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DIVISION OF OIL, GAS AND MINING

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Mike file

April 25, 1997

Mike Glasson, Sr. Geologist  
Andalex Resources, Inc.  
6750 Airport Road  
P.O. Box 902  
Price, Utah 84501

Re: Deficiencies in 160 acre Lease Modification, Andalex Resources Inc., Centennial Project, ACT/007/019-97C, Folder #~~1~~3, Carbon County, Utah

Dear Mr. Glasson:

The Division has completed a review of the application you submitted on April 4, 1997 which intended to add 160 acres to the Centennial Permit. A technical analysis (TA) has been completed which provides the results of the review. A copy is enclosed for your information and attention. It appears that there are a few deficiencies in your plan which prevent us from approving it. Please review the TA carefully, making sure you understand the requirements, and provide the necessary information. In order for us to keep this project on track we will expect your reply by no later than May 26, 1997.

If you have any questions, please call me or my technical staff.

Sincerely,

A handwritten signature in cursive script that reads "Daron R. Haddock".

Daron R. Haddock  
Permit Supervisor

Enclosure

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State of Utah  
Division of Oil, Gas and Mining  
Utah Coal Regulatory Program



Technical Analysis and Findings  
160 acre Lease Modification  
Centennial Mine  
ACT/007/019-97C  
April 24, 1997

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ACT/007/019-97C

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## TECHNICAL ANALYSIS

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### INTRODUCTION

This Technical Analysis (TA) is written as part of the permit review process. It documents the Findings that the Division has made to date regarding the application for a permit and is the basis for permitting decisions with regard to the application. The TA is broken down into logical section headings which comprise the necessary components of an application. Each section is analyzed and specific findings are then provided which indicate whether or not the application is in compliance with the requirements.

Often the first technical review of an application finds that the application contains some deficiencies. The deficiencies are discussed in the body of the TA and are identified by a regulatory reference which describes the minimum requirements. In this Technical Analysis we have summarized the deficiencies at the beginning of the document to aid in responding to them. Once all of the deficiencies have been adequately addressed, the TA will be considered final for the permitting action.

It may be that not every topic or regulatory requirement is discussed in this version of the TA. Generally only those sections are analyzed that pertain to a particular permitting action. TA's may have been completed previously and the revised information has not altered the original findings. Those sections that are not discussed in this document are generally considered to be in compliance.

## SUMMARY OF DEFICIENCIES

Prior to approval, the applicant must provide the following in accordance with:

- R645-301-112**, The applicant needs to update Plates 2, 3, and 4 to show the boundary of the proposed permit area.
- R645-301-114**, The right of entry information needs to contain a description of the documents upon which the applicant bases their legal right to enter and begin coal mining and reclamation operations in the Graves Lease and will state whether that right is the subject of pending litigation. The description will identify the documents by type and date of execution and explain the legal rights claimed by the applicant.
- R645-301-521**, Acreage in Lease U-66060 is shown as 1063 acres on page 22-A of the IBC submittal rather than 1094 (1093.32) acres as indicated by three documents in Appendix W.
- R645-301-121.200**, Pagination of the IBC submittal does not match that of the currently approved plan and cannot be directly inserted into the plan.
- R645-301-521**, The description of the general location of BLM right-of-way UTU-64158 (Left Fork Fan) has been omitted from the bottom of page 23 of the IBC submittal (which should be insertable into the MRP as page 22).
- R645-301-411.140**, The application needs to contain maps and a supporting narrative describing the nature of cultural and historic resources listed or eligible for listing in the National Register of Historic Places. The description will be based on all available information, including, but not limited to, information from the State Historic Preservation Officer and from local archaeological, historic, and cultural preservation agencies. The Division of State History may be able to make a finding of no effect even though this information is not in the application, but it is impossible for the Division to recommend such a finding without any information.
- R645-301-521**, Updated versions of Plates 26, 27, and 28, which should show the IBC area (plus the Left Fork Fan right-of-way and lease U-69600) as part of the permit area (along with coal seam and overburden thickness and previously mined areas as applicable) have not been included in the IBC submittal.

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**R645-301-521**, Updated versions of Plates 26, 27, and 28, which should show the IBC area (plus the Left Fork Fan right-of-way and lease U-69600) as part of the permit area (along with coal seam and overburden thickness and previously mined areas as applicable) have not been included in the IBC submittal.

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# ADMINISTRATIVE INFORMATION

## OWNERSHIP AND CONTROL AND RIGHT OF ENTRY INFORMATION

Regulatory Reference: R645-301-112 and R645-301-114

### Analysis:

The current mining and reclamation plan contains ownership and control information required by R645-301-112. Plate 2 shows surface owners of land within and adjacent to the permit area, Plate 3 shows coal ownership information, and Plate 4 shows the boundaries of coal leases. The lists of owners of surface and mineral lands within and contiguous to the current permit area do not need to be updated for this proposed incidental boundary change. However, Plates 2, 3 and 4 should be updated to show the proposed permit area boundary.

Since this is an amendment and will not require the Division to issue a new permit, updated information about the officers and directors is not required. The Division also does not require updated violation information.

In Section R645-301-114, the applicant has added the legal description for the area proposed to be added to the permit area. This area is a modification to lease UTU-66060, also known as the Graves Lease. The current mining and reclamation plan says right of entry information for the Graves Lease is in Appendix J; however, no right of entry information for this lease could be found in Appendix J. The current plan contains a history of every other lease, but there is no information about the Graves Lease other than the legal description. R645-301-114.100 says the application will contain a description of the documents upon which the applicant bases their legal right to enter and begin coal mining and reclamation operations in the permit area and will state whether that right is the subject of pending litigation. The description will identify the documents by type and date of execution and explain the legal rights claimed by the applicant. The application does not contain this information for the area proposed to be added to the permit area.

### Findings:

Information provided in the proposal is not considered adequate to meet the requirements of this section. Prior to approval, the applicant must provide the following in accordance with:

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**R645-301-112**, The applicant needs to update Plates 2, 3, and 4 to show the boundary of the proposed permit area.

**R645-301-114**, The right of entry information needs to contain a description of the documents upon which the applicant bases their legal right to enter and begin coal mining and reclamation operations in the Graves Lease and will state whether that right is the subject of pending litigation. The description will identify the documents by type and date of execution and explain the legal rights claimed by the applicant.

## ENVIRONMENTAL RESOURCE INFORMATION

### PERMIT AREA

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

### Analysis:

Federal Lease U-66060 has been enlarged by 160 acres and Andalex Resources has requested an Incidental Boundary Change (IBC) to include the additional 160 acres in the permit area. The additional lease tract is described on page 22-A and is shown on maps in the IBC submittal. The modified coal lease that included the additional 160 acres was issued by BLM in October 1994. According to the BLM's Bond Rider Acceptance and Modified Coal Lease and the Utica Mutual Insurance Company's Change of Acreage Rider (copies of all three documents are submitted for inclusion in Appendix W) the lease addition brings the total acreage in Lease U-66060 to 1,094 (1093.32) acres ; however, Andalex indicates only 1,063 acres in the lease description on submitted page 22-A. The discrepancy appears to be in the size of the original lease tract rather than in the added lease tract.

Pagination of the submitted pages of lease descriptions does not match that of the current plan. Pages 22, 22-A, and 23 in the IBC submittal should be numbered 21, 21-A, and 22, respectively, to facilitate insertion directly into the currently approved plan.

Also, one line of text at the bottom of submitted page 23 has been left off. The missing line describes the general location of BLM right-of-way UTU-64158 (Left Fork Fan) on page 22 of the current plan.

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### Findings:

Description of lands subject to surface coal mining operations is complete and accurate with the following exceptions:

**R645-301-521**, Acreage in Lease U-66060 is shown as 1063 acres on page 22-A of the IBC submittal rather than 1094 (1093.32) acres as indicated by three documents in Appendix W.

**R645-301-121.200**, Pagination of the IBC submittal does not match that of the currently approved plan and cannot be directly inserted into the plan.

**R645-301-521**, The description of the general location of BLM right-of-way UTU-64158 (Left Fork Fan) has been omitted from the bottom of page 23 of the IBC submittal (which should be insertable into the MRP as page 22).

### MAPS, PLANS, AND CROSS SECTIONS OF RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 783.24, 783.25; R645-301-323, -301-411, -301-521, -301-622, -301-722, -301-731.

### Analysis:

#### Affected Area Boundary Maps

The IBC submittal contains updated versions of Plates 1, 2, 3, 21, 22, 25, 29, and 34 that include Tract 2 of lease U-66060 in the permit area. Tract 2 (160 acres) is in Sections 31 and 32, T. 12 S., R. 11 E. Andalex updated Plates 26, 27, and 28 in May 1996, in response to a deficiency identified in the February 1996 mid-term review, to show the Left Fork Fan right-of-way and lease 69600 (AEP lease) that had previously been approved for inclusion in the permit area. However, those three plates were not inserted into the MRP at that time because they also showed Tract 2, which had not been approved for inclusion in the permit area. Updated Plates 26, 27, and 28 that should show Tract 2 of Lease 66060 (plus the Left Fork Fan right-of-way and lease 69600) as part of the permit area have not been included with this IBC submittal.

#### Coal Resource and Geologic Information Maps

The IBC submittal contains an updated version of Plate 29, including the area of the Tract 2 lease addition, that shows the isopach thickness of the Aberdeen seam, coal crop lines,

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overburden thickness, and strike and dip. Updated versions of Plates 26, 27, and 28 have not been included with the IBC submittal. Plates 26, 27, and 28 in the approved, current MRP show similar information for the lower Sunnyside, Centennial, and Gilson seams in areas where mining has occurred or is projected, generally the south side of the permit area. No seam thicknesses have been previously mapped for the lower Sunnyside, Centennial, and Gilson seams in the Tract 2 area or adjacent acres on Plates 26, 27, and 28. Information on Plates 26, 27, and 28 in the current MRP does not indicate minable reserves would be anticipated in the Sunnyside, Centennial, and Gilson seams in Tract 2 and adjacent areas.

### **Mine Workings Maps**

The IBC submittal contains an updated Plate 29 that shows where the Aberdeen seam has been mined up through 1994 and where mining is planned, which includes mining in the Tract 2 lease addition. Updated Plates 26, 27, and 28, which should show present extent of mined areas and mining projections for the lower Sunnyside, Centennial, and Gilson seams respectively, have not been included with this submittal. Based on current knowledge of coal thickness and minability in these three seams there is no anticipation that they will be mined within the Tract 2 addition.

### **Permit Area Boundary Maps**

The IBC submittal contains updated versions of Plates 1, 2, 3, 21, 22, 25, 29, and 34 that show the permit boundary to include Tract 2 of lease U-66060. Tract 2 (160 acres) is in Sections 31 and 32, T. 12 S., R. 11 E.

In response to a deficiency identified in the February 1996 mid-term review, Andalex updated Plates 26, 27, and 28 in May 1996 to show the Left Fork Fan right-of-way and lease 69600 (AEP lease) that had previously been approved for inclusion in the permit area. However, those three plates were not inserted into the MRP at that time because they also showed Tract 2, which had not been approved for inclusion in the permit. Updated Plates 26, 27, and 28 that should show Tract 2 of Lease 66060 (plus the Left Fork Fan right-of-way and lease 69600) as part of the permit area have not been included with this IBC submittal.

### **Surface And Subsurface Ownership Maps**

Surface Ownership Map (Plate 2) and Mineral Ownership Map (Plate 3) have been updated to show the area included in the IBC submittal.

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### Findings:

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

**R645-301-521**, Updated versions of Plates 26, 27, and 28, which should show the IBC area (plus the Left Fork Fan right-of-way and lease U-69600) as part of the permit area (along with coal seam and overburden thickness and previously mined areas as applicable) have not been included in the IBC submittal.

### HISTORIC AND CULTURAL RESOURCES INFORMATION

Regulatory Reference: R645-301-411.140

### Analysis:

No cultural or historic resources information was included in the application, and none relating to the proposed incidental boundary change could be found in the current mining and reclamation plan. The 1990 decision document for the Graves Lease does not indicate there was any cultural resources information; however, based on the lack of surface disturbance, the Division of State History concurred with allowing mining.

Correspondence from State History dated February 28, 1997, concerning the current proposal says the Utah Preservation Office cannot determine if a survey has been completed for the additional acres that are part of the expansion without the mine plan. This correspondence asks if there is data in the boundary change document that would determine if the area has been surveyed. There is no indication the area has been surveyed.

State History may be willing to make a determination of no effect based on the lack of surface disturbance; however, it does not appear there is any cultural resources data in the plan or the application. R645-301-411.140 requires the application to contain maps as described under R645-301-411.141 and a supporting narrative which describe the nature of cultural and historic resources listed or eligible for listing in the National Register of Historic Places and known archeological sites within the permit and adjacent areas. The description will be based on all available information, including, but not limited to, information from the State Historic Preservation Officer and from local archaeological, historic, and cultural preservation agencies. This regulation does not necessarily require the applicant to survey the area for cultural resources, but it may require a literature search.

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### Findings:

Information provided in the proposed amendment is not considered adequate to meet the requirements of this section of the regulations. Prior to approval, the applicant must provide the following in accordance with:

**R645-301-411.140**, The application needs to contain maps and a supporting narrative describing the nature of cultural and historic resources listed or eligible for listing in the National Register of Historic Places. The description will be based on all available information, including, but not limited to, information from the State Historic Preservation Officer and from local archaeological, historic, and cultural preservation agencies. The Division of State History may be able to make a finding of no effect even though this information is not in the application, but it is impossible for the Division to recommend such a finding without any information.

### VEGETATION RESOURCE INFORMATION

Regulatory Reference: R645-301-321

#### Analysis:

The current mining and reclamation plan contains general descriptions of the vegetation in the area. The proposed addition to the permit area is on a plateau with mainly grass/sagebrush and aspen communities.

Since there will be no surface disturbance other than possible surface effects of subsidence, detailed vegetation information is not required. The information in the plan is considered to be adequate.

#### Findings:

Information provided in the proposal is considered adequate to meet the requirements of this section of the regulations.

### FISH AND WILDLIFE RESOURCE INFORMATION

Regulatory Reference: R645-301-322

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### Analysis:

Plate 34 in the current mining and reclamation plan is a map showing wildlife habitat in the area. The proposed addition to the permit area contains critical deer winter range but does not appear to have other habitat of unusually high value.

There are several known raptor nests within the permit area, and they are all on cliffs. The surface of the proposed incidental boundary change is almost entirely a relatively flat plateau. The 1994 raptor survey included part of the plateau where there are groves of aspens, but no raptor nests were found.

While the plan is adequate for the current proposal, there is no plan for continued monitoring for raptor nest activity in other parts of the permit area. It appears that nests found in the 1994 survey have now all been undermined, and there is probably little potential for damage to nests in canyons in the east side of the permit area. On the west side of the permit area, only one nest was found in the Left Fork of Deadman Canyon, and no nests were found in Alrad Canyon. However, Wildlife Resources has record of one raptor nest on the west side of Alrad Canyon just outside the permit area. Both Alrad Canyon and the Left Fork of Deadman Canyon have potential habitat for cliff-nesting raptors, and the applicant plans to continue longwall mining under portions of both of these canyons. For these reasons, the applicant needs to commit to doing ongoing raptor surveys in these canyons as long as there is a potential for cliff habitat to be adversely affected.

The application contains no information about threatened or endangered species that might occur within the proposed incidental boundary change. The Fish and Wildlife Service provided a letter to the Division stating there are no threatened or endangered species known to occur in the area. However, as discussed below, there is a potential for negative effects to threatened and endangered fish of the upper Colorado River basin.

### Findings:

Information provided in the proposal is considered adequate to meet the requirements of this sections of the regulations. However, information in other parts of the current mining and reclamation plan is not considered adequate to meet the requirements of this section. The applicant must provide the following commitment in accordance with:

**R645-301-521**, Updated versions of Plates 26, 27, and 28, which should show the IBC area (plus the Left Fork Fan right-of-way and lease U-69600) as part of the permit area (along with coal seam and overburden thickness and previously mined areas as applicable) have not been included in the IBC submittal.

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## OPERATION PLAN

### MAPS, PLANS, AND CROSS SECTIONS OF MINING OPERATIONS

Regulatory Reference: 30 CFR Sec. 784.23; R645-301-512, -301-521, -301-542, -301-632, -301-731, -302-323.

#### Analysis:

Same as for Resources Section.

#### Findings:

Same as for Resources Section.

### FISH AND WILDLIFE RESOURCE PROTECTION

No raptor nests were found in the aspens on top of the plateau during the 1994 survey, but tree nests are more difficult to find than cliff nests. Accipiters usually nest in wooded areas, but they prefer a nearby source of perennial water. This makes it unlikely there are accipiter nests within the proposed incidental boundary change although they could be in nearby areas. Red-tailed hawks, however, commonly build tree nests, and they prefer areas with forest edges similar to the discontinuous aspen groves on the plateau.

While there could be some raptor nests within the incidental boundary change, it is very unlikely any nests would be affected by mining for the following reasons:

1. Mining would mostly be under more than 2000 feet of cover, and there will probably be no surface expression of subsidence. Even if there are surface effects, they should be minimal. According to information in the 1995 annual report, no vertical or lateral movement has ever been detected at this mine.
2. Tree nests are less susceptible to damage from subsidence than cliff nests. Subsidence sometime causes trees to fall, but the more normal scenario is a broad, gentle lowering of the area. Cliffs sometimes spall,

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and this has led to loss of some eagle nests, but the Division is unaware of tree nests lost through subsidence.

The Fish and Wildlife Service has determined that water depletions to the Upper Colorado River drainage may adversely affect certain threatened or endangered fish. A one-time mitigation payment is required where projects use over 100 acre feet of water per year.

Water is lost through evaporation from the mined area due to mine ventilation. However, according to information in the probable hydrologic consequences document, the ground water encountered within the mine is anticipated to be associated with a localized perched system that has no known surface expression. Therefore, there should be no effect on surface water caused by evaporation losses.

The mining and reclamation plan indicates the applicant has water rights in four wells and an abandoned mine for 0.7 cubic feet per second of water. If all of this water was utilized, the mine would be using about 507 acre feet of water each year from these sources. However, according to information received from the applicant, about 54 acre feet is actually used in mining operations. This is based on 200 gallons per minute being used for four hours each day when coal is actually being cut. Since a few years ago, all of this water has been produced in the mine, and, as with evaporation losses, it is all from perched aquifers with no known surface expressions.

In 1990 when the Graves Lease was permitted, the Fish and Wildlife Service said in a memorandum to the Office of Surface Mining, "No Colorado River drainage water depletion is anticipated at this time." This 160-acre addition to the 933-acre Graves Lease will not change the situation that existed in 1990.

### **Findings:**

Information provided in the proposal is considered adequate to meet the requirements of this section of the regulations.

## **MINING OPERATIONS AND FACILITIES**

Regulatory Reference: 30 CFR Sec. 784.2, 784.11; R645-301-231, -301-526, -301-528.

### **Analysis:**

#### **General**

R645-301-521 requires that the Permittee submit plans that show the size, sequence and timing of for the areas that they anticipate to mine. Plate 29 shows the anticipated mining

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plan from 1995 to 1999. The plate shows the Permittee will extend the mine working 1,600 feet into the new lease in 1997.

### **Findings:**

The requirements of this section of the regulations are considered adequate in regard to the proposed permit change for the addition of the 160-acre.

## **COAL RECOVERY**

Regulatory Reference: 30 CFR Sec. 817.59; R645-301-522.

### **Analysis:**

In a letter dated January 13, 1997 to the Division from Andalex, they state that "Andalex has no specific knowledge that recoverable coal resources exist on this lease modification. However, the Bureau of Land Management (BLM) allowed Andalex to modify the lease so that if recoverable coal is found through our normal mining sequence in this area the coal would not be bypassed. Andalex has the only access to this coal."

Plate 29 show the projected mining workings into the new lease. It appears from this plate that the Permittee has developed detailed plans to mine the new lease addition. The Division realizes that actual mining conditions could be different from those assumed and that the Permittee may have to modify the mine plan. Based on the current plan the Division has determined that the Permittee can maximize coal recovery.

### **Findings:**

The requirements of this section of the regulations are considered adequate in regard to the proposed permit change for the addition of the 160-acre.

## **SUBSIDENCE CONTROL PLAN**

Regulatory Reference: 30 CFR Sec. 784.20, 817.121, 817.122; R645-301-521, -301-525, -301-724.

### **Analysis:**

#### **Subsidence control plan.**

The Permittee will establish one subsidence monitoring station in the 160-acre IBC. They show the subsidence buffer zone on Plate 25. All projected subsidence will occur within the permit area and the subsidence buffer zones.

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### **Findings:**

The requirements of this section of the regulations are considered adequate in regard to the proposed permit change for the addition of the 160-acre.

## **RECLAMATION PLAN**

### **REVEGETATION**

Regulatory Reference: R645-301-341

### **Analysis:**

Since there will be no surface disturbance other than possible effects of subsidence, there are no specific revegetation plans for the proposed incidental boundary change. The existing mining and reclamation plan contains commitments to repair subsidence cracks that could cause problems for wildlife or livestock.

### **Findings:**

Information provided in the proposal is considered adequate to meet the requirements of this section of the regulations.

## **MAPS, PLANS, AND CROSS SECTIONS OF RECLAMATION OPERATIONS**

Regulatory Reference: 30 CFR Sec. 784.23; R645-301-323, -301-512, -301-521, -301-542, -301-632, -301-731.

### **Analysis:**

Same as for Resources Section.

### **Findings:**

Same as for Resources Section.

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# CUMULATIVE HYDROLOGIC IMPACT ASSESSMENT

Regulatory Reference: 30 CFR Sec. 784.14, UCA R645-301-729

### **Analysis:**

A Cumulative Hydrologic Impact Assessment (CHIA) was prepared December 4, 1990 and re-evaluated on April 20, 1993 for the addition of lease UTU-66066 (the "AEP" lease) to the permit. The proposed Tract 2 addition is within the Cumulative Impact Area (CIA) of that original 1990 CHIA. The probable cumulative impacts of all anticipated coal mining and reclamation operations on the hydrologic balance in the cumulative impact area has been assessed and it has been determined that the proposed operation has been designed to prevent material damage to the hydrologic balance outside the proposed permit area.

### **Finding:**

The Division has determined that the proposed operation has been designed to prevent material damage to the hydrologic balance outside the proposed permit area.

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