirements for violation information, because Appendix B provides violation history for the years 2001 – 2005 for Utah Coal Mines held by Andalex Resources, Inc. Tower Division. In addition, the MRP indicates in Section R645-301-113 that neither Andalex Resources, Inc. Tower Division nor its affiliates have had a permit revoked or suspended in the last five years or a bond forfeited.

An Applicant Violator System check on May 4, 2004 (during the permit renewal process) indicated that there were no outstanding NOV's or CO's or any bond forfeitures of sites associated with the Andalex Resources, Inc. Tower Division (permit renewal document dated 5/5/2004, Outgoing 0012.pdf).

Findings:

The information provided meets the minimum violation reporting requirements for Coal Processing Plants Not Located Within the Permit Area of a Mine.

RIGHT OF ENTRY

Regulatory Reference: 30 CFR 778.15; R645-301-114

Analysis:

The permit area comprises 100.19 acres, of which 12.5 acres are under a right of way agreement between the Utah Railway and the Bureau of Land Management (p1-22). The remaining acreage (approximately 87.5 acres) is BLM land utilized under Right of Way agreement (U-48027 and U-52810) authorized by the Federal Land Policy and Management Act of 1976, which has been in effect since 1982 (p.1-13 and Appendix B).

An Agreement between Andalex Resources, Inc. and Beaver Creek Coal Co. has been in effect since 1988 (Appendix B).

A surface lease agreement with the Utah Railway has been in place since 1981 (Appendix B).

Findings:

The information provided meets the requirements of the Right of Entry Regulations for Coal Processing Plants Not Located Within the Permit Area of a Mine.

LEGAL DESCRIPTION AND STATUS OF UNSUITABILITY CLAIMS

Regulatory Reference: 30 CFR 778.16; 30 CFR 779.12(a); 30 CFR 779.24(a)(b)(c); R645-300-121.120; R645-301-112.800; R645-300-141; R645-301-115.

Analysis:

Lands designated unsuitable are defined in 30 CFR 761.11 as lands within National Parks, Wildlife Refuge Systems, National System of Trails, National Wilderness Preservation System, Wild and Scenic Rivers System, National Recreation Areas, National Forest, National Historic Register of Historic Places, or within 100' of a public road (excepting the intersection with a mine haul road); within 300 ft of an occupied dwelling, public park, school, church or any public building; within 100' of a cemetery. Sec. 1, p. 1-13 indicates that the land within the permit area is not unsuitable due to any of the above reasons.

The MRP meets the requirements for disclosing the legal description. The land is owned by the federal government and managed by the Bureau of Land Management (BLM). The land has been historically used for a wash plant and loading facility (p. 1-24). The operation is 100 ft distant from the County Road.

The 60.9 acre disturbed area (p. 3-4) for the Wildcat site is shown on Plate 1. The permit area is shown on Figure I-1.

Findings:

The information provided meets the minimum requirements of legal description and unsuitability claims for Coal Processing Plants Not Located Within the Permit Area of a Mine.

PERMIT TERM

Regulatory References: 30 CFR 778.17; R645-301-116.

Analysis:

Andalex Resources, Inc. was issued a permanent program permit for this site on May 5, 1989, which was successively renewed on May 5, 1994 and May 5, 1999 and May 5, 2004. The current permit expires May 5, 2009 (Appendix B).

The permit area comprises 100.19 acres, of which 12.5 acres are under a right of way agreement between the Utah Railway and the Bureau of Land Management (Sec. 1, p. 1-2). The remaining acreage (approximately 87.5 acres) is also BLM land, utilized under Right of Way

agreements U-48027 and U-52810. There are 60.9 acres within the disturbed area. Twenty acres are disturbed by Andalex (Sec. 1 p. 1-25 and Sec. 4 p. 3-4).

Exhibit A of the permit describes a surface disturbance of 63.7 acres, effective May 1994.

Findings:

Andalex Resources Inc. holds a valid State of Utah mining permit that expires May 5, 2009.

PUBLIC NOTICE AND COMMENT

Regulatory References: 30 CFR 778.21; 30 CFR 773.13; R645-300-120; R645-301-117.200.

Analysis:

The Office of Surface Mining determined that rewriting the MRP does not constitute a mining plan revision (letter dated May 24, 2004). The application received on April 8, 2004 is a reorganization of the existing mining and reclamation plan and does not require public notice.

Public comment for the permit renewal for the Wildcat Loadout was sought through legal notice in the Sun Advocate during the month of February 2004.

Findings:

Public notice is not required for this submittal.

PERMIT APPLICATION FORMAT AND CONTENTS

Regulatory Reference: 30 CFR 777.11; R645-301-120.

Analysis:

The permit area is consistently reported at 100.19 acres. The December 2004 DAQE AN113007-04 is included in Appendix B.

Revised Plate 1 did not include all information identified on the approved Plate 1. Contrary to the statement made in the application letter's "Checklist for Technical Deficiencies…", Plate 1 was not resubmitted with this application. Consequently, revised Plate

1 and Plate 2 are being withdrawn from this submittal. The existing plates remain as the approved plates and will be converted to electronic format in the future.

Findings:

The information provided meets the minimum requirements for Coal Processing Plants Not Located Within the Permit Area of a Mine.

REPORTING OF TECHNICAL DATA

Regulatory Reference: 30 CFR 777.13; R645-301-130.

Analysis:

The MRP meets the requirements for reporting of technical data, because individuals and firms that contributed to the mining and reclamation plan are listed in Sec. 1, R645-301-130.

Findings:

The information provided meets the minimum requirements for Coal Processing Plants Not Located Within the Permit Area of a Mine.

ENVIRONMENTAL RESOURCE INFORMATION

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

PERMIT AREA

Regulatory Requirements: 30 CFR 783.12; R645-301-521.

Analysis:

The MRP meets the reporting requirements for permit area, because Sec. 1 indicates that the site is on federal land managed by the Bureau of Land Management. The permit area covers 100.19 acres of which 12.5 acres of land under lease to the Utah Railway by the BLM (Sec.1 p. 1-2) and 60.94 are within the disturbed area boundary. Twenty acres have been disturbed by Andalex and the remaining acreage was either previously disturbed or is within an undisturbed ASCA (Sec. 3 p. 3-4).

Exhibit A Surface Disturbance included in the 1989, 1994 and 2004 Permits that indicates 63.7 acres of disturbance within the bonded area. Sec. R645-301-240, p. 2-22 and Plate 9 indicate 60.94 acres will be reseeded.

Findings:

The information provided meets the minimum requirements for Coal Processing Plants Not Located Within the Permit Area of a Mine.

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:

Soil Resources are described in Sec. 2 of the MRP. Appendix D contains the Soil Survey information for the site as well as the topsoil mass balance and soil chemistry information. Plate 11 provides a Soil Conservation Service Order III soil survey. Plate 13 summarizes topsoil storage.

The Carbon County soil survey classifies the undisturbed soils in the Wildcat area as Map Unit 52, Hernandez family 3-8% slopes. These deep soils can supply a lot more than six or twelve inches of topsoil.

The Wildcat soil was described twenty years ago by Earl Jensen, retired soil scientist with the NRCS. (The location for his pit is generally given as the intersection of the Gordon Creek road and Utah Railroad). He classified the soil as fine loamy mixed mesic Ustollic Calciorthids with a map unit name of Abra loam. He indicated that there was 60 inches of available topsoil. He also indicated that there was a layer of calcium carbonate accumulation from 9 – 12 inches and that adjacent soils did not have this layer of accumulation. The Abra loam is an official series name on the NRCS soil survey web site http://wwwsoils.usda.gov go into classification and official series descriptions, view by series names. The NRCS changed the classification of this series to fine loamy, superactive, mesic, Ustic Haplocalcid. The "superactive" designation pertains to the ratio of the electrical conductivity and the percent clay. There can be a calcic horizon in the soil.

The 1988 SCS soil survey for Carbon County maps the soils of the site as the Hernandez Series (Map Unit 55) and classifies the soils as fine-loamy, mixed, superactive, mesic Ustic

Haplocalcid (similar to the Abra loam, described above). This is a deep soil that is capable of high production if an adequate amount of water is supplied.

Substitute topsoil has also been evaluated in four fill slopes of the site through the use of test plots described in Appendix N. These plots were installed in 1989 (Plate 1) and evaluated by Patrick Collins, PhD, of Mt. Nebo Scientific Research & Consulting in 1991. Mr. Collins reported that the plots were dominated by Russian thistle (Salsola iberica) and summer cypress (Kochia scoparia) weeds, with the exception of spoil plot B that contained a sizeable community of Western wheatgrass (Agropyron smithii) and Indian ricegrass (Oryzopsis hymenoides). The plots will be re-evaluated in the summer of 2006.

The Wildcat site currently has a deficit of 32,000 cu yds of topsoil to achieve the goal of six inches topsoil replacement depth over the 61 acres (Sec. R645-301-224 p. 2-8 and R645-301-240 "Soil Testing and Preparation" p. 2-21). The revegetation test plot areas A – D represent the substitute topsoil available from the whole of the disturbed area (Sec. R645-301-212 p 2-6, and Sec. R645-301-224). At these revegetation sites, the soil was sampled to a depth of 4 ft. (p. 2-20 and 2-21). Thus, when 73,000 cu yds are moved (Table II) from the areas shown on Plate 1 during grading (Sec. R645-301-212 p 2-6), whatever material winds up on the surface will be suitable for reclamation. Although on page 2-20 and 2-21, the plan indicates that volumes will be calculated to arrive at the needed 32,000 cu yds. The Division is waiting for the results of the 2006 quantitative information from the revegetation test plots before commenting on this reclamation plan.

Information on file with the Division (2003 Incoming folder) includes an Addendum to Appendix D, a soil survey conducted under the direction of Mr. James Nyenhuis for Mt. Nebo Scientific in March 2003. This amendment was subsequently withdrawn, but the information has been retained in Appendix D because it provides valuable information on substitute topsoils and should be included in the Soils Resource Information regardless of whether the expansion takes place at the site. Primarily, the study substantiates a twenty-four inch soil salvage depth in future expansions and the use of subsoils to cover the coal mine waste at reclamation.

Findings:

The information provided meets the requirements for Environmental Soil Resource information requirements for Coal Processing Plants Not Located Within the Permit Area of a Mine.

ALLUVIAL VALLEY FLOORS

Regulatory Reference: 30 CFR 785.19; 30 CFR 822; R645-302-320.

Analysis:

Alluvial Valley Floor Determination

Geology information is found in Section 7. Hydrology is found in Section 8. No new information has been presented.

Findings:

The Division previously determined in the May 5, 1989 Technical Analysis of the Wildcat Loadout that no alluvial valley floors exist within or in close proximity to the proposed permit area.

PRIME FARMLAND

Regulatory Reference: 30 CFR 785.16, 823; R645-301-221, -302-270.

Analysis:

There has been no change in the status of prime farmland. Appendix D contains a determination from the Soil Conservation Service in 1988. Although the Carbon County soil survey classifies the undisturbed soils in the Wildcat area as Map Unit 52, Hernandez family 3-8% slopes (a prime farmland soil), there is no water source within the permit area (Section 8).

Findings:

The Division is in agreement with the Soil Conservation Service that there are no important farmlands in the permit area.

OPERATION PLAN

AIR POLLUTION CONTROL PLAN

Regulatory Reference: 30 CFR 784.26, 817.95; R645-301-244, -301-420.

Analysis:

As described in the MRP Sec. R645-301-420, the DAQE-005-00 allowed for a 16.5-acre stockpile storage area. The January 5, 2000 Air Quality Approval Order (DAQE-005-00) has subsequently been replaced by DAQE AN113007-04, issued December 2004, allowing a 5,500,000 Ton annual throughput. A copy of the DAQE AN113007-04 Order is included in Appendix B.

Section R645-301-423.200 refers to Appendix B for the fugitive dust control plan. The only dust control plan noted in Appendix B is the Air Quality Order described above, which relies upon the application of moisture to stockpiles and open disturbed areas as well as a limited haul road length and vehicle speed to control fugitive dust. The fugitive dust control must be applied when monitoring indicates greater than 20% opacity. Monitoring is the responsibility of the Permittee.

Specific measures to be taken in accordance with R645-301-526.220 *et seq* to reduce wind blown deposition of coal fines is the subject of a Division Order written in December 2004 (Task ID #2182).

The MRP indicates that wind fences are used to control of fugitive dust near pond B (R645-301-423.200, item #15). The MRP indicates that vacuuming will be used to clear undisturbed soils of accumulations of coal fines (Sec. R645-301-432.200, p. 4-10 and R645-301-212, p. 2-4). Vacuuming has been found to be very disruptive to undisturbed soils and is in itself a disturbance. The Permittee is encouraged closely monitor the wind blown coal fine deposition on adjacent undisturbed soils and use moisture on the stockpile(s) to reduce fugitive dust as well as water sprays or chemical treatment on areas used by mobile equipment and haul roads (condition #10) as required by the January 5, 2000 Approval Order (DAQE-005-00) General Condition #15. This ongoing discussion is the subject of a Division Order issued December 2004.

Primary roads have been identified on Plate 1.

Findings:

The information provided meets the minimum air quality requirements for Coal Processing Plants Not Located Within the Permit Area of a Mine.

TOPSOIL AND SUBSOIL

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

Analysis:

Topsoil Removal and Storage

Topsoil was salvaged from 20 acres of the site in **1984** and placed in the topsoil stockpiles (Plates 1 and 13). Stockpiles were consolidated in 1994 and pile B now contains all of the soil formerly in B, C, and D. Relocated stockpile B was seeded in the fall of 1994 and now contains 285,810 cu yds. Grab samples were taken from stockpiled soil in 1988 (R645-301-212, p 2-2 and Appendix D). This analytical information provides valuable information on the quality of the pre-existing surface soil. Topsoil has not been salvaged from the ASCA areas shown on Plate 2 (Sec. R645-301-212 p. 2-2).

The topsoil was reseeded in 1989 and 1990 (1989 Correspondence folders, memo from Henry Sauer dated April 25, 1989 and January 23, 1990) using a modified interim mix (memo from Lynn Kunzler dated November 17, 1989).

MRP Sec. R645-301-212, p. 2-3 describes transfer of topsoil piles B, C, and D to the west side of Wildcat for protection against wind blown coal fines (in 1994). The transferred topsoil was collectively designated topsoil stockpile B and placed adjacent to existing topsoil stockpile E. The stockpile was seeded in 1994 with an interim seed mix described on page 2-4. The ground exposed by removal of the stockpiles B, C, and D was drill seeded with the mixture described on page 2-4. New topsoil pile B was reseeded in December 2002. Topsoil A was recently reseeded in June 2002 (see inspection reports).

The existing stockpiles are located on the west, south and north perimeters of the disturbed area. The prevailing winds are from west to east. Topsoil piles E and B are upwind of the site. Topsoil Pile A is located southeast of the coal stockpile and may be affected by wind blow coal fines. Plate 13 illustrates the existing topsoil storage piles. It was certified by Dan Guy, a Professional Engineer. Plate 13 indicates that there is a total of 17,000 yd^3 available for reclamation.

Coal fines or fugitive dust have accumulated to depths greater than three inches on adjacent, undisturbed soils within the permit area (Patrick Collins report March 2003 included with submittal AM03A). These coal fines may be from any one of the six existing stockpiles on site that contain coal from Genwal and West Ridge Mines. The plan indicates in Sec. R645-301-212, p 2-4 and in Sec. R645-301-423.200 that coal fines will be vacuumed if deemed necessary.

Vacuuming has been found to be very disruptive to undisturbed soils and is in itself a disturbance. The Permittee is encouraged to closely monitor the wind blown coal fine deposition and use moisture on the stockpile(s) to reduce fugitive dust as required by the January 5, 2000 Approval Order (DAQE-005-00) General Condition #15. This topic is under review by Division Order written December 2004.

Topsoil Substitutes and Supplements

Stipulation UMC 817.22-(1)-(HS) of the 1989 Technical Analysis required the Permittee to establish test plots to determine the suitability of the fill as substitute topsoil. The Permittee established four plots in 1989 for this purpose (Section 3, R645-301-224).

Revegetation test plots A, B, C, D, established in 1989 on fill slopes, are located on Plate 1, see deficiency written under R645-301-121.200. The information in the files and the MRP appendices D and N reveals the following:

- Spoil samples from the four plots were analyzed by Utah State University Plant & Water Analysis Lab in December 1988; analyses were received by the Division on February 15, 1989 (Incoming File).
- Spoil plots were ripped to a depth of six inches and 1 Ton/acre alfalfa hay was incorporated to the same depth (MRP Appendix D), this tilling and mulching with straw was confirmed by Division Inspection Reports dated November 2, 1989 and December 19, 1989.
- Spoil plots may have been left rough with pitting (MRP, Appendix D) and may have been fertilized with 40 lbs K20; 60 lbs P2O5; and 60 lbs N (as Urea: ½ in Fall of 1989 and ½ in Spring of 1990 (MRP, Appendix D).
- Spoil plots were hand broadcast with a **modified** interim seed mix (December 19, 1989b Inspection Report). The approved modification was to delete Needle and Thread Grass and all shrub species and to include *Elymus cinereus* Basin Wildrye (3 lbs/acre) and *Agropyron trachycaulum* Slender wheatgrass (2.5 lbs/ac) (Lynn Kunzler, Memo to file dated November 17, 1989).
- The MRP describes in Appendix D a monitoring program for the spoil plots. The plots were to have been monitored in years 1, 2, 3, 5, 9, and 10.
- Spoil plots were surveyed in 1991, two years after seeding, by Patrick Collins (App. N). No further monitoring was conducted. One more quantitative evaluation of the fill slope test plots A, B, C, and D will be conducted in the summer of 2006 (MRP, p.2-8).

The 1991 survey report (1991, Appendix N) shows that all the plots were weedy and many of the seeded species were not present. Plot B showed the most positive result with 30% of its 52% cover attributed to the seeded grasses. Plot B is near the substation, east of the

railroad tracks. The Division biologist (Jerriann Ernstsen) briefly examined Plot B during a field visit (January 30, 2003) and the plot is still dominated by grasses (species unidentified) and without shrubs. Photographs taken of the test plots on June 23, 2005 are in the photo database.

In 1988, samples of the spoils that were taken in six-inch depth increments shed some light on the success of spoil plot B vegetation. Spoil plot B soils are loam in texture with pH values between 8.0 and 8.3, Electrical Conductivity values between 3.3 mmhos/cm decreasing to 0.9 mmhos/cm in the profile; and Sodium Adsorption Ratio (SAR) values from 1.3 falling to 0.4 within the profile. Spoil Plot B had the most desirable characteristics of the spoils sampled. Although spoil Plot A soils were also low in SAR, they were more sandy and would have had less water holding ability in the drought years after the seeding, described by Mr. Collins' 1991 survey. Spoil Plots D and E both are loam texture, but have EC values increasing down the profile to a high value of 4.0 mmhos/cm for spoil D and 3.0 for spoil E. The SAR values for spoil plots D & E are correspondingly high (from 2.8 to 6.6 for spoil D and from 1.6 to 8.5 for spoil E).

In addition to the spoil plots, there were four topsoil test plots established on the new topsoil pile B (adjacent to pile E, see Sec. R645-301-2224, p. 2-8), as part of the commitment stated on page 2-8 of the original plan to implement test plots if the spoil plots were unsuccessful. These test plots were seeded in the fall of 1994 and evaluated once in 1997 and will not be revisited. Mr. Glasson provided the Division with a copy of the 1997 evaluation of these test plots (incoming folder 3/11/03). The test plots were eliminated in 2000, when the surface of the new topsoil pile B was reseeded. The treatments on these test plots were:

- Irrigation vs. no irrigation;
- Incorporation of 3 to 4 tons alfalfa hay vs 1 ton alfalfa hay;
- 1-ton alfalfa hay incorporated and 1.5 tons straw anchored with netting vs. 1-ton alfalfa hay incorporated and 1.5 tons oat or barley straw anchored with mesh and staples.

According to Patrick Collins in his July 1997 Evaluation of the Test Plots (Division 2003 Incoming Record 0001), conducted 2 ½ years after seeding:

- Excluding forbs that were all weedy, the percent cover ranged from 38.75% to 43.33%.
- Seeded *Kochia prostrata* (prostrate kochia) and *Agropyron cristatum* (Fairway crested wheatgrass) accounted for most of the cover.
- Mulch incorporation at 3 – 4 Tons/ac greatly increased establishment of Kochia prostrata (a woody shrub) at the expense of grasses. This trend was also noted at lower levels of mulch incorporation.
- Irrigated plots favored grasses.

- Fairway crested wheatgrass (an introduced species) did much better than the native grasses and although it did not exclude the natives, may have created competition limiting their establishment.

The plan provides some parameters to be tested in future plots (page 2-8): native and local seed, different fertilizing techniques (including no fertilizer) and different seedbed preparation. The 1997 Collins' analysis suggests that Fairway Crested wheat seed should be eliminated from the interim seed mix in order to encourage greater diversity in the establishment of grasses.

The Division concurs with Mr. Collins' recommendation of removing Fairway crested wheatgrass from the seed mix. The Division would also suggest the following techniques be evaluated in future seeding activity: cover the seed by raking to increase shrub germination, employ wood-fiber hydromulch, eliminate fertilizer, reduce mulch to 1-Ton/ac, and change the timing of seeding to late summer.

Rather than go to the extreme of pursuing additional area for disturbance (R645-301-224 p 2-8), the Division has recommended to Andalex (based upon the soil survey conducted in March 2003, by Mr. Jim Nyenhuis), that any future expansion plans should describe a salvage depth of twenty-four inches, with another thirty inches of subsoil to be salvaged and stockpiled separately for use as substitute topsoil during final reclamation.

Findings:

The information provided meets the minimum requirements for Coal Processing Plants Not Located Within the Permit Area of a Mine.

SPOIL AND WASTE MATERIALS

Regulatory Reference: 30 CFR Sec. 701.5, 784.19, 784.25, 817.71, 817.72, 817.73, 817.74, 817.81, 817.83, 817.84, 817.87, 817.89; R645-100-200, -301-210, -301-211, -301-212, -301-412, -301-512, -301-513, -301-514, -301-521, -301-526, -301-528, -301-535, -301-536, -301-542, -301-553, -301-745, -301-746, -301-747.

Analysis:

Coal processing waste was used (along with subsoils) to create a foundation for the stockpiles (R645-301-212 p 2-2; R645-301-512.230 p 5-7).

Refuse Piles

Refuse or bony is stored on the west side of the railroad tracks (Plate 1). This refuse was sampled once in 1994 as described in Sec. R645-301-711.100. The leachate analysis results are found in the 1994 Annual Reports.

Acid/Toxic analysis of the refuse material was conducted in 2004. The results of this testing are found in Appendix D and is discussed in the Operations Hydrology section of this TA under Acid/Toxic forming materials.

Approximately 44,500 cu yds of refuse are in the refuse pile (Plate 1 and R645-301-512.230, p 5-8). And 10,000 cu yds of refuse material has been used as foundation fill for stockpile areas as noted in R645-301-512.230 p 5-8.

Findings:

The information provided meets the minimum requirements for Coal Processing Plants Not Located Within the Permit Area of a Mine.

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:

Acid- and Toxic-Forming Materials and Underground Development Waste

Acid and Toxic Forming Materials sampling information is found on p. 7-5 in Sec. R645-301-711.100. The analysis of the 1994 leachate from coal and refuse by Commercial Testing and Engineering Co. is found in the 1994 Annual Report.

The analysis of the refuse material (soil) by Utah State University Soil Plant and Water Analysis Laboratory is included as Attachment 2 of Appendix J (Probable Hydrologic Consequences). These analyses indicate that there is 0.53% sulfur and 1.02% sulfur in the coal and boney, respectively. Since the analyses do not indicate the calcium carbonate content of the material, nor do they provide an indication of the percent pyrite, they cannot provide an

estimation of the acid forming potential of the material. However, the pH of the material is reported as 7.6 and 7.4, and the boron content falls within 0.5 to 1.3 mg/L. Selenium was not analyzed.

Two samples of the refuse material (soil) taken in 2004 were sent to Brigham Young University Soil and Plant Analysis Laboratory; the report is located in Appendix D. These samples indicate there is adequate carbonate in the material to neutralize the potential acidity. The samples also report high values for selenium; this fact should be noted in the selection of vegetation.

Section 645-301-512.230 p. 5-7 discusses the use of coal mine waste as substitute fill during operations with separate handling and disposal of the coal mine waste under four feet of subsoil.

Findings:

The information provided meets the minimum Acid/Toxic information requirements for Coal Processing Plants Not Located Within the Permit Area of a Mine.

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 techniques are being investigated at the site. A topsoil test plot study was installed on Topsoil Pile B in 1994 to address the questions of which reclamation treatments provide the most favorable condition for seed germination and plant growth on topsoil. In 1997, Patrick Collins of Mt. Nebo Scientific evaluated the topsoil test plots (see discussion under Operation Plan Topsoil and Subsoil). A second quantitative evaluation will occur in 2005.

Findings:

The Division expects to continue refining the reclamation plan for this site in cooperation with the Permittee.

BACKFILLING AND GRADING

Regulatory Reference: 30 CFR Sec. 785.15, 817.102, 817.107; R645-301-234, -301-537, -301-552, -301-553, -302-230, -302-231, -302-232, -302-233.

Analysis:

General

Final reclamation contours and cross section locations are shown on Plate 9. Plate 10, Reclamation profiles indicates that the reclaimed site will gently slope from west to east at a grade between 20h:1v (cross-section C) to 26h:1v (cross-section D).

Phase I reclamation will involve grading 74,000 cu yds of material (Section R645-301-240, p 2-16 and Tables II-1 Mass Balance Summary). Ponds B and E will be removed and Ponds A, C, E, and F will remain until Phase 2 of the reclamation (p 2-16 and 2-19). Section R645-301-512.230 p. 5-7 describes the burial of coal mine waste underneath four feet of subsoil.

The fill will be compacted (Sec. R645-301-p. 2-5), but the last few lifts will be left loose for a depth of four feet to eliminate the need for ripping (Sec. R645-301-240 p. 2-19).

Phase II is the removal of ponds A, C, D, and F and removal of the fence surrounding the permit area. The upper and lower cell of the permanent impoundment shown on Plate 9 will remain. The outslopes of these impoundments are vegetated.

Table II-1 and Table II-1A provide cut fill information. These tables were derived from Plate 14 cross-sections.

Findings:

The information provided meets the backfilling and grading requirements for Coal Processing Plants Not Located Within the Permit Area of a Mine.

TOPSOIL AND SUBSOIL

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

Analysis:

Redistribution

The reclamation plan is described in Sections R645-301-240 (p. 2-13) and R645-301-542.400. Reclamation costs are provided in Appendix B.

R645-301-243 indicates soil nutrients will be applied as needed. Section R645-301-240 p. 2-21 indicates topsoil will be sampled for fertility and amended as recommended by the regulatory authority. Unless deficiencies are extreme, the Division discourages the use of fertilizer, and has noted that nitrogen fertilization encourages weedy species in The Practical Guide to Reclamation in Utah, DOGM, 2000, available on the web at http://www.ogm.utah.gov/mining/default.htm.

Topsoil will be replaced to a depth of six inches over a 61-acre area (p. 2-5, R645-301-242 p 2-25), except that topsoil will not be replaced on:

- Alternate Sediment Control Areas (ASCA, where topsoil was not removed). Plate 2 illustrates the ASCA's.
- Embankments of permanent impoundments (shown on plates 1 and 9 on the west side of the railroad tracks).

Topsoil placement will occur in the fall (pg 2-20). Topsoil will be replaced using dump trucks and graders (pg 2-20). As mentioned in Sec. R645-301-240 p. 2-19, a loose application of fill should eliminate the requirement for ripping (scarification) of the graded fill prior to topsoil placement. The topsoiled surface will be roughened with gouging. Seed will be applied to all 61 disturbed acres, as shown on Plate 9 (Section R645-301-240, p. 2-22).

Findings:

The information provided meets the minimum topsoil and subsoil reclamation requirements for Coal Processing Plants Not Located Within the Permit Area of a Mine.

STABILIZATION OF SURFACE AREAS

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

Analysis:

Reclaimed areas will be gouged as described in Sec. R645-301-240 p. 2-21, hydroseeded and hydromulched. The bonding costs have been adjusted to reflect the gouging treatment.

All seeded areas (illustrated on Plate 9) will be treated with hydromulch (1 Ton/ac) and tackifier to stabilize the regraded soil (Sec.R645-301-240, pg 2-22).

The embankments of permanent impoundments may be stabilized with riprap (Sec. R645-301-242.320).

Repair of erosion is described in Sec. R645-301-212, p 2-6.

Findings:

The information provided meets the minimum reclamation surface area stabilization requirements for Coal Processing Plants Not Located Within the Permit Area of a Mine.

BONDING AND INSURANCE REQUIREMENTS

Regulatory Reference: 30 CFR Sec. 800; R645-301-800, et seq.

Analysis:

General

The bond was reduced by letter dated May 5, 1999 from $813,795 down to $651,000 in year 2000 dollars. In 2005, Division bond calculations further reduce the required bond to $608,000 (Appendix B).

Form of Bond

The Division accepted an Irrevocable Letter of Credit in the amount of $651,000 on February 2, 2004. The Irrevocable Letter of Credit is dated December 9, 2003.

Determination of Bond Amount

The bond was originally calculated to be $726,335 in 1988. The bond was recalculated in 1997 and determined to be $655,784 with an escalation factor of 2.52% reaching a cost of

$698,000 in the year 2000 (letter from Daron Haddock to Mike Glasson dated September 5, 1997).

Appendix B provides an accounting for the current bond of $651,000. The reason for the bond reductions since 1997 is due to the savings in concrete demolition costs when a 125 horsepower excavator equipped with a hydraulic hammer replaced the 50 horsepower backhoe.

The Division accepted an Irrevocable Letter of Credit in the amount of $651,000 on February 2, 2004.

Terms and Conditions for Liability Insurance

A certificate of insurance was issued by Riddle Insurance Company, dated June 27, 2003, and was received by the Division January 15, 2004 as part of the permit renewal information. The policy provides for 45-day notice of cancellation to the Division, the certificate holder.

Findings:

The information provided meets the minimum bonding requirements for Coal Processing Plants Not Located Within the Permit Area of a Mine.

RECOMMENDATIONS:

The plan refers to a 60.94 acre disturbed area. Exhibit A of the Reclamation Agreement describes a 63.7-acre area.

The site will be gouged; bonding costs have been adjusted accordingly.

Contrary to the statement made in the application letter's "Checklist for Technical Deficiencies…," Plate 1 was not included in this submittal. The Division had requested that the revised Plate 1 contain all the information currently on the approved Plate 1. Consequently, revised Plate 1 and Plate 2 are being withdrawn from this submittal. The existing Plates 1 and 2 remains as the approved plates and will be converted to electronic format in the future.

With the exception of revised Plate 1-Surface Facilities and Plate 2-Surface Facility Topography, the information provided to date is recommended for approval. The Permittee must provide two complete hard copies and a revised electronic version of the application including Plate 13-Topsoil Storage Piles.