



State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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February 21, 1995

Mr. Mike Glasson
Andalex Resources, Inc.
P. O. Box 902
Price, Utah 84501

Re: Technical Analysis of Reformatted Plan and Midterm Review, Andalex Resources, Inc., Centennial Mine, ACT/007/019, Folder #3, Carbon County, Utah

Dear Mr. Glasson:

The Division has completed the review of your recently reformatted Mining and Reclamation Plan. The enclosed Technical Analysis discusses the results of that review. While Andalex has made steps toward having a complete and accurate plan, there are still a number of deficiencies in the plan which need to be corrected. Please review the Technical Analysis paying particular attention to the requirement section. Andalex must provide a response to the requirements by no later than May 22, 1995.

If you have any questions, please call me or Steven Johnson.

Sincerely,

A handwritten signature in black ink that reads "Daron R. Haddock".

Daron R. Haddock
Permit Supervisor

enclosure

cc: P. Grubaugh-Littig
J. Helfrich
S. Johnson

taletter.cen





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February 17, 1995

TO: Daron Haddock, Permit Supervisor

FROM: Steven M. Johnson, Reclamation Hydrologist 

RE: Technical Analysis of Reformatted Plan, Centennial Mine, Andalex Coal Company, ACT/007/019, Working File, Carbon County, Utah

The compiling of the Centennial Mine reformatted plan technical analysis (TA) has been completed and attached. The analysis and findings on the plan are included in the main part of the TA while the requirements at the end of the TA is a complete list of deficiencies. When these deficiencies are successfully addressed the TA can be finalized.

TACOMP.MEM



PERMIT APPLICATION REQUIREMENTS

Regulatory Reference: UCA R645-301-100

LEGAL, FINANCIAL, COMPLIANCE AND INFORMATION

Regulatory Reference: UCA R645-301-110

Analysis:

In the first paragraph on Page 2, Plate 4 is referenced for information on the leases of the Centennial project. Plate 4 indicates lease UTU-696000 is for the Centennial Seam only. Mining rights to the Aberdeen seam have not been added. BLM Right-of-Way U-62045 to the mine portals is shown on Plate 4, but the Right-of Way shown on Plate 29 for the fan portal is not identified on Plate 4.

Finding:

Permit application information is complete and accurate except for the following deficiency:

- 1) Plate 4 does not show rights to the Aberdeen seam and the Right-of-Way to the fan portal.

IDENTIFICATION OF INTERESTS, VIOLATION INFORMATION, AND RIGHT OF ENTRY INFORMATION

Regulatory Reference: UCA R645-301-112; R645-301-113; R645-301-114

Analysis:

Identification of Interests

The applicant, Andalex Resources, Inc., is a corporation organized under Delaware laws and qualified to do business in Utah. AMCA Coal Leasing, Inc., is Andalex's land acquisition and development branch. The plan includes Andalex's address and telephone number. The resident agent is Michael W. Glasson. The plan does not say who will pay the abandoned mine reclamation fee.

The plan lists Andalex's employer identification number, its officers and directors,

TECHNICAL ANALYSIS

Last revised - February 17, 1995

Some of the violation information in Appendix B is duplicative and should be removed, but parts are incomplete. "Attachment I-6" probably has the most complete information, but the Division's copy is lacking pages 3 through 5. Other parts of this appendix, labelled "Attachment I-2," "Attachment I-1," and with page numbers 5 of 7 through 7 of 7, should probably be removed because the information is either old and not needed or is duplicated in "Attachment I-6."

Right of Entry Information

Andalex bases its right to enter and begin operations on language, quoted in the plan, in federal and fee lease agreements. Andalex Resources, Inc., subleases seven federal and two fee leases from AMCA Coal Leasing. In addition, Andalex has two rights of way from the Bureau of Land Management and one private land easement from Gladys Artman.

Total acreage figures given in the plan for the leases do not match. On page 17, the plan says Andalex holds approximately 4920 acres of federal and private coal leases. On pages 3 and 30, the plan says there are 5063 acres of leases, and if one adds acreage figures for all of the leases listed in Section R645-301-114, it comes to 5092.48 acres.

Legal descriptions of the leases correspond with Plate 4, the map showing Centennial Project leases, and with the permit. Under lease UTU-69600, the plan and Plate 4 both indicate this lease is for the Centennial seam only. Andalex has acquired rights for all seams in this lease.

Findings:

This portion of the mining and reclamation plan is complete and accurate with the following exceptions:

1. The plan needs to identify who will pay the abandoned mine reclamation fees.
2. The plan needs to show the employer identification number and officers and directors of Andalex Resources, B. V. It also needs to show any companies that own or control this company together with these companies' employer identification numbers, their officers and directors and any coal mining and reclamation operations the companies own or control.
3. Land ownership information in the text of the plan needs to agree with what is shown on the maps. The plan needs to contain the names and addresses of all entities owning land within and contiguous to the permit area.

TECHNICAL ANALYSIS

Last revised - February 17, 1995

PERMIT TERM, INSURANCE, PROOF OF PUBLICATION, FACILITIES OR STRUCTURES USED IN COMMON, CLEAR AND CONCISE, NOTARIZED SIGNATURE, PREVIOUSLY MINED AREAS

Regulatory Reference: UCA R645-301-116; R645-301-117; R645-301-121; R645-301-123; R645-301-142

Analysis:

The plan says the requested term of the permit is for five years. The permit was renewed in 1992 and expires in 1997.

Appendix B has copies of the certificate of liability insurance and the certificate of insurance. The certificate of insurance expired July 1, 1992, but the Division's files have a copy of an insurance certificate that expires July 1, 1995. The company affording coverage is Federal Insurance Co., and the policy number is 3710-25-94.

Page 20 of the existing mining and reclamation plan has a copy of the affidavit of publication for the 1992 permit renewal; it is not in an appendix. This notice should be carried forward into the reformatted plan.

The Centennial Project includes development of three mines, but the facilities are not used by another company for mining operations.

There are several places where the reformatted plan references UMC regulations. Not all of the references to regulations are necessary. They either need to be removed or corrected. There are other relatively minor problems that need to be corrected.

Page 2 references UMC 782.

On pages 3 and 30, there are references to Figure I-1. This figure could not be found.

Pages 5 and 31 contain the statement, "It is not anticipated that longwall mining will be used." This statement is outdated.

On page 6, the plan says the application is organized according to Utah Coal Mining Regulatory Program, parts 700 and 800.

On page 6, there is a reference to UMC 782.

Page 21 references UMC 764.

TECHNICAL ANALYSIS

Last revised - February 17, 1995

ENVIRONMENTAL RESOURCE INFORMATION

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

HISTORIC AND ARCHEOLOGICAL RESOURCE INFORMATION

Regulatory Reference: UCA R645-301-411.140 (30 CFR Sec. 783.12)

Analysis:

The application contains the results of two archeological surveys in Appendix C. The first was performed in 1976, and the second study was performed in 1980 under the direction of the Assistant Utah State Archeologist. No prehistoric sites were identified; nearly all sites identified were associated with historic mining operations. Two sites were identified that should be protected, and these were both in Straight Canyon. One was the ruins of a log cabin, and the other was a rock with "J A Peterson May 11, 1901" pecked in.

Correspondence from the Division of State History to the Bureau of Land Management says that necessary BLM forms have been distributed to the Price area office and to the Utah State office. This correspondence also states that an Historic Archeologist determined the sites would not impede development. June 15, 1988, correspondence from the Division of State History indicates there is a potential of finding rock shelters and rock art. If found, these must be reported to the Division of State History.

The two historic sites identified in the 1980 archeological survey are not in areas that are likely to be disturbed, but if disturbance is to occur in the area, these sites must be avoided or appropriate mitigative actions taken after consultation with the Division of State History. This area is not proposed for surface disturbance. The historic petroglyph is outside the permit area, and the log cabin ruins are outside the area that could be subsided. No commitment to protect these sites or to mitigate for disturbance is presently required.

There are no cemeteries, no lands within the boundaries of the National System of Trails or the Wild and Scenic Rivers System, no public parks, and no cultural or historical sites eligible for listing in the National Register of Historic Places within the permit area.

Section R645-301-411.140 of the plan contains information not applicable to this regulation that should be moved to another section or removed if it is not necessary. This section also references Volumes I and II, Chapter II, and Section 782.13 part 1 of the plan. These references apparently apply to the former plan.

TECHNICAL ANALYSIS

Last revised - February 17, 1995

Findings:

The Climatological Resource information is complete and accurate in the current mining and reclamation plan.

VEGETATION RESOURCE INFORMATION

Regulatory Reference: UCA R645-301-724.400 (30 CFR Sec. 783.18)

Analysis:

Vegetation resource information is in section R645-301-310 of the reformatted plan and in Appendix M. Appendix M contains detailed information about the disturbed area, and the plan text has broad vegetation community information for the permit area.

Vegetative types in the permit area are mountain brush, desert shrub, pinyon-juniper woodland, sagebrush-grass, conifer-aspen, and minor stream side components. Mountain brush is the predominant type over most of the permit area.

Vegetation in the disturbed area was classified into two range sites, mountain stony loam (oak) and upland stony loam (pinyon-juniper). Parameters measured included woody plant density, production, and cover. The point-quarter method was used to measure woody plant density. Production from oak, maple, juniper, and pinyon was estimated from tables that correlate stem diameter and canopy size with production. Production of other species was estimated using paired plots: sample weight units were taken from outside the actual sample plots and were correlated with the productivity of each species within the plots. Belt transects were used to measure vegetative cover within each plot. Cover values were separated into cover by species, bare ground, litter, and rock.

Minimum sample sizes were achieved in all sampling except vegetative cover for the upland stony loam (pinyon-juniper) areas. For these areas, the minimum vegetative cover sample size was 46, and 40 samples were taken. When this study was done, the Division's policy was to allow maximum sample sizes. This policy has since been changed, but, since the site has been disturbed and since the sampling was approved for baseline information requirements, it is both impossible and unnecessary to try to obtain more samples from adjacent areas.

Not all of the disturbed area was included in original sampling. The south end of the disturbed area, including the Aberdeen Mine site, and the fan portal in the Left Fork of Deadman Canyon were excluded. These areas both have vegetation very similar to the area

TECHNICAL ANALYSIS

Last revised - February 17, 1995

consists mostly of grasses with few shrubs and broadleaf forbs. In about May 1994, several shrubs were transplanted onto the pile in an effort to test transplanting methods and timing. Probably as a result of poor handling and planting procedures, all of them died. Further efforts to show the feasibility of transplanting shrubs is warranted and is discussed under "Revegetation" below.

Based on information in annual reports, Division personnel observations of interim revegetation success on topsoil piles, and comparing the site with nearby areas that have similar reclamation conditions, the Centennial Project site is reclaimable.

Findings:

The plan includes adequate vegetation resource information.

FISH AND WILDLIFE RESOURCE INFORMATION

Regulatory Reference: UCA R645-301-322 (30 CFR Sec. 784.21)

Analysis:

Appendix A contains a wildlife report from the Division of Wildlife Resources. Most of this information is not site-specific but is about wildlife in the region.

The mine plan area is located in the West Tavaputs Plateau, an area that supports about 360 vertebrate wildlife species. The main game species in the mine plan area are mule deer, mountain lions, black bears, elk, and cottontail rabbits. No threatened, endangered, or sensitive species have been found on or near the lease area.

Several golden eagle and a few other raptor nests are in the permit area. The locations of some of these nests are shown on Plate 34. The plan says this plate has been updated since a raptor survey performed in May 1994; however, the Division's copies of this plate do not include the most recent information.

Plate 34 also shows certain areas of high priority elk winter range, critical deer winter range, and high priority sage grouse summer range within the permit area. From this map, it is not clear if high priority elk winter range is on the north or south side of the line delineating this habitat. Other maps available to the Division show where this range is, but, if Plate 34 is being updated for other purposes (to show eagle nests), it should also be updated to show on which side of the line elk high priority winter range is.

TECHNICAL ANALYSIS

Last revised - February 17, 1995

SOILS RESOURCE INFORMATION

Regulatory Reference: UCA R645-301-220 (30 CFR Sec. 783.21)

Analysis:

Soil descriptions are found in Appendix M, while the soils are mapped on Plate 18. Substitute topsoil information is found in Section R645-301-224 beginning on page 39 of the mining and reclamation plan.

The shop pad is has 5,240 yards of material once designated as substitute topsoil. The Permittee does not believe that this storage location will effect that suitability of the material; however, material near the Apex truck loadout is similar and has been designated as substitute soil. The Permittee will test this material's suitability by using the approved seed mix on the soil. Both substitute soil locations have been tested and results will be included in the permit when they are available.

Quantities of stockpiled topsoil and pile locations are found on page 40 and Plates 6 and 37 in the mining and reclamation plan. Allowing for 6 inches of topsoil spread over the surface in reclamation, there is a deficit of about 8,000 cubic yards. This deficit will be made up for in by the two substitute sites. Topsoil Pile B has been eliminated and the material from that pile has been placed with Pile G.

Findings:

Topsoil resources have been characterized in Appendix M, and quantities are accounted for in Section R645-301.224; therefore, the soil resource information is complete and accurate except for characterization data that in not yet available on the substitute material and the following deficiencies:

- 1) Plate 6 show Topsoil Pile B as existing even though the material from that pile has been move to Topsoil Pile G.

LAND-USE RESOURCE INFORMATION

Regulatory Reference: UCA R645-301-411.100, 411.200 (30 CFR Sec. 783.22)

Analysis:

The historic use of the land has been for coal mining, grazing, and for recreation and

TECHNICAL ANALYSIS

Last revised - February 17, 1995

510 for that information, but R645-301-510 contains almost no geologic information. Geologic information is found in R645-301-512.150 and R645-301-611.100.

In the revised plan references are made to "Stratigraphic sections of the coal beds are shown on Figures III-1, III-2, and III-3." (page 323) and "**Lithology (see Figure III-2 and III-3).**" (two places on page 333). Figures III-2 and III-3 are not in the revised plan. Figure III-1 is in Section R645-301-512.150 of the revised plan. There is a generalized stratigraphic section also in Section R645-301-512.150 of the revised plan that is not labeled but that may be Figure III-2. There are no figures labeled Figure III-2 or Figure III-3 in the revised plan or in the currently approved plan.

Pages 324 to 329 contain information on the drill holes in the Centennial Project. The six holes drilled by Centennial Coal Assoc. in 1971 are described on page 324. Pertinent information including elevations is in Table III-1 and lithologic logs of five of them are in Appendix E: the log for DH-1 is missing. Locations are supposed to be on Plates 26, 27, and 28 but are not there.

On page 326, the first paragraph discusses seven holes bored by the Permittee in 1977. Locations are supposed to be on Plates 26, 27, and 28 but are not there. Lithologic logs are in Appendix E. The Permittee also bored six holes from underground and one from the surface in 1989. Information on these fourteen holes is summarized in Table III-2. Logs for the 1977 holes are in Appendix E but the text does not mention lithologic logs for the 1989 holes.

The second paragraph on page 326 reports on three bore hole lithologic logs acquired by the Permittee from North American Coal Corp. and Pacific Gas & Electric. Pertinent information including elevations is summarized in Table III-3. Lithologic logs of the two holes drilled by North American Coal Corp. in 1948 are in Appendix E, but the lithologic log for the hole drilled by Pacific Gas & Electric in 1980 is not in Appendix E. Locations are supposed to be on Plates 26, 27, and 28 but are not there.

Drill holes MC-32, MC-192, MC-193, DH-8, and DH-10 are shown on Plate 22 but there is no other information on these bore holes in the plan.

Many statements that refer to another in the plan are based on the old plan format. For example:

"Refer to Chapter IV, sections 1.1 and 2.1-1 for additional detail regarding the mining of the Centennial Seam" (page 331).

"Refer to Part C of this Chapter re Hydrology" (first and third paragraphs on page 332).

TECHNICAL ANALYSIS

Last revised - February 17, 1995

Centennial seam rock tunnel. There is no processing waste from these mines, and if waste is generated in the future it will be hauled to an approved refuse disposal site.

Logs from the bore holes and the results of chemical analyses of coal and rock are in Appendix E. Appendix E does not contain data on thickness and engineering properties of clays or soft rock such as clay shale, if any, in the stratum immediately above and below each coal seam to be mined.

The overburden section (R645-301-627) of the revised plan is simply marked "N/A", but the required minimum information is actually in Appendix E and Section R645-301-611.100.

Findings:

Geologic resource information is complete and accurate except for the following deficiency:

- 1) For information on "Casing and Sealing of Exploration Holes and Boreholes" and "Subsidence Monitoring" the reader is referred to R645-301-511.100 that in turn refers to R645-301-510 and the two subjects are not covered in either place.
- 2) On page 334 the reader is referred to R645-301-510 for a description of the geology within the proposed permit area and adjacent areas, but R645-301-510 contains almost no geologic information.
- 3) In the revised plan references are made to "Stratigraphic sections of the coal beds are shown on Figures III-1, III-2, and III-3." (page 323) and "Lithology (see Figure III-2 and III-3)" (two places on page 333) but Figures III-2 and III-3 are not in the revised plan.
- 4) The lithologic log for DH-1 and for the hole drilled by Pacific Gas & Electric in 1980 are missing from Appendix E.
- 5) Drill holes MC-32, MC-192, MC-193, DH-8, and DH-10 are shown on Plate 22 but there is no other information on these bore holes in the plan.
- 6) Bore hole locations are not shown on Plates 26, 27, and 28 as stated in the text.
- 7) Many statements that refer to another location in the plan are based on the old plan format.

TECHNICAL ANALYSIS

Last revised - February 17, 1995

quality data are in Appendix L. Names and locations of surface water bodies are on Figure 4 and on numerous other maps in the plan. UPDES discharge points are shown on Figure VII-11.

Baseline cumulative impact area information.

Information from the permit applicant is in Appendix L. A CHIA was prepared December 4, 1990 and a brief update made on April 20, 1993.

Probable hydrologic consequences determination.

The report "Surface and Ground Water Hydrologic Inventory Including Baseline Quality Information and Operational Water Monitoring Data" (Vaughn Hansen Associates, 1981, revised 1984) in Appendix L contains determinations of the effects of mining operations on the ground water and surface water hydrologic balances. This determination was based upon baseline hydrologic and geologic information for the proposed permit and adjacent areas, including the quality and quantity of surface and ground water under seasonal flow conditions. An additional PHC determination was added to the appendix in 1990 to include the "Graves" lease. Findings were that no adverse impacts are expected to the hydrologic balance; that there are no acid-forming or toxic-forming materials present that could result in the contamination of surface or ground water supplies; and that proposed operation should have no impact on sediment yield, acidity, total suspended and dissolved solids, flooding or streamflow alteration, and on ground water and surface water availability. The area of the "AEP" lease was not covered explicitly by this updated PHC. However within the area of the "AEP" lease the geology and other factors are consistent with those in the areas covered by the PHC and there are no seeps or springs and streams flow only in direct response to precipitation so the probable hydrologic consequences no different from those determined previously.

Ground-water and Surface-water monitoring plans.

The ground and surface water monitoring plans are based upon the PHC determination and the analysis of all baseline hydrologic, geologic, and other information in the permit application. The plan provides for the monitoring of parameters that relate to the suitability of the ground and surface water for current and approved postmining land uses and to the objectives for protection of the hydrologic balance. Quantity and quality parameters to be monitored are on pages 342 and 343. Sampling frequency is discussed on pages 343 and 344. Surface and ground water monitoring points are shown on Figure IV-11, which is on page 345. The monitoring plan does not describe how the data may be used to determine the impacts of the operation upon the hydrologic balance. The Permittee commits in the plan to submit data to the Division every 3 months for each monitoring location.

TECHNICAL ANALYSIS

Last revised - February 17, 1995

The Permittee did not address the location of existing facilities in the permit area such as impoundments and noncoal waste.

The reader is referred to Plates 21, 22, 23, and 24; Appendix E; and Plates 26, 27, 28, and 29. Nature, depth, and thickness of the coal seams to be mined, any coal or rider seams above the seam to be mined, each stratum of the overburden, and the stratum immediately below the lowest coal seam to be mined are shown on cross sections on Plates 23 and 24 and Figure III-1 (page 120), which are not certified. For seams to be mined, coal thicknesses only are described or mapped as isopachs on certified Plates 26, 27, 28, and 29. Coal crop lines are shown on Plates 26, 27, 28, and 29. Strike and dip of the coal to be mined within the proposed permit area are not shown on any map or plan.

Plates 26, 27, and 28 are referred to on pages 101 and 324 to 329 for the locations and elevations of the bore holes. Plates 26, 27, 28, and 29 are certified but do not show any drill hole locations. Drill hole locations and elevations for the bore holes in Tables III-1 and III-3 are on Plate 22, which is not certified. Plate 22 also shows the locations of bore holes listed in Table III-2 except for 89-2 through 89-7. There are also locations for MC-32, MC-192, MC-193, DH-8, and DH-10 that are not listed in the tables or described in the text.

Locations and elevations of baseline surface and ground water monitoring points are shown on Figure 4 of Appendix L, which is not certified. Locations and elevations of operational surface and ground water monitoring points, including UPDES discharge points, are shown in Figure IV-11 (page 345), which is not certified.

The plan refers to Plate 6 as showing sufficient slope measurements or contour maps to adequately represent the existing land surface configuration of proposed disturbed areas for UNDERGROUND COAL MINING AND RECLAMATION ACTIVITIES, measured and recorded to take into account natural variations in slope, to provide accurate representation of the range of natural slopes and reflect geomorphic differences of the area to be disturbed. Plate 6 is certified but does not show the pre-disturbance land configuration.

On page 348 the plan refers to Appendix L for cross sections and maps showing location and extent of subsurface water, including areal and vertical distribution of aquifers and portrayal of seasonal differences of head in different aquifers. Geology is the major factor in the distribution of ground water in the Book Cliffs, and the geologic map (Plate 21, not certified) indicates the areal and vertical distribution of strata that have the potential to contain aquifers and to act as recharge areas. In the Book Cliffs region ground water exists under water table, artesian, and perched conditions, but perched aquifers are the only aquifers known to exist in the permit and surrounding areas. Water table conditions in the Book Cliffs primarily occur in shallow alluvial deposits along larger perennial streams and in relatively flat lying sedimentary rocks with no overlying impermeable strata. Ground water in water table

TECHNICAL ANALYSIS

Last revised - February 17, 1995

- 6) Locations and elevations of baseline surface and ground water monitoring points are not on a certified map or plan.
- 7) Locations and elevations of operational surface and ground water monitoring points are not on a certified map or plan.
- 8) There is no certified map or plan that shows sufficient slope measurements or contour maps to adequately represent the pre-disturbance land surface configuration of proposed disturbed area.
- 9) There are no certified maps and cross sections showing the location and extent of subsurface water, including the areal and vertical distribution of aquifers, within the proposed permit or adjacent areas.
- 10) Locations of surface water bodies within the proposed permit and adjacent areas are not shown on a certified map or plan.

TECHNICAL ANALYSIS

Last revised - February 17, 1995

mining and reclamation plan.

Coal is discharged from the conveyor onto a coal stockpile in the raw coal stockpile area as indicated on Plate 6. The coal is then set to the Wildcat Loadout for processing. Upon completion of mining activities, all surface facilities will be removed. The coal pile area will be filled, the slope contoured, compacted, topsoil replaced, regraded, and revegetated.

There has been no development waste or excess spoil to date excepting sedimentation pond material. Sediment pond waste is non-toxic and non-acid forming. It is stockpiled on site and will be used as fill during reclamation.

Noncoal waste consists of lubricants, paints, garbage, timber, and other waste generated during mining. Noncoal waste is deposited into dumpsters for temporary storage. Final disposal of the noncoal waste is in commercial landfills.

The Permittee has adequately described the handling of spoil, coal processing waste, mine development waste and noncoal waste.

The regulation in R645-301-528.340 require that all underground coal development waste facilities meet all specific regulatory requirements. The Permittee did not address compliance with those regulations.

There is no acid or toxic forming materials generated at the mine. Therefore, the Permittee does not need to address how such materials will be disposed of.

The reader is referred to R645-301-511.100, R645-301-551, and R645-301-525. Section R645-301-511 in turn references R645-310-510, which contains no information on the casing and sealing of wells or on subsidence monitoring. R645-301-525 includes discussions of subsidence monitoring as it relates to R645-301-630. Casing and sealing of drill holes are discussed in R645-301-551.

Findings:

General requirement for the operational mining plan are complete and accurate except for the following deficiencies:

- 1) The Permittee needs to have specific references for section R645-301-512.240. Sediment pond cleanout must be classified as either excess spoil or mine waste and addressed. Statements about coal being hand sorted at the mine are incorrect and reference to that activity should be removed from the mining and reclamation plan.

TECHNICAL ANALYSIS

Last revised - February 17, 1995

that shows the location of the public road and the permit area.

Findings:

The Permittee address the requirement under Section R645-301-521.133.

RELOCATION OR USE OF PUBLIC ROADS

Regulatory Reference: UCA R645-301-521.133, 526.116 (30 CFR Sec. 784.18)

Analysis:

In Section R645-301-521.123 the Permittee states that County Road 299 starts at Highway 6 in Price and terminates at the Permittee's mine site (Plate 1). The Permittee has identified the maps that show the location of each public road in, or within, 100 feet of the proposed permit area.

Findings:

The Permittee addressed the requirement under Section R645-301-521.123.

AIR POLLUTION CONTROL PLAN

Regulatory Reference: UCA R645-301-420 (30 CFR Sec. 784.26, 817.95)

Analysis:

Appendix F contains an emissions inventory which has been reviewed and approved by the Utah Bureau of Air Quality. The Permittee has been issued an approval order for the mines and the Wildcat loadout which allows for production of up to 1.5 million tons per year. These were inspected and met compliance during the summer of 1989-1992.

Findings:

The Permittee has complied with the requirements of this regulation.

TECHNICAL ANALYSIS

Last revised - February 17, 1995

more information on the mining method, see Part B, Section 2.

The Permittee has described the mining methods. Reference is made to Part B, Section 2, however there is no Part B Section 2 in the mining and reclamation plan. The information about mining methods should be placed under Section R645-301-525.120.

The stratigraphic column in the permit area is described. To date subsidence has not been detected at any monitoring location at the Permittee. The Bureau of Mines has conducted subsidence studies in the area and determined the maximum angle of draw to be 20 degrees. Neighboring mine has angle of draws between -7.4 degrees and +15.2 degrees.

The Permittee has described the physical condition, such as depth of cover, seam thickness, and lithology, which affect the likelihood or extent of subsidence and subsidence-related damage.

There is only one spring located in the permit area (Hoffman Creek), that is stratigraphically well below the lowest coal to be mined. The Permittee has committed to replace water were it proven that mining has disrupted water flow at any location.

Small cracks, should they occur, heal themselves quickly and thoroughly. Broad subsidence troughs do not have any negative effect on surface use.

If it can be proven that subsidence damaged a spring then the Permittee has committed to mitigate the problem. The Permittee believes that any surface cracks will be minor and self-healing. The commitment to mitigate subsidence damage must be enlarged to include all renewable resources. The proposal should also be placed under section R645-301-525.130

There are no structures or surface features which could be affected adversely by subsidence. Monitoring stations, however, have been set up at locations shown on Plate 25. The purpose of the detailed monitoring program over the initial longwall mining is to establish baseline information which is useful in the long term operation of the Permittee mines. In addition, the Permittee is committed to establishing subsidence monitoring programs over successive longwall panels which will consist of up to two monuments per panel and will also include visual inspections annually on the active panels.

The Permittee has committed to conduct a monitoring program that the Division believes is adequate. Most of the damage will involve surface cracks that can only be detected by surface surveys.

The Permittee has committed to replace any water should it be proven that a disruption in flow was mining related. There is no discussion on other type of subsidence damage such

TECHNICAL ANALYSIS

Last revised - February 17, 1995

should be unspecific locations.

SLIDES AND OTHER DAMAGE

Regulatory Reference: R645-301-515.100 (30 CFR Sec. 817.99)

Analysis:

R645-301-515.100 requires that the permit describe the procedure for reporting slides. The response does not address that procedure.

Findings:

The Slide and Other Damage information is complete and accurate except for the following deficiency:

- 1) The Permittee must describe the procedure for reporting a slide.

FISH AND WILDLIFE INFORMATION

Regulatory Reference: UCA R645-301-322, 358 (30 CFR Sec. 784.21, 817.97)

Analysis:

Section R645-301-333 of the plan references Appendix A for the operational fish and wildlife protection plan. Appendix A is a report from the Division of Wildlife Resources that includes protection recommendations. Section R645-301-310 includes a statement that all new employees will receive wildlife education training. In section R645-301-330, the plan says that specific facilities are not used to protect or enhance wildlife with the exception of the powerline which was built according to strict guidelines issued by Wildlife Resources and the Fish and Wildlife Service. Speed limits are posted in the permit area.

On pages 195-197, the current plan discusses applicability of the Wildlife Resources recommendations to the mine's operations. It does not appear that this portion of the mining and reclamation plan was carried into the reformatted plan. This discussion clarifies exactly what recommendations the Permittee plans to use, and it needs to be included in the plan.

Wildlife habitat enhancement is discussed under the "Revegetation" section of this review.

TECHNICAL ANALYSIS

Last revised - February 17, 1995

checks for certification were done in this review.

In Section R645-301-521.125, Sedimentation Ponds and Impoundments, the Permittee says to see R645-301-512.240. There are 78 pages in R645-301-512.240 which makes the reference too general.

In Section R645-301-521.131, Surface and Subsurface Owners, the names and addresses of all owners of record for all surface and subsurface areas continuous to the permit area are listed below and indicated on Plates 2 and 3. The leases for which the Permittee has the legal right of entry are shown on Plate 4.

In Section R645-301-521.132, Right to Enter and Conduct Mining Activities, is referenced to Appendix J. That reference is not adequate because it refers to another reference. The Permittee should use the correct reference.

In Section R645-301-521.140, Mine and Permit Area Maps, the Permittee makes reference to R645-301-510 Volume II. The Division does not know what Volume II is. The Permittee needs to provide a more specific reference to the Division. Reference to Volume II is also made for other sections.

Upon completion of mining activities, and following removal of surface structures, the earthwork portion of the reclamation plan will begin as described in Part F, section 3. The hydrologic portion of reclamation will take place in two phases. First the main and side drainage channels will be restored. Second, once revegetation and water quality standards have been met pond E-PM will be removed and reclaimed.

Locations for surface and ground water monitoring during mine operation are shown on Figure IV-11, which is on page 345. This map is not certified.

Findings:

The maps, plans and cross sections operation plan is complete and accurate except for the following deficiencies:

- 1) The Permittee did not address the requirements of Section R645-301-512. The references are too general or refer to another reference. A specific reference must be given in Section R645-301-512. The Permittee needs to identify Volume II.
- 2) Section R645-301-541.300 does not describe what, if any, surface structures will be left. The Permittee cited a reference (Part F, Section 3) that is not in

TECHNICAL ANALYSIS

Last revised - February 17, 1995

the "Storage" heading, the reader is referred to Chapter IV and Section F in Chapter IV for information about volume deficiencies and substitute material.

Findings:

The topsoil and subsoil operational plan is found to be complete and accurate except for the following deficiencies:

- 1) The reader is referred to Chapter IV and Section F in Chapter IV on page 41 in the "Storage" section about information on volume deficiencies and substitute materials. The location of this information has been changed in the reformatting of the mining and reclamation plan.
- 2) Plate 37 is unreadable and methods used to protect topsoil from erosion is unclear.

ROAD SYSTEMS

Regulatory Reference: UCA R645-301-527, 534, 732.400, 742.400, and 752.200 (30 CFR Sec. 784.24, 817.150, 817.151)

Analysis:

All roads within the permit area have been classified as either primary or ancillary roads. Roads on the site are of two typical designs. Either they are single lane roads 12' to 15' wide or double lane roads 26' wide. A list of roads and their classification is listed in the mining and reclamation plan.

Although all roads on site are not used for coal hauling, each primary road is constructed to the respective typical design and dimensions shown on Plate 35. The conveyors are 42 inches wide. No rail system exists in the permit area.

The Permittee is required to present a commitment in the mining and reclamation plan that if a road is damaged by a catastrophic event that the road will be repaired as soon as practical.

Such a commitment is lacking from the mining and reclamation plan.

The Permittee stated that R645-301-527.250, Geotechnical Analysis, is N/A but did not state why. This rule needs to be addressed.

TECHNICAL ANALYSIS

Last revised - February 17, 1995

- 5) The Permittee did not address steep slope cuts or reclamation of the roads.

SPOIL AND WASTE MATERIALS

Regulatory Reference: UCA R645-301-528, 535, 536, 735, 645, and 754 (30 CFR Sec. 701.5, 784.19, 784.25, 817.71, 817.72, 917.73, 817.74, 817.81, 817.83, 817.84, 817.87, 817.89)

Analysis:

As raw coal is hauled from the permit area, there will be no processing waste and no return of processing waste to underground workings. If, in the future, it is decided that a processing facility is to be incorporated, waste or reject would be taken to an approved refuse disposal site. Please note that underground development waste rock generated by the Centennial Seam rock tunnels was disposed of underground in the existing Pinnacle Mine workings.

Underground development waste from the rock tunnels constructed to the Centennial coal seam was stored underground. The Permittee needs to reference the MSHA and Division approval to store development waste in abandoned mine workings.

The Permittee often defines sediment pond clean-out material as coal mine waste. If coal mine waste exists on the site then a plan for extinguishing a coal mine waste fires approved by the Division and MSHA.

With the exception of R645-301-514.220 the Permittee states that Section R645-301-514.100 to R645-301-514.220 are not applicable. The Permittee states R645-301-514.220 will be observed by limiting construction of the left fork break-out and fan to the off nesting period for golden eagles.

R645-301-514.100 refers to inspection of excess spoil pile, while R645-301-514.200 deals with refuse piles. Sediment pond clean out material is not defined, but is classified as either excess spoil or refuse material. Since the sediment pond clean out material is generated on site the Permittee must classify it and address the appropriate regulations.

The statement about construction of the left fork break-out and fan pad, to be constructed only when golden eagles are not nesting, is confusing. The critical period in R645-301-514.220 refers to foundation preparation and the installation of drainage systems. Since the break-out and fan pad have not been approved reference to them is confusing and should be removed.

TECHNICAL ANALYSIS

Last revised - February 17, 1995

Sediment pond clean-out material is not defined in the regulations. The Permittee may choose to deal with it as excess spoil or as coal processing waste. If the Permittee chooses to deal with sediment pond clean-out material as excess spoil the pertinent regulations must be addressed.

All regulations in the R645-301-536 are either referred to in Section R645-301-528.300 or are N/A. Section R645-301-536 states that the only that there has been no development waste or excess spoil to date excepting sediment pond clean-out material. Then the Permittee goes on to describe the coal processing waste from the manually sorted lump coal. The sediment pond clean-out material is described as non-toxic and non-acid forming.

The Permittee's proposal is confusing. Section R645-301-528.300 describes how coal waste from the lump coal processing is stored but no coal has occurred at the mine. In another section no coal waste except for sediment pond clean-out material is said to be produced. Sediment pond clean-out material is also addressed in the spoil section. The Permittee needs to define sediment pond clean-out material as either spoil or coal mine waste and address it in only one section.

The Permittee address R645-301-536.400 (New and Existing Impoundment Structures Constructed of Coal Mine Waste) by referring to Section R645-301-528.300. There are no impounding structures constructed from coal mine waste at the mine site nor is there any information about impounding structures in Section R645-301-528.300. There are several other examples of the Permittee not addressing the regulations. The Permittee has failed to adequately address this section.

Findings:

Spoil and waste information is complete and accurate except for the following deficiencies:

- 1) The Permittee has not referenced the approval granted by MSHA and the Division to store mine development waste underground.
- 2) The Permittee failed to address having plan to extinguish coal mine waste fires.
- 3) The Permittee must classify sediment pond clean out material as either excess spoil or refuse material. Then the Permittee must address either the excess spoil or refuse inspection regulations.
- 4) Comments about constructing the break-out and fan pad during the off season for golden eagle nesting is confusing. Since the critical construction period

TECHNICAL ANALYSIS

Last revised - February 17, 1995

The revised plan includes surface and ground water monitoring plans in Section R645-301-711.300 that provide for quarterly monitoring within the permit and adjacent areas. Monitoring results are to be reported to the Division within 45 days of the end of the quarter. Water analysis results will be reported for each site that was accessible and had flow. All disturbed diversions and sediment ponds except for pond E will be removed during reclamation. All monitoring stations will be maintained during reclamation, pond E will be enlarged to become E-PM, and an additional monitoring point will be placed at the entry to sedimentation pond E-PM. Once revegetation and water quality standards are met, pond E will be removed and the area reclaimed. Other than sediment ponds and diversions, no equipment or structures are described that are used for monitoring.

Water from the mine is discharged directly to the surface drainage through UPDES point 002, where it is monitored. There is discharge from this point approximately 50% of the time, but there have been no individual flows within the mine that warrant monitoring. Underground flows of 3 gpm or more that persist for 30 days will be monitored, but monitoring will be discontinued after 60 days if flow decreases below 3 gpm. Most surface drainage from the disturbed area passes through two sedimentation ponds and is discharged through UPDES permitted discharge points 001 and 003, where it is monitored.

Acid- and toxic-forming materials and underground development waste.

For Sections R645-301-731.111 and R645-301-731.112 of the revised mining plan the reader is referred to Appendix L. The PHC for the Graves Lease in Appendix L states that it is not anticipated that acid- or toxic-forming materials will be encountered based on analysis of roof and floor materials from the existing mines. No mine waste will originate from the Graves lease area.

Section R645-301-731.300 refers to Section R645-301-711.300, which discusses water monitoring and the hydrologic system. R645-301-731.310, 731.311, 731.312, and 731.320 discuss reclamation of the drainage channels, diversions, and sediment ponds and monitoring during reclamation. Nowhere in the 731.300 section is there a discussion of identifying, burying, treating, and storing materials that may adversely affect water quality or be detrimental to vegetation or to public health and safety.

Discharges into an underground mine.

Over fifteen acres of disturbed and undisturbed surface area drains into the mines. Section R645-301-731.510, where this should be discussed, refers to R645-301-711.300, but this drainage into the mine is not discussed in that section either. Quantity and quality of water the diverted, minimizing disturbance to the hydrologic balance on the permit area, off-site impacts, preventing material damage outside the permit area, disturbance to the hydrologic

TECHNICAL ANALYSIS

Last revised - February 17, 1995

Findings:

The required hydrologic information on operational plan is in the revised plan is complete and accurate except for the following deficiencies:

- 1) The plan does not describe in Section R645-301-731.300 how drainage from acid- and toxic-forming materials and underground development waste into surface water and ground water will be avoided.
- 2) There is no information on discharges, or potential discharges, into the mine in Section R645-301-731.510.
- 3) Information concerning acid and toxic forming materials could not be found in the referenced sections of the Mining and Reclamation plan. This may be an error that occurred in the reformatting of the mining and reclamation plan in Section R645-301-731.300.

SIGNS AND MARKERS

Regulatory Reference: UCA R645-301-521.200 (30 CFR Sec. 817.11)

Analysis:

Information on placement of signs and markers is found in Section R645-301-521.200 on page 235 of the mining and reclamation plan. There will be signs placed at access points to the mine containing the companies name, business address, telephone number, and identification number. Blasting signs will be placed in conspicuous locations when blasting is in use. No stream buffer zone signs are required, but all disturbed areas are marked.

Findings:

The requirements of the operation signs and markers section are complete and accurate.

TECHNICAL ANALYSIS

Last revised - February 17, 1995

R645-301-412.100 requires a detailed description of the proposed use, following reclamation, of the land within the proposed permit area, including a discussion of the utility and capacity of the reclaimed land to support a variety of alternative uses, and the relationship of the proposed use to existing land-use policies and plans. The plan is required to explain how the proposed postmining land use is to be achieved and the necessary support activities which may be needed to achieve the proposed land use. The plan does not propose a change in the postmining land use, but some support activities may be needed to restore the premining land use. Any anticipated support activities should be discussed or referenced in this portion of the plan. Examples of support activities include vegetation monitoring, protection from wildlife, and potential reseeding discussed in the revegetation section. These should be referenced under R645-301-412.110.

Under R645-301-413.320, the Permittee details the water monitoring plan. This plan is also given in the hydrology section and does not need to be presented in the land use section. Regulation R645-301-413.300 is a performance standard for alternative postmining land uses and does not apply to the Permittee.

Findings:

With the following exception, the plan is complete and accurate:

- 1) The plan needs to discuss support activities that will be used to achieve the postmining land use as required by R645-301-412.110.
- 2) In addition to the above requirement, it is recommended that the water monitoring plan presented under R645-301-413.320 be eliminated from the land use section.

PROTECTION OF FISH, WILDLIFE, AND RELATED TOPSOIL AND SUBSOIL

Regulatory Reference: UCA R645-301-240 and 250 (30 CFR Sec. 817.22)

Analysis:

Topsoil redistribution is discussed as part of Sections R645-301-240 through R645-301-244.320, on pages 45 to 58. This section also contains general reclamation information such as time tables, bonding information and mass balance information. Topsoil specific information is found in Sections R645-301-241 through R645-301-244.320.

TECHNICAL ANALYSIS

Last revised - February 17, 1995

HYDROLOGIC INFORMATION

Regulatory Reference: UCA R645-301-750, 760 (30 CFR Sec. 784.14, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57)

Analysis:

Information on hydrologic reclamation can be found throughout the mining and reclamation plan. Information on structure removal is found in sections R645-301-240. This section includes information on the reclamation time table, and reclamation cost and bonding for the proposed reclamation work. The mining and reclamation plan refers to section R645-301-512.250 where the Permittee commits to remove roads that will not be retained as part of the post mining land use. The restoration of natural drainage section, R645-301-762.100, discusses the processes that will be used in reclaiming natural drainages and refers to Part F, Section 3 for the structure removal and earthwork reclamation plan. This section says that water monitoring will continue as described in Sections 3.1-1.1 and 3.1-1.2. The regrading plan is located in R645-301-532.200, and removal of siltation structures is in R645-301-512.240. All water wells are sealed with cement and cased.

Findings:

The hydrologic reclamation information is complete and accurate except for the following deficiencies:

- 1) Part F, Section 3 and Sections 3.1-1.1 and 3.1-1.2 are not found in this version of the mining and reclamation plan. These references may be left over from previous versions of the mining and reclamation plan.

REVEGETATION

Regulatory Reference: UCA R645-301-341, 352 through 357 (30 CFR Sec. 785.18, 817.111, 817.113, 817.114, 817.116)

Analysis:

Revegetation Methods

Revegetation methodologies are in section R645-301-331. According to the mining and reclamation plan, seeding of native flora will commence as soon as practical following shutdown and abandonment to stabilize erosion. Planting will be done in the first normal

TECHNICAL ANALYSIS

Last revised - February 17, 1995

Seed will be spread using a rangeland drill where possible. Areas that cannot be seeded mechanically will be hand seeded or broadcast seeded. Steeper slopes will be raked to provide a slight soil cover for the seed. Steep slopes may also be hydroseeded and hydromulched. Where hydromulch cannot be used, straw mulch will be crimped, either mechanically or by hand. The Permittee would plan on using wood fiber mulch on 32.05 acres. It will be used wherever seeds are planted. The rate of application will be one ton per acre. The rest of the area will receive the shrub transplants where straw mulch will be used.

The plan needs to specify how much straw mulch would be used. One and one-half to two tons per acre is recommended.

Some of the species in the seed mixtures are very difficult to establish when drilled. These include Louisiana sage, big sage, rabbitbrush, and Sandberg bluegrass. The seeds are small and fluffy and may need light to germinate. A drill would usually bury them too deeply. In addition, drill seeding tends to lessen surface roughness although it has been used in some locations without particularly smoothing the surface. Drill seeding also tends to favor grasses over shrubs. Using a rangeland drill is discouraged but would be acceptable if seed of big sage, Louisiana sage, rabbitbrush, and Sandberg bluegrass is broadcast behind the drill.

Several studies have shown hydromulch to be less effective in controlling erosion and assisting vegetation establishment compared to straw and some other mulches. Also, straw and similar mulches more effectively add organic material to the soil and improve soil structure. Otherwise the Permittee's experience is that straw and hay are less expensive than wood fiber hydromulch. Although straw or a similar mulch is recommended over hydromulch, revegetation is feasible using the techniques in the mining and reclamation plan.

Irrigation is included in the plan as a contingency if revegetation of the transplants is unsuccessful. Vegetation will be protected from both wildlife and livestock using drift fences until the reclaimed areas have been adequately reestablished. Pesticides and herbicides will be used as necessary, but use of persistent pesticides would need to be approved.

The management practices section of the plan references regulation 817.97(d)(7). This regulation is obsolete. Otherwise, this section of the plan is acceptable. The Permittee should be aware that, under current regulations, drift fences, pesticides, and irrigation would prolong the period of responsibility for revegetation success and bond liability. The Division is proposing to change the section of the rules dealing with accepted husbandry practices, but the rules have not been approved.

Success Standards

Revegetation monitoring parameters to be measured are growth rate, plant density, and

TECHNICAL ANALYSIS

Last revised - February 17, 1995

monitored for periodically for ten years.

The Permittee was not able to plant the shrubs on the topsoil pile until 1994. The transplants were examined in the late summer of 1994, and they all appeared to be dead. Since topsoil pile F already has well-established vegetation, it is recommended that the Permittee use the topsoil pile created for the fan portal in the Left Fork of Deadman Canyon for the test plot. The pile should be left in a roughened condition and seeded with the drainage area seed mixture in the fall. It is recommended that the Permittee mulch with one and one-half to two tons per acre of straw or hay and crimp it in with a trackhoe or similar equipment to leave a very rough surface. The following spring, the Permittee should plant shrubs from the list shown on page 74. Future monitoring could follow the schedule in the plan for the test plot on topsoil pile F.

Wildlife

The section of the plan covering R645-301-342 refers to Appendix A. This appendix contains two recommendations from Wildlife Resources concerning reclamation habitat enhancement. It says that greater vegetation diversity benefits reptiles and amphibians. It also recommends that reclamation meet all the life requirements for target species. Animals need water, thermal cover, escape and hiding cover, loafing areas, and travel ways between the different types of vegetation.

The revegetation plan was designed to meet wildlife requisites for forage, migration, diversity, and cover. It meets the requirements of R645-301-342.200.

R645-301-358 requires the Permittee to enhance wildlife habitat using the best technology currently available. Where the plan does not include enhancement measures, a statement will be given explaining why enhancement is not practicable.

Some areas within the disturbed area were previously disturbed by mining, and the vegetation may have been in a degraded condition. However, the plan does not demonstrate this, and most of the area appears to have been in reasonably good condition for wildlife habitat before mining operations began. Therefore, restoring the vegetation probably does not constitute habitat enhancement. Water may be a limiting factor for wildlife in this area, and a water development might enhance the habitat value. The Permittee might also be able to modify existing utility poles to make bird perches or cavity nesting sites. However, these suggestions may not be useful. The Permittee should consult with Wildlife Resources to see what factors are limiting in the area of their disturbance and to see how they might be able to enhance wildlife habitat. If habitat enhancement is not practicable, the plan needs to include a statement explaining why.

TECHNICAL ANALYSIS

Last revised - February 17, 1995

BONDING AND INSURANCE REQUIREMENTS

Regulatory Reference: R645-301-800 (30 CFR Sec. 800)

Analysis:

The current reclamation bond is for \$699,000 and cover the 34.2 acres in the disturbed area. The bond calculations were done in 1991 and have been adjusted for inflation. The Division did not have time to thoroughly review the bond calculation during the midterm review. A complete bond review will be performed in the future. At that time the Division may require a bond adjustment. At this time the Division has no reason to believe that the mines in the Centennial Project are not adequately bonded.

The Permittee is insured by the Federal Insurance Company. Currently the policy limits are:

General Aggregate	\$2,000,000
Products-Comp/Op. Agg.	\$2,000,000
Personal & Adv. Injury	\$1,000,000
Each Occurrence	\$1,000,000
Fire Damage (any one fire)	\$100,000
Medical Expense (any one person)	\$10,000

The policy contains a rider requiring the insurer to notify the Division whenever substantive changes are made in the policy including termination or failure to renew. The policy meets or exceeds all regulatory requirements.

Findings:

The Permittee has adequate insurance and reclamation bond for the Centennial Project. The insurance policy meets or exceeds all regulatory requirements. The reclamation bond amount has been calculated by the Division and adjusted for inflation. Based on the Division current reclamation cost estimate the bond amount is adequate.

TECHNICAL ANALYSIS

Last revised - February 17, 1995

REQUIREMENTS

PERMIT APPLICATION:

Based on the findings, the permit application information will be complete and accurate when the Permittee makes the following changes:

- 1) The applicant must show rights to the Aberdeen seam and the Right-of-Way to the fan portal on Plate 4.

The Identification of Interests, Violation Information, and Right of Entry Information portion of the mining and reclamation plan is complete and accurate with the following exceptions:

1. The plan needs to identify who will pay the abandoned mine reclamation fees.
2. The plan needs to show the employer identification number and officers and directors of Andalex Resources, B. V. It also needs to show any companies that own or control this company together with these companies' employer identification numbers, their officers and directors and any coal mining and reclamation operations the companies own or control.
3. Land ownership Information in the text of the plan needs to agree with what is show on the maps. The plan needs to contain the names and addresses of all entities owning land within and contiguous to the permit area.
4. Duplicative violation information in Appendix B should be removed. It is suggested that missing pages of Attachment I-6 be added to the plan and that this attachment be retained. Andalex could then remove the remainder of the violation information.
5. Acreage figures shown in various parts of the plan need to correspond.
6. Statements in the text and on Plate 4 that lease UTU-69600 is for the Centennial Seam only need to be removed.

The Unsuitability Claims information of the mining and reclamation plan is complete and accurate with the following exception:

1. The text of the plan should reference the letter from Carbon County in

TECHNICAL ANALYSIS

Last revised - February 17, 1995

corrected.

RESOURCE INFORMATION:

Historic and Archeological Resource information will be complete and accurate when the following changes are made:

- 1) Information under Section R645-301-411.140 that does not apply to this regulation should be moved to appropriate sections or removed if it is not necessary. Also, references to Volumes I and II, Chapter II, and Section 782.13 part 1 of the plan apparently apply to the former plan and should be corrected.
- 2) Under Section R645-301-411.141, Cultural and Historic Resources Maps, the plan says "N/A." Appendix C contains cultural and historic resources maps and should be referenced in this section.
- 3) Sections R645-301-411.142 through R645-301-411.145 reference Appendix A for historic and archeological information. This information is found in Appendix C.

Based on the findings, the Permittee needs to make the following changes to the mining and reclamation plan for Fish and Wildlife Resource information:

1. Plate 34 needs to be updated to show results of the May 1994 raptor survey. Also on this plate, the location of high priority elk winter range needs to be clarified.
2. The statement in section R645-301-310 that Table III-11 lists wildlife species in the lease area is not accurate. The Permittee either needs to change this statement or include in Table III-11 a list of all wildlife species that could occur in the lease area. It is suggested that the Permittee include a list of all wildlife species of high federal or state interest.

The Soil Resource information will be complete and accurate when the following change have been made:

- 1) Characterization data on the two substituted soil material must be submitted.
- 2) Plate 6 must be modified to show the elimination of Topsoil Pile B.

TECHNICAL ANALYSIS

Last revised - February 17, 1995

- 1) The Permittee must clarify the commitments on pages 342-343 to include water-quality analyses.
- 2) The Permittee must include the "AEP" lease in the determination of the PHC.
- 3) The Permittee must describe how water monitoring data are to be used to determine impacts of mining and reclamation on the hydrologic balance.

Based on the findings, Maps, Plans, and Cross Sections will be complete and accurate when the Permittee makes the following changes:

- 1) The Permittee must certify Plates 22, 23 and 24 and Figure III-1 (page 120).
- 2) The Permittee must show strike and dip of the coal to be mined within the proposed permit area on a certified map or plan.
- 3) The Permittee must show locations and elevations of test drill holes on the designated, certified Plates 26, 27, 28, and 29
OR
change the text to refer to Plate 22 and have Plate 22 certified.
- 4) The Permittee must show locations and elevations for bore holes 89-2 through 89-7 on a certified map.
- 5) The Permittee must certify Figure 4 in Appendix L
OR
show locations and elevations of baseline surface and ground water monitoring points on a certified map or plan.
- 6) The Permittee must certify Figure IV-11 (page 345)
OR
show locations and elevations of operational surface and ground water monitoring points on a certified map or plan.
- 7) The Permittee must provide a certified map or plan that shows sufficient slope measurements or contour maps to adequately represent the pre-disturbance land surface configuration of proposed disturbed area.
- 8) The Permittee must provide certified maps and cross sections showing the location and extent of subsurface water, including the areal and vertical distribution of aquifers, within the proposed permit or adjacent areas

TECHNICAL ANALYSIS

Last revised - February 17, 1995

1. Wildlife protection commitments specific to this operation that are on pages 195-197 of the current mining and reclamation plan need to be included in the reformatted plan.
2. References in the reformatted plan to some sections of the current plan are not valid and need to be corrected. Examples are "part O of this chapter," "the table of contents following 784.23 in Chapter V," and the "'Sedimentation and Drainage Control Plan' in Vol. 1." Also, the references to volumes need to be clarified.

Based on the findings, the Permittee needs to include in the mining and reclamation plan a plan for Interim Stabilization of disturbed areas.

Based on the findings, the Maps, Plans and Cross Sections operations plan will be complete and accurate when the Permittee makes the following changes:

- 1) A specific reference must be given in Section R645-301-512. The Permittee needs to identify Volume II.
- 2) The Permittee must clarify in Section R645-301-541.300 what surface structures will be left. The Permittee cited a reference (Part F, Section 3) that is not in the mining and reclamation plan.
- 3) The Permittee must provide a certified map showing water monitoring locations.

Based on the findings, the Topsoil and Subsoil Operations Plan will be complete and accurate when the Permittee makes the following changes:

- 1) References made on page 41 in the "Storage" section should be change to show where one can find soil volume deficiency and substitute material information.
- 2) Plate 37 must be made more readable and information on erosion protection of the topsoil piles must be provided in the text or on this plate.

Based on the findings, the follow information is require to make the mining and reclamation plan in compliance with the Road Systems information:

- 1) The Permittee must supply information on how road maintenance will be preformed.

TECHNICAL ANALYSIS

Last revised - February 17, 1995

into the mine in Section R645-301-731.510.

- 3) The Permittee must change the sections (Section R645-301-731.300) of the mining and reclamation plan that are improperly referenced regarding acid and toxic forming materials.

RECLAMATION PLAN:

Based on the findings, General Reclamation Plan will be complete and accurate when the Permittee makes the following changes:

- 1) The Permittee must add information on the permanent casing, sealing, backfilling, or other proper management of shafts, drifts, adits, and tunnels to Section R645-301-551.

Based on the findings, Post Mining Land-Use Reclamation Plan will be complete and accurate when the Permittee makes the following changes:

- 1) The plan needs to discuss support activities that will be used to achieve the postmining land use as required by R645-301-412.110.
- 2) In addition to the above requirement, it is recommended that the water monitoring plan presented under R645-301-413.320 be eliminated from the land use section.

Based on the findings, Topsoil Redistribution information will be complete and accurate when the Permittee makes the following changes:

- 1) Page 47 should be changed to reflect the actual disturbed area that will be reclaimed and require soil distribution.

Based on the findings, Geologic Information for the reclamation plan will be complete and accurate when the Permittee makes the following changes:

- 1) The Permittee must provide information on reclamation of monuments and surface markers used as subsidence monitoring points in the revised plan.
- 2) The Permittee must replace cross references to R645-301-525, R645-301-611.100, and Appendix E with cross references to sections where the required information on permanent casing and sealing of exploration holes and boreholes

TECHNICAL ANALYSIS

Last revised - February 17, 1995

1. Traditional disking is not recommended as a surface preparation technique unless followed by other surface roughening measures. In the Division's experience, gouging, such as would be done by a trackhoe, increases vegetation establishment compared to contour furrowing, disking, or ripping alone. Surface roughness is extremely important for enhancing revegetation success.
2. Several studies have shown hydromulch to be less effective in controlling erosion and assisting vegetation establishment compared to straw and some other mulches. Also, straw and similar mulches more effectively add organic material to the soil and improve soil structure. Other the Permittee's experience is that straw and hay are less expensive than wood fiber hydromulch.
3. The Permittee should consider discontinuing the test plot on topsoil pile F and establishing a new plot on the pile associated with the fan portal in the Left Fork of Deadman Canyon.

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