



**ANDALEX**  
RESOURCES, INC

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**COPY**

July 2, 2004

Utah Division of Oil, Gas and Mining  
Coal Program  
1595 West North Temple, Suite 1210  
P.O. Box 145801  
Salt Lake City, Utah 84114-5801

Attn: Daron R. Haddock  
Re: Centennial Incidental Boundary Change; Summit Creek, Mathis.  
C007/019, Carbon County, Utah

*Meaning*  
*C/007/0019 OK*  
*Task # 1979*

Dear Mr. Haddock,

Attached for your review are five copies each of ANDALEX Resources' responses to the issues outlined in your June 18, 2004 Technical Analysis (TA). This TA was received in our office on June 25, 2004 and as needed, the issues have been discussed with members of your staff prior to formulating responses. We are confident you will find our responses complete and adequate. Also enclosed are appropriate C-1 and C-2 forms.

If you have any questions, or if you require any further information, please do not hesitate to contact me. As you are aware, the timing of this approval is critical for the proposed longwall development mining.

Sincerely,  
*Michael W. Glasson*  
Michael W. Glasson  
Senior Geologist

RECEIVED  
JUL 02 2004  
DIV. OF OIL, GAS & MINING

File in:  
 Confidential  
 Shelf  
 Expandable  
Refer to Record No. *0026* Date *07022004*  
In C/ *00700192004 Incoming!*  
For additional information *Confidential!*

## APPLICATION FOR PERMIT PROCESSING

<input checked="" type="checkbox"/> Permit Change X	<input type="checkbox"/> New Permit	<input type="checkbox"/> Renewal	<input type="checkbox"/> Transfer	<input type="checkbox"/> Exploration	<input type="checkbox"/> Bond Release	Permit Number: ACT/007/019
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Title of Proposal: Response to Technical Analysis -	Mine: Centennial Project
MATHIS/SUMMIT CREEK - INCIDENTAL BOUNDARY CHANGE	Permittee: Andalex Resources

Description, include reason for application and timing required to implement: **To allow continued development.**

**Instructions:** If you answer yes to any of the first 8 questions (gray), submit the application to the Salt Lake Office. Otherwise, you may submit it to your reclamation

<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	1. Change in the size of the Permit Area? <u>92.32</u> acres Disturbed Area? <u>0</u> acres <input checked="" type="checkbox"/> increase <input type="checkbox"/> decrease.
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	2. Is the application submitted as a result of a Division Order? DO #
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	3. Does application include operations outside a previously identified Cumulative Hydrologic Impact Area?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	4. Does application include operations in hydrologic basins other than as currently approved?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	5. Does application result from cancellation, reduction or increase of insurance or reclamation bond?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	6. Does the application require or include public notice/publication?
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	7. Does the application require or include ownership, control, right-of-entry, or compliance information?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	8. Is proposed activity within 100 feet of a public road or cemetery or 300 feet of an occupied dwelling?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	9. Is the application submitted as a result of a Violation? NOV #
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	10. Is the application submitted as a result of other laws or regulations or policies? Explain: APPROVAL CONDITION
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	11. Does the application affect the surface landowner or change the post mining land use?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	12. Does the application require or include underground design or mine sequence and timing? (Modification of R2P2?)
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	13. Does the application require or include collection and reporting of any baseline information?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	14. Could the application have any effect on wildlife or vegetation outside the current disturbed area?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	15. Does application require or include soil removal, storage or placement?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	16. Does the application require or include vegetation monitoring, removal or revegetation activities?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	17. Does the application require or include construction, modification, or removal of surface facilities?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	18. Does the application require or include water monitoring, sediment or drainage control measures?
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	19. Does the application require or include certified designs, maps, or calculations?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	20. Does the application require or include subsidence control or monitoring?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	21. Have reclamation costs for bonding been provided for?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	22. Does application involve a perennial stream, a stream buffer zone or discharges to a stream?
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	23. Does the application affect permits issued by other agencies or permits issued to other entities?

**X Attach 5 complete copies of the application.**

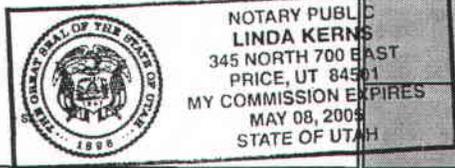
I hereby certify that I am a responsible official of the applicant and that the information contained in this application is true and correct to the best of my information and belief in all respects with the laws of Utah in reference to commitments, undertakings, and obligations herein.

*Michael Blano Sr. Geologist* 07/01/04  
Signed - Name - Position - Date

Subscribed and sworn to before me this 1st day of July, 2004

*Linda Kerns*  
Notary Public

My Commission Expires: 05-08-05 2004  
Attest: STATE OF UTAH COUNTY OF Carbo



**RECEIVED**  
Received by Oil, Gas & Mining  
**JUL 02 2004**

DIV. OF OIL, GAS & MINING

ASSIGNED TRACKING NUMBER



**Checklist  
for  
Summary of Deficiencies  
Mathis/Summit Creek I.B.C. -  
Technical Analysis**

The following checklist provides each deficiency identified by the Division, and the response location provided by Andalex Resources, Inc.:

**R645-301-113.300**, A three (3) year history of violations preceding the application date must be provided for the applicant or any coal mining and reclamation operation owned or controlled by either the applicant or by any person who owns or controls the applicant.

**Provided - Add to Appendix B.**

**R645-301-114**, Lease agreements to enter UTU-79975 Federal Lease and the additional area of the Mathis Tract Fee Lease must be provided for inclusion into Appendix J of the approved MRP.

**Mathis Lease agreement provided. Federal Lease UTU-79975 pending. To be provided upon receipt. Add to Appendix J.**

**R645-301-140**, Plate 19A needs to include the vegetation community associated with the portion of the right fork of Summit Creek that is located in the lease area. A current raptor survey should be included in the application. As an alternative to the survey the applicant could provide a letter from The Division of Wildlife Resources depicting the status of any nest located in the proposed lease area. The Mule Deer, Elk and Sage Grouse ranges are also listed on Plate 34. They are identified as lines but the extent of their ranges is not known. The extent of their ranges needs to be included on Plate 34. They also need to be included in the legend.

- a. Vegetation - Plate 19A - Not Changed (Based on sit visit.)**
- b. Raptor Survey - Add to Appendix D.**
- c. Mule Deer, Elk & Sage Grouse Ranges - Plate 34.**

**R645-301-320**, The application must include a current list of threatened, endangered, and sensitive plant species for Carbon County and the current status of those species in the proposed IBC area in order for the Division to make a finding that the information contained in the application meets the requirements of this section or regulations.

**page 3-2; Appendix M.**

**R645-301-322, 333, 342, and 358:** The applicant must address these sections of the regulations.  
page 3-12 and Appendix M; page 3-19, 3-20, Table III-12 (p. 3-20a); page 3-23, page 3-1.

**R645-301-322,** The applicant must address this section of the regulations.  
page 3-12 and Appendix M.

**R645-301- 333, 301-342, 301-358,** The applicant must address this section of the regulations.  
page 3-12 and Appendix M; page 3-19, 3-20, Table III-12 (p. 3-20a); page 3-23, page 3-1.

**R645-301-411,** The applicant must include the missing information noted on page 4-1, Section R645-301-400.110 of the application.

Pages 4-1, 4-2.

**R645-301-512, 301-512.110,** Changes on Plate 29 and all other maps that fall under R645-301-512 need to be certified by a registered professional engineer. Some maps are certified but do not require certification under R645-301-512. Other maps that were modified must be re-certified. An option would be to state what changes were made after certification.

Plates 21, 25, 29, 34, Figures 5 & 6 Resubmitted. Required Maps Certified per R645-301-512.

**R645-301-525.110,** On Plate 25 - Subsidence Monitoring Stations, provide the Aberdeen seam longwall plan (in a light scale - background) as illustrated on Plate 29.

Plate 25.

**R645-301-721,** Figure 5 - Surface and Ground Water Rights of the Vaughn Hansen Associates report refers to the "Water Use Claim Number" and the proper naming convention is the "Water Rights Number".

Figure 5.

**R645-301-724.300,** On Plate 21 - Surface Geology, the strike and dip numbers should be included on the map. At a minimum, provide the strike and dip numbers in the legend.

Plate 21.

**R645-301-728.200**, The Mine should consider including a representative number of the Water Rights in the water monitoring plan to accurately reflect actual flows; particularly the stock watering ponds.

Figure IV-II; Figure 6; page 7-5; Appendix L - P.H.C. for Summit Creek and North Mathis Tracts.

**R645-301-731.212, 222, 222.2**, Figure IV-II needs the additional modifications in the legend. 1) the IBC needs to be correctly identified as the Mathis/Summit Creek IBC; 2) the symbol designation of streams and springs/wells needs to be included; and 3) all four (4) UPDES sites need to be identified.

Figure IV-II, p. 7-9.

**R645-301-731.212**, Provide Table 3 from the Peterson Hydrologic report (not currently provided).

Provided with revisions for Peterson Hydrologic Report for Appendix L.

**R645-301-731.212**, The existing water quality information for springs B261 and B362 will need to be submitted electronically to the Division database.

This has been arranged with Dana Dean.

**R645-301-731.222.2**, Clarification needs to be provided in both the text and maps to how many UPDES sites exist and their location.

Pages 7-2, 7-5 and Figure IV-II (p. 7-9).

**R645-301-731-223**, Provide any existing data for sites B263, AC-1 and SC-1 electronically into the Division database.

This has been arranged with Dana Dean.

Vegetation Information**Introduction**

Mountain-Brush, Desert Shrub, Pinion-Juniper Woodland, Sagebrush-Grass, Conifer-Aspen, and minor stream-side vegetative types cover the total mine plan area. Most of the area is covered by the Mountain-Brush type while the Pinion-Juniper Woodland type is predominant in the mine mouth area as well as the access routes and utility corridors; this area has been reseeded with a mixture as recommended by the U.S.D.A. S.C.S. (please see Soil Survey and Vegetation Inventory in Appendix M). Appendix M now also includes soils and vegetation information pertaining to the newly acquired AEP Lease. Because there will be no additional surface disturbance on the lease area, a First Order Survey is not deemed necessary.

As the Mathis/Summit Creek Incidental Boundary Change is simply an extension of underground mine workings under roughly 2,600 to 3,000 feet of cover there will likely be no effect on vegetation, fish or wildlife.

Andalex has selected and marked three reference areas in the field for vegetation. The Division has reviewed and approved these reference areas. Areas chosen include all types of vegetation conditions such as drainage areas, shallow slopes and steep slopes. Andalex contacted the SCS to help evaluate the condition of these sites. Please see SCS letter in Appendix M. It should be noted that Andalex does have the benefit of a revegetation test plot located on one of the topsoil piles. The drainage area reference area is the most adaptable to the left fork fan installation.

The revegetation map now shows the acreages for the three range types. Shrub clumps make up 2.15 acres, drainage areas make up 15.02 acres and steep slopes make up 17.03 acres. Total disturbed area, including the Aberdeen Mine left fork fan and road is 35.34 acres.

New vegetation mapping has been created for the entire permit area of the Centennial Mine including the Mathis Tract, New Federal Summit Creek Lease and State L.B.A. area. The mapping was done by Mt. Nebo Scientific, Inc. Springville, Utah. See Plate 19A.

The vegetation map will be created by using new and/or current available aerial photography with field work accomplished as a means for ground-truthing. Aerial photography used will be from appropriate periods of the growing season. Field verification work will be conducted during the growing season of 2002. The final vegetation map will be provided to the State of Utah, Division of Oil, Gas & Mining in December 2002.

It should be noted that no wetland or riparian areas are known to exist on the Mathis/Summit Creek I.B.C area, based on vegetation mapping and site visits by company and Division personnel.

### **Source of Data**

Department of the Interior, 1979. Final Environmental Statement, Development of Coal Resources in Central Utah; Part 1 Regional Analysis; Part 2 Site Specific Analysis.

United States Department of Agriculture, Soil Conservation Service, May, 1980. Soil Survey and Interpretations, Vegetation Survey.

Centennial Coal Associates, May, 1976 Mining Application. Submitted to the United States Geologic Survey, Conservation Branch.

A.M.C.A. Coal Leasing, June, 1978 Mining and Reclamation Plan (Zion's fee). Submitted to the State of Utah, Department of Natural Resources, Division of Oil, Gas, and Mining. Revised 8/8/95

Earth Environmental Consultants  
September, 1981  
Soil Survey and Vegetation Inventory  
(Appendix M)

### **Description**

Vegetative Types: Please see Soil Survey and Vegetation Inventory in Appendix M.

The vegetative types include Mountain Brush, Pinion-Juniper Woodland, Sagebrush-Grass, and Conifer-Aspen. The new Sunedco Lease as well as the new Graves Lease are located primarily in the Mountain Brush and Conifer-Aspen communities.

### **Threatened or Endangered Species**

A listing of threatened or endangered plant species known to occur in Carbon County is included in Appendix M.

There have been no known threatened or endangered species observed in the lease area (Welsh 1977). A study was conducted in the Left Hand Fork for both the access road and the fan installation site to determine the presence of Canyon Sweetvetch. None was found. Additionally, the surveyor does not believe the habitat exists for this plant.

Plant Communities: Please see Soil Survey and Vegetation Inventory in Appendix M.

The Mountain Brush type is the largest in the area. It is found predominately at elevations of about 7,500 feet. This community consists of sage, mountain mahogany, serviceberry, snowberry, squaw apple, gambels oak, and maple. Minor amounts of rabbitbrush, cliffrose, and bitterbrush can be found. Associated grass species are wildrye, Indian ricegrass, wheat grass, bull grass, and blue grass.

The Sagebrush-Grass group is present from 7,200 to 9,000 feet on and in the low benches below the cliffs. Sage and rabbit brush appear associated with the common grasses occurring in other communities such as curly grass, indian rice grass, and bull grass. Fourwing and saltbrush is found on better drained soils. Shad scale and curly grass associations are found on the heavier clay soils.

The Pinion-Juniper Woodland community occurs in the area from an elevation of 5,600 to 8,000 feet and dominates the area below the escarpment of the Book Cliffs. Pinion pine and Utah juniper are the dominant species with bull grass, indian rice grass, and birch leaf mahogany as associated species.

The Conifer-Aspen becomes fairly extensive in the more moist sites and at higher elevations. Elevations range from about 7,000 to 9,000 feet. Aspen predominates at the lower elevations with associated species being serviceberry, snowberry, Oregon grape, mountain brome, and peavine. Douglas fir is scattered throughout the area above 7,500 feet elevation. A few big red pine, white pine, and fir are found in the upper canyon bottoms. Understory grasses present include curly grass, indian rice grass, shadscale, black sage, and crested wheatgrass.

Identified species of noxious or poisonous weeds in the area are halogeton, cockleburr, loco, and copperweed. There are no concentrated areas or serious problems from these poisonous plants.

Some of the most important vegetation species are listed in Table III-10 following this page.

committed to acquiring necessary take permits prior to longwall mining under these sites. Andalex is also committed to additional mitigation which might include measures to prevent nesting on those nests which could be affected by subsidence or removal of nests for scientific study. Please refer to Plate 34 for the most current raptor nesting information including the raptor survey conducted in May, 1994, with the Utah Division of Wildlife Resources and the Utah Division of Oil, Gas and Mining. Three nests have been identified as being located within potential subsidence impact zones. They are identified on Plate 34 and a take permit application for these nests is on file with the U.S. Fish and Wildlife Service. The longwall panel affecting these nests will not be removed prior to the acquisition of this permit.

Andalex has committed to compensation for livestock lost as a result of subsidence which in turn is a direct result of underground mining activities. Also, major cracks caused by subsidence which are demonstrated to be a direct result of underground mining will be repaired.

**R645-301-311.                   VEGETATIVE, FISH AND WILDLIFE  
RESOURCES**

See R645-301-310.

**R645-301-312.                   POTENTIAL IMPACTS**

See R645-301-310 "Area to be Disturbed".

**R645-301-313.                   RESTORATION OR ENHANCEMENT**

See R645-301-240.

**R645-301-320.                   ENVIRONMENTAL DESCRIPTION**

See R645-301-310, *Appendices A, D and M.*

**R645-301-321.                   VEGETATION INFORMATION**

See R645-301-310, *Appendix M.*

**R645-301-321.100.               POTENTIAL FOR REESTABLISHING  
VEGETATION**

Appendix M

**R645-301-321.200.        PREMINING PRODUCTIVITY**

Appendix M

**R645-301-322.            FISH AND WILDLIFE INFORMATION**

See R645-301-310, and Appendices A, D, and M.

**R645-301-322.100.        PROTECTION AND ENHANCEMENT PLAN**

Appendix A

**R645-301-322.200.        SITE-SPECIFIC RESOURCE  
INFORMATION**

Appendix A

**R645-301-322.210.        THREATENED OR ENDANGERED SPECIES**

See R645-301-310.

**R645-301-322.220.        HABITATS OF UNUSUALLY HIGH VALUE  
FOR FISH AND WILDLIFE**

see R645-301-310.

**R645-301-322.230.        OTHER SPECIES OR HABITATS  
REQUIRING SPECIAL PROTECTION**

N/A

**R645-301-322.300.        FISH AND WILDLIFE SERVICE REVIEW**

Appendix A

**R645-301-323.            MAPS AND AERIAL PHOTOGRAPHS**

Appendix A

**R645-301-323.100.        REFERENCE AREAS**

See R645-301-331 "Reference Areas".

**R645-301-323.200.        MONITORING STATIONS**

N/A

Subsidence**Survey of Structures and Renewable Resource Lands**

There are no structures present other than those constructed for mining operations, on the permit area. The land is presently used for grazing and wildlife habitat which constitutes a renewable resource area. It should be noted that geographic areas above Andalex's 5 year mine plan do not include any area suitable for grazing, nor do they contribute significantly to the long-range productivity of water, food or fiber products. Andalex commits to mitigate all subsidence related damage to renewable resources including, but not limited to water, grazing, and wildlife habitat including raptor nests.

R645-301-333.

**USING THE BEST TECHNOLOGY  
CURRENTLY AVAILABLE TO MINIMIZE  
DISTURBANCE AND IMPACT**

As the Mathis/Summit Creek Incidental Boundary Change is simply an extension of our underground mine workings under roughly 2,600 to 3,000 of cover, there will be absolutely no effect to the surface biology of the area.

**Preventive Measures**

Subsidence due to mining on the Andalex property will not occur outside of the approved permit area. Stations have been set up as required for constant monitoring of subsidence movements. (See 6., Monitoring.) The only absolute preventive measure possible is to leave coal in place. This is in direct contrast to maximum economic coal recovery.

Resources on the lands above Andalex's mining plan consist only of wildlife habitat with very limited grazing access.

Subsidence monitoring stations will be established as necessary along the first proposed longwall mining. (See 6., Monitoring and Plate 28.) The results of this monitoring program will define monitoring and permitting needs in the future.

In the event problems should occur, which are verified by the company and the Division to be the result of mining, the company will develop a mitigation plan with the Division of Wildlife Resources.



**Table III-12**  
**Potential Water Depletion**  
**to**  
**Colorado River Drainage**

The following calculations are intended to define the potential depletion or addition of water to the Colorado River Drainage System, as a result of mining at this operation. It should be noted that the criteria is based on the U.S. Fish and Wildlife Service Windy Gap Process, and only those parameters that apply to this operation have been calculated.

**Projected Water Depletion**

- 1- Bathhouse/Office
    - a. 140 people @ 35 gpd/ea x 240 days/yr = 1,176,000 gal/yr
  
  - 2- Ventilation
    - a. Evaporation
      - 1) 450,000 cfm = 236,520 M cf/yr
      - 2) 2.5 gallon/M cf = 591,300 gal/yr
- Total Loss =                   1,767,300 gal/yr  
  5.424 ac ft/yr

**Projected Water Addition**

- 1- Mine Discharge
    - a. 100 gpm x 120 days/yr = 17,280,000 gal/yr
- Total Gain =                   17,280,000 gal/yr  
  53.034 ac ft/yr

**Summary**

Projected Depletion =                   -5.424 ac ft/yr  
Projected Addition =                   +53.034 ac ft/yr

Total Addition =                   +47.61 ac ft/yr

Note:           Moisture loss from mined coal and use of sprays have not been included, since the spray water is derived from perched aquifers and is recycled within the mine. Any excess water from the perched aquifers is eventually discharged, resulting in the addition to streamflow.

**R645-301-341.220.           METHODS USED IN PLANTING AND SEEDING**

See R645-301-240.

**R645-301-341.230.           MULCHING TECHNIQUES**

See R645-301-240.

**R645-301-341.240.           IRRIGATION AND PEST CONTROL MEASURES**

See R645-301-240.

**R645-301-341.250.           METHODS USED TO DETERMINE REVEGATATION SUCCESS**

See R645-301-240.

**R645-301-341.300.           STUDIES AND TESTING TO DEMONSTRATE FEASIBILITY OF REVEGATATION PLAN**

See R645-301-240.

**R645-301-342.               FISH AND WILDLIFE**

See R645-301-310, *Appendices A and D.*

**R645-301-342.100.           ENHANCEMENT MEASURES**

Appendix A. Andalex will endeavor to use the best technology current available to enhance wildlife habitat during the reclamation phase of its operation. This will include, but not be limited to water sources (if available), thermal cover, escapeways, hiding and loafing places, and travelways. ANDALEX will consult with the Division of Wildlife Resources, at the time of final reclamation, to determine exactly what reclamation designs, planting arrangements, and artificial structures would best enhance a wildlife habitat.

**R645-301-342.200.           PLANT SPECIES SELECTION**

See R645-301-341.210.

**R645-301-342.210.           NUTRITIONAL VALUE**

Appendix A

**R645-301-400.**

**LAND USE AND AIR QUALITY**

**R645-301-410.**

**LAND USE**

As the **Mathis/Summit Creek Incidental Boundary Change** is simply an extension of underground mine workings under roughly 2,600 to 3,000 feet of cover there will be absolutely no effect on land use.

**R645-301-411.**

**ENVIRONMENTAL DESCRIPTION**

Due to the rugged topography and sparse rainfall, the land area is presently used only for grazing, wildlife habitat, and outdoor recreation. Historically, the land has also been used for coal mining.

**R645-301-411.100.**

**PREMINING LAND USE INFORMATION**

The initial development of the Book Cliffs Coal Field was started in the early 1890's. By the early 1900's practically the entire field had been prospected. Mines in the lease area were not active until the 1920's because the cliffs were less accessible and the coal beds were thinner.

The Knight-Ideal mines, now held by Andalex Resources are located adjacent to the Hoffman Creek lease area. Initial prospecting took place at this location in 1906 and extensive mining began in 1948 and ceased in 1958. During this period, 1,680,000 tons of coal were produced from the Gilson seam. The Knight-Ideal Mine is contiguous to our Sunedco leases (U-05067) in Hoffman Creek. By mining this lease, Andalex will recover all minable coal between Centennial and Knight-Ideal.

Three mines on or adjacent to the lease area in Deadman Canyon were the Zion, Olsen, and Sutton (Blue Flame) mines. The Zion was located on the Zion's fee lease and the Olsen and Sutton were on SL-027304. The first two produced from the Gilson seam and the last produced from the Aberdeen or Castlegate "A" seam. Production figures are not reliable but it is estimated that between 216,000 tons and 720,000 tons may have been produced from the Sutton mines. The Olsen mines produced about 18,000 tons and the Zion mine around 240,000 tons, between 1924 and 1944.

There was also a prospect entry driven in the Lower Sunnyside Seam (the Hileman) on lease U-010581 from which production was insignificant, approximately 1,400 tons. Mining ceased in the area in 1964.

**R645-301-411.110.**

**USES OF THE LAND AT THE TIME OF  
FILING APPLICATION**

The Deadman Canyon area as well as the Straight and Hoffman Canyons would fall into three land use categories: 1) Coal Mining,

2) Fish and Wildlife habitat and recreation lands, and 3) Range Lands. County zoning regulations (1974) indicate all lands involved in the lease application area are within zone M and G1 which is for mining and grazing. Current land use consists of grazing and deer hunting. For recreational purposes the land is suitable for deer hunting. Other recreational uses for the permit area could include hiking, cross-country skiing, four wheeling, camping, and snowmobiling in winters with adequate snow cover. The lack of water prevents the establishment of a chukker/partridge population. Usually there are no elk in the area although an animal or two may occasionally wander onto the area.

There are no oil and gas wells or water wells other than those water wells drilled by Andalex for use in mining activities, on the lease area. Also, there are no oil and gas wells or water wells in adjacent areas.

The area is eight air miles from Price, but the unavailability of water precludes any development for residential or summer homes.

**R645-301-411.120. LAND USE DESCRIPTION IN  
CONJUNCTION WITH OTHER  
ENVIRONMENTAL RESOURCES  
INFORMATION**

Livestock grazing has been the most intense use of the lease area. However, due to the expansive cliff formations and the roughness of the canyon walls, grazing has been principally limited to the canyon bottoms and extreme tops to the north of the lease boundary.

Mule deer are found within the lease area as well as the usual small mammals, predators, and passerine and raptorial birds.

Outdoor recreation in the lease area is limited and usually related to enjoyment of the open space and associated scenic facilities and hunting for wild animals. The number of people using the area is small due to the rough terrain, poor roads, and lack of water.

The AEP Lease Area has the same land-use as that of the original permit area.

**R645-301-411.130. EXISTING LAND USES AND LAND USE  
CLASSIFICATION**

**R645-301-411.140. CULTURAL AND HISTORIC RESOURCES  
INFORMATION**

Most of the maps previously submitted as part of the Mining and

**R645-301-711.100.      EXISTING HYDROLOGIC RESOURCES**

Appendix L

**R645-301-711.200.      POTENTIAL IMPACTS TO THE  
HYDROLOGIC BALANCE**

Appendix L - Potential Hydrologic Consequences

**R645-301-711.300.      COMPLIANCE WITH HYDROLOGIC DESIGN  
CRITERIA**

**Protection of Hydrologic Balance and Compliance with Water  
Quality Laws**

Andalex will follow its approved "Sedimentation and Drainage Control Plan" and comply with the N.P.D.E.S. Permit No. UTG-040007 issued July, 1989 (see Appendix J). Please note this permit authorizes four discharge points; two from sedimentation ponds (001, 003), one from the Pinnacle Mine (002), and one from the Aberdeen Mine (004). See IV-11

Andalex has approval from the State Engineer, Division of Water Rights, to collect runoff water from the disturbed area for use as a dust suppressant in the underground mining operation. This runoff is a result of direct precipitation with the runoff area.

Andalex will comply with the Clean Water Act (33 U.S.C. Sec. 1251 et seq.) and all other applicable water quality laws and health and safety standards.

Surface and Groundwater Monitoring

Location of Monitoring Points

**Groundwater**

**Monitoring Plan for Proposed Mathis/Summit Creek Expansion Area**

This monitoring plan is based on the PHC determination presented in Appendix L. As discussed previously, the potential for detrimental impacts resulting from mining activities in the **Mathis/Summit Creek expansion area** is considered remote. However, to document that no impacts to the hydrologic balance occur, and to provide verification that temporal variations in groundwater and surface water discharge rates are the result of climatic and seasonal variability, we recommend the monitoring of two springs **within and north of the expansion area**, B362 and B261. The locations of these springs are shown on Figure IV-11

Groundwater monitoring sites are depicted on Figure IV-11, and include Well #1, S18-1 and S25-1. (The latter two are springs in the vicinity of the permit area, stratigraphically below any coal to be mined.) S25-1 is located in Hoffman Creek and has been monitored since the issuance of the emergency lease permit. This drainage also exclusively serves the new Sunedco Lease. Well #1 penetrates the first aquifer below the lowermost coal to be mined. The Aberdeen Sandstone is discussed in Appendix L.

The new AEP does not expose any new groundwater.

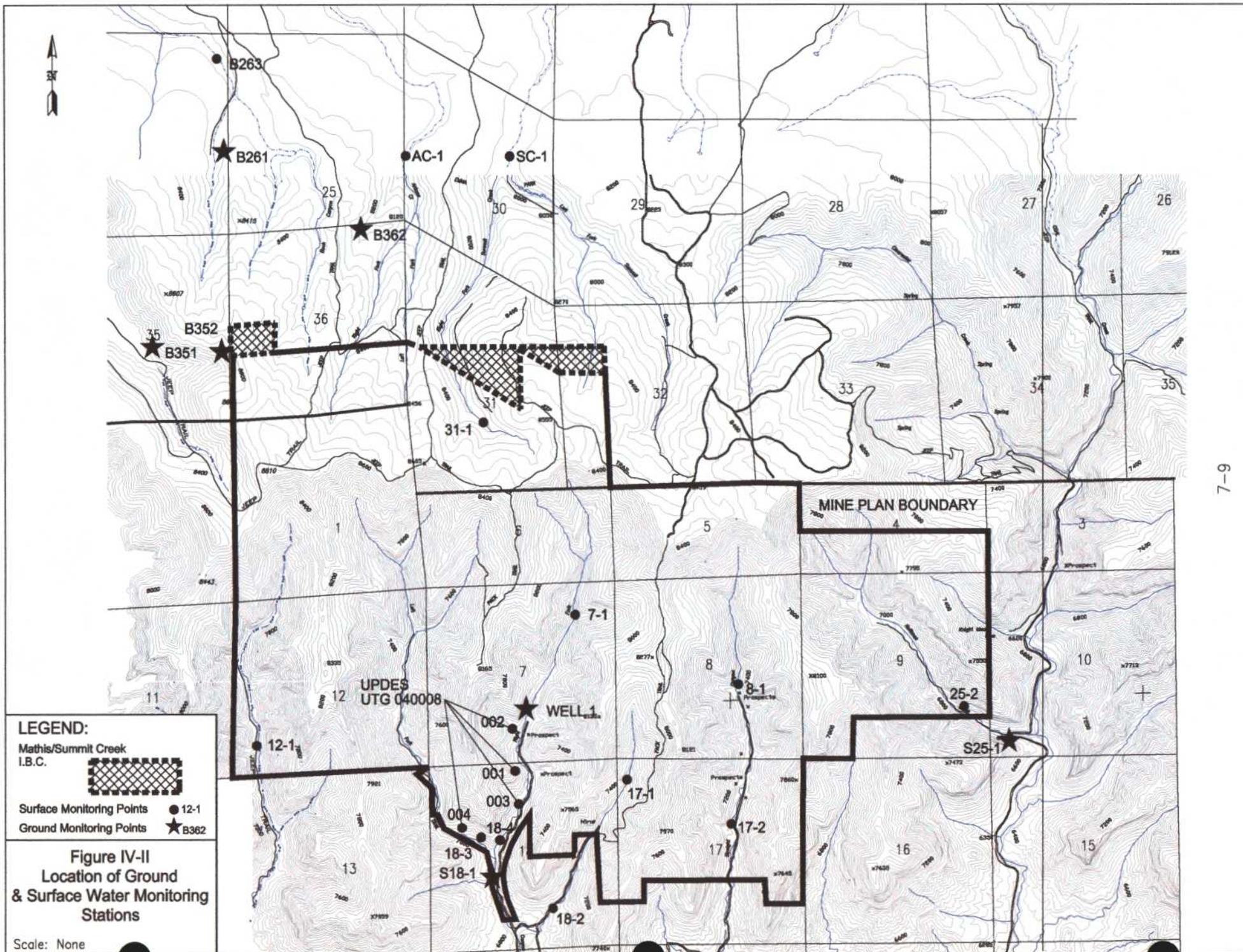
As stated earlier, the mines in this area are relatively dry. Like most any underground mine, minor "drippers" and some seepage is encountered. Such areas can accumulate moderate amounts of water underground, particularly in the areas of old workings. Such was the case when, in 1981, the new mine cut into some old works, releasing a surge of water that had to be discharged from the mine. Currently the mine "makes" enough water to discharge approximately 50% of the time via our approved UPDES point 002.

No flows presently exist underground that warrant monitoring; however, if significant flows are encountered underground, Andalex Resources will initiate monitoring according to the Division guidelines for groundwater baseline (and later, operational) monitoring. For the purpose of this section, "significant flows" shall be defined as: "Underground mining flows from a single source of 3 gpm or greater and sustained at a rate of 3 gpm or greater for a period of 30 days". If such flows are encountered, monitoring will be initiated. If the flow is being monitored and decreases below the above described "significant flow" amount, monitoring will be discontinued after a period of 60 days.

### **Surface Water**

It should be noted that there are **four** new surface water monitoring sites associated with the **proposed expansion area**.

Surface water monitoring sites are depicted on Figure IV-11 and Figure 6 and include 7-1, 8-1, 18-3, 18-4, 18-2, 25-2 and 12-1 **and new sites AC-1, SC-1, B263 and Stock Pond 31-1. Proposed new sites are discussed further in Appendix L.** 25-2 is located in Hoffman Creek and has been monitored since the issuance of the emergency lease permit (no flow to date). This drainage also exclusively serves the new Sunedco leases. A new surface water monitoring location (12-1) will be situated at the mouth of Alrad Canyon in T.13S., R.10E., section 12. The left fork of Deadman Canyon is already monitored at 18-3. These locations assure that all major drainages beneath the permit area are monitored. Also included in the surface monitoring are points 1, 2, 3, and 4 part of UPDES Permit #UTG-040007 also shown on Figure IV-11. New surface water monitoring stations will be set up as needed for all new lease additions.



**LEGEND:**

Mathis/Summit Creek I.B.C. 

Surface Monitoring Points ● 12-1

Ground Monitoring Points ★ B362

**Figure IV-II**  
**Location of Ground & Surface Water Monitoring Stations**

Scale: None

**HISTORY OF VIOLATIONS**

**6/01 - 6/04**

**(Appendix B)**

The following is a history of violations received by Andalex Resources, Inc. for the past 3 years (6/01 - 6/04):

<u>N.O.V.</u>	<u>Site</u>	<u>Issued</u>	<u>For</u>	<u>Status</u>
NO4-49-2-1	Centennial Mine	1/23/04	Failure to Maintain Disturbed Area Diversion	Terminated

**MATHIS TRACT LEASE**

(Appendix J)

MEMORANDUM OF UNDERGROUND COAL LEASE

THIS MEMORANDUM OF UNDERGROUND COAL LEASE ("Lease")

entered into effective as of the 1st day of January, 1998, among **Mathis Land, Inc.**, a Utah corporation, c/o William Dale Mathis, 643 South 200 East, Price, Utah 84501; **Rex Morrell Mathis**, Box 311, Duchesne, Utah 84021; **JoAnn L. Mathis Ross**, 1208 North 575 West, Centerville, Utah 84014; **William Dale Mathis**, 643 South 200 East, Price, Utah 84501; **Marc Pickup and Shawnda Pickup Cave** (Mark Pickup and Shawnda Pickup Cave are executing individually and as an heir to the Estate of Gwen Dora Mathis Pickup, respectively son and daughter) having an address at 818 North 900 West, Price, Utah 84501 (collectively all of the above hereinafter referred to as "Lessors"); and **ANDALEX Resources, Inc.**, a Delaware corporation, with an address at 45 West 10000 South, Suite 401, Sandy, Utah 84070, hereinafter called "Lessee."

W I T N E S S E T H:

The parties hereto agree:

1. Upon the terms and conditions set forth in that certain Underground Coal Lease (hereinafter "Lease"), effective of even date herewith, all of which are hereby incorporated herein as if set forth in full, Lessor does hereby grant and lease unto Lessee for the purposes described in paragraph 2 of this Memorandum of Underground Coal Lease and in the Lease those certain lands situated in Carbon County, State of Utah, more particularly described as follows, to-wit:

Township 12 South, Range 10 East, SLB&M

Section 36: All.

00065992 Bk00408 Pg00348-00355

ANN B. O'BRIEN-COUNTY OF CARBON  
1998 MAY 07 10:19 AM FEE \$28.00 BY  
REQUEST: ANDALEX RESOURCES, INC

2. The Underground Coal Lease grants to Lessee the exclusive right and privilege to explore for, mine (by any method), remove extract, store, prepare, ship and dispose of the coal and gas occurring in coal seams, beds or deposits when vented as a non-commercial substance in conjunction with coal development or extraction operations. The leasing, exploration for, or development of other minerals or substances other than coal and substances mixed with coal shall not interfere in any way with the coal mining operations of the Lessee during the term of this Lease. Leases related to other minerals issued by Lessors after the date of this Lease shall be specifically made subject to the priority of the coal mining operations.

3. The term of the Lease is for a term of ten (10) years which commenced on January 1, 1998, subject to the right of Lessee to extend said term for ten (10) additional periods of one year.

00065992 Bk00408 Pg00349

IN WITNESS WHEREOF, the parties hereto have caused this Memorandum of Underground Coal Lease and the Underground Coal Lease to be signed effective as of the day and year first above written.

SOCIAL SECURITY NUMBER OR EMPLOYER IDENTIFICATION NO.:

87-0379137

LESSORS:

MATHIS LAND, INC., a Utah Corporation

By: Wm Dale Mathis  
Its: President

329-56-7255

Rex Morrell Mathis  
Rex Morrell Mathis

528-66-3380

JoAnn L. Mathis Ross  
JoAnn L. Mathis Ross

528-66-3381

Wm Dale Mathis  
William Dale Mathis

HEIRS OF GWEN DORA MATHIS PICKUP:

529-21-2381

Mark Pickup  
Mark Pickup  
Maec

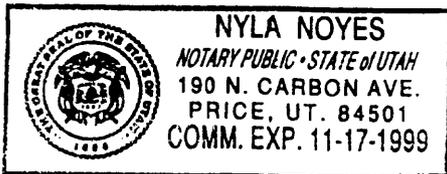
528-21-9058

Shawnda Pickup Cave  
Shawnda Pickup Cave



STATE OF UTAH )  
 : ss.  
COUNTY OF SALT LAKE )

On the 6<sup>th</sup> day of May, 1998, personally appeared before me Rex Morrell Mathis, who signed the foregoing instrument and acknowledged to me that he executed the same.



Nyla Noyes  
Notary Public  
Residing at: Price, Utah

My commission expires:

11-17-99

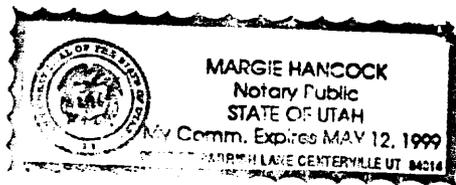
STATE OF UTAH )  
 : ss.  
COUNTY OF SALT LAKE )

On the 5 day of May, 1998, personally appeared before me JoAnn L. Mathis Ross, who signed the foregoing instrument and acknowledged to me that she executed the same.

Margie Hancock  
Notary Public  
Residing at: Centerville

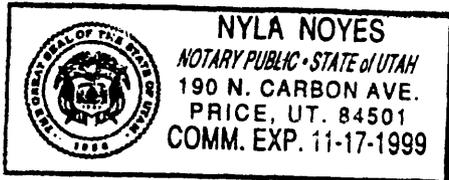
My commission expires:

5/12/99



STATE OF UTAH )  
 : ss.  
COUNTY OF SALT LAKE )

On the 6<sup>th</sup> day of May, 1998, personally appeared before me William Dale Mathis, who signed the foregoing instrument and acknowledged to me that he executed the same.



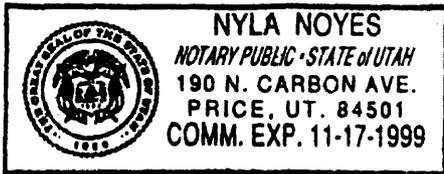
Nyla Noyes  
Notary Public  
Residing at: Price, Utah

My commission expires:

11-17-99

STATE OF UTAH )  
 : ss.  
COUNTY OF SALT LAKE )

On the 4<sup>th</sup> day of May, 1998, personally appeared before me Marc Pickup, who signed the foregoing instrument and acknowledged to me that he executed the same.



Nyla Noyes  
Notary Public  
Residing at: Price, Utah

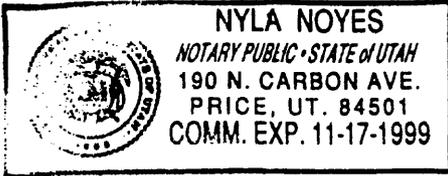
My commission expires:

11-17-99

00065992 Bk00408 Pg00353

STATE OF UTAH )  
 : ss.  
COUNTY OF SALT LAKE )

On the 4<sup>th</sup> day of May, 1998, personally appeared before me Shawnda Pickup Cave, who signed the foregoing instrument and acknowledged to me that she executed the same.



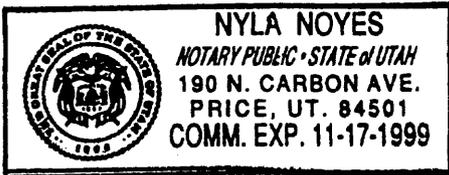
Nyla Noyes  
Notary Public  
Residing at: 11-17-99 Price Utah

My commission expires:

11-17-99

STATE OF UTAH )  
 : ss.  
COUNTY OF SALT LAKE )

On the 6<sup>th</sup> day of May, 1998, personally appeared before me Samuel C. Quigley, the V. President - Western Operations of ANDALEX Resources, Inc., who signed the foregoing instrument on behalf of ANDALEX Resources, Inc. and acknowledged to me that he executed the same.



Nyla Noyes  
Notary Public  
Residing at: Price, Utah

My commission expires:

11-17-99

NOTICE

00065992 Bk00408 Pg00355

TO: Andalex Resources, Inc.  
45 West 10000 South  
Sandy, Utah 84070

FROM: Mathis Land, Inc.  
c/o Rex Morrell Mathis, JoAnn L. Mathis Ross, William Dale Mathis,  
Marc Pickup and Shawnda Pickup Cave

RE: Underground Coal Lease and Memorandum of Underground Coal Lease by and  
between Andalex Resources, Inc. and Mathis Land, Inc.

Notice is hereby given that the individuals named below have changed their addresses as follows:

Marc Pickup  
4245 S. Central Miller Creek Rd.  
Price, UT 84501

Shawnda Pickup Cave  
445 West 610 North  
Price, UT 84501

This notice affects the above mentioned Underground Coal Lease and Memorandum of Coal Lease as they pertain to that certain real estate located in Carbon County, State of Utah, more particularly described as follow, to wit:

Township 12 South, Range 10 East, SLB&M  
Section 36: All.

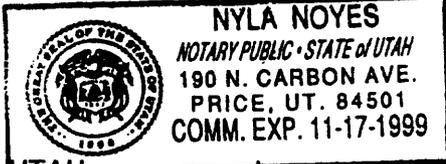
DATED: May 4, 1998.

Marc Pickup  
Mark Pickup  
Mace

Shawnda Pickup Cave  
Shawnda Pickup Cave

STATE OF UTAH )  
: ss.  
COUNTY OF CARBON )

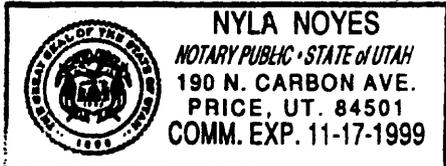
On the 4th day of May, 1998, personally appeared before me MARC PICKUP, the signer of the within instrument, who duly acknowledged to me that he executed the same.



Nyla Noyes  
Notary Public  
Commission Expires: 11-17-99

STATE OF UTAH )  
: ss.  
COUNTY OF CARBON )

On the 4th day of May, 1998, personally appeared before me SHAWNDA PICKUP CAVE, the signer of the within instrument, who duly acknowledged to me that she executed the same.



Nyla Noyes  
Notary Public  
Commission Expires: 11-17-99

**REPLACEMENT PAGES  
FOR  
PETERSON HYDRO LOGIC REPORT  
P.H.C. - SUMMIT CREEK AND NORTH MATHIS TRACTS  
APPENDIX L**

**Recommended Monitoring Plan**

This recommended monitoring plan is based on the PHC determination presented above. As discussed previously, no springs, seeps, or flowing stream reaches were identified in the Summit Creek tract area and only a single groundwater seep (B362) is known to exist on the North Mathis tract. Additionally, the potential for mining-related impacts to shallow groundwater systems that could support seeps or springs or provide baseflow to streams is considered remote. However, to document that no impacts to the hydrologic balance occur and to document the response of shallow groundwater and surface-water systems to climatic variability, we recommend the monitoring of two Flagstaff Formation springs. These include B362, located on the North Mathis tract, and B261, located north of the North Mathis and Summit Creek tract areas. We also recommend the monitoring of three creeks. These include B263 (Deep Creek below tract area), AC-1 (Antone Creek below tract area), and SC-1 (Summit Creek below tract area below the confluence of the Left and Right Forks).

We also recommend the monitoring of stock watering pond 31-1. The pond monitoring will include an estimate of the pond fullness and pond inflow and outflow measurements.

The locations of these monitoring points are shown on Figure 6 of the MRP (Ground and surface water monitoring locations). The recommended monitoring plan is summarized in Tables 4, 5, 6, and 7 below.

It should be noted that ANDALEX Resources is committed to adequately monitoring the hydrologic resources in the Summit Creek and North Mathis tract areas. Accordingly, should

seeps, springs, or perennial streams be identified in the Summit Creek and North Mathis tract areas when wetter climatic conditions return to the area, ANDALEX commits to carrying out a monitoring program that will adequately monitor the potential for mining-related impacts to the hydrologic resources in the Summit Creek and North Mathis tract areas.

**Table 4 Recommended Monitoring Plan for springs, streams, and stock ponds.**

<i>Spring</i>	<i>Protocol</i>	<i>Comments</i>
B362	A, 1	Flagstaff Limestone spring in Antone Creek drainage
B261	A, 1	Flagstaff Limestone spring in Deep Canyon (Pace Spring)

<i>Stream</i>	<i>Protocol</i>	<i>Comments</i>
AC-1	B, 2	Antone Creek located downstream of tract boundary
SC-1	B, 2	Summit Creek located below confluence of Left and Right Forks below tract boundary
B263	B, 2	Deep Creek downstream of tract boundary

<i>Stock Pond</i>	<i>Protocol</i>	<i>Comments</i>
31-1	C	Surface-water-fed stock-watering pond in the Right Fork of Summit Creek drainage

**Table 5 Monitoring protocols for springs, streams and stock-watering ponds in the Summit Creek and North Mathis tract areas.**

**Water level and flow measurements**

- A Spring: quarterly discharge measurements when accessible
- B Stream: quarterly discharge measurements when accessible
- C Stock Pond: quarterly observations of the presence or lack of water in pond when accessible. This will include an estimate of the quantity of water in pond (dry, puddle, quarter-full, half-full, three-quarters-full, or full) and measurements of the rate of inflow to the pond and the rate of outflow from the pond.

**Water Quality**

- 1 Spring: quarterly operational water quality measurements (Table 6 list) when accessible
- 2 Stream: quarterly operational water quality measurements (Table 7 list) when accessible

**Table 3 Solute and isotopic compositions and mean residence times of groundwater from the Aberdeen and Pinnacle Mines.**

	Date	pH (s.u.)	Cond ( $\mu$ S)	Ca <sup>2+</sup> (mg/l)	Mg <sup>2+</sup> (mg/l)	Na <sup>+</sup> (mg/l)	K <sup>+</sup> (mg/l)	HCO <sub>3</sub> <sup>-</sup> (mg/l)	CO <sub>3</sub> <sup>2-</sup> (mg/l)	SO <sub>4</sub> <sup>2-</sup> (mg/l)	Cl <sup>-</sup> (mg/l)	$\delta^{13}\text{C}$ (‰)	$\delta\text{H}$ (T.U.)	$^{14}\text{C}$ (pmC)	Mean Residence Time (years)
<b>Aberdeen Mine</b>	July 2001	7.41	3644	76	69	807	36	884	<0.1	1283	95	-13.1	0.18	9.01	15,000
<b>Pinnacle Mine</b>	July 2001	7.57	3279	67	74	409	35	862	<0.1	549	81	-10.1	0.28	10.79	13,000

**THREATENED AND ENDANGERED SPECIES  
FOR  
CARBON COUNTY, UTAH**

**(Appendix M)**

CARBON

Graham Beardtongue

*Penstemon grahamii*

Uinta Basin Hookless Cactus

*Sclerocactus glaucus*

Bonytail<sup>4,10</sup>

*Gila elegans*

E

Colorado Pikeminnow<sup>4,10</sup>

*Ptychocheilus lucius*

E

Humpback Chub<sup>4,10</sup>

*Gila cypha*

E

Razorback Sucker<sup>4,10</sup>

*Xyrauchen texanus*

E

Bald Eagle<sup>3</sup>

*Haliaeetus leucocephalus*

T

Mexican Spotted Owl<sup>4</sup>

*Strix occidentalis lucida*

T

Western Yellow-billed Cuckoo

*Coccyzus americanus occidentalis*

Black-footed Ferret<sup>6</sup>

*Mustela nigripes*

E

<sup>1</sup> Nests in this county of Utah.

<sup>2</sup> Migrates through Utah, no resident populations.

<sup>3</sup> Wintering populations (only five known nesting pairs in Utah).

<sup>4</sup> Critical habitat designated in this county.

<sup>5</sup> Critical habitat proposed in this county.

<sup>6</sup> Historical range.

<sup>7</sup> Experimental nonessential population.

<sup>8</sup> Introduced, refugia population.

<sup>9</sup> Candidate species have no legal protection under the Endangered Species Act.

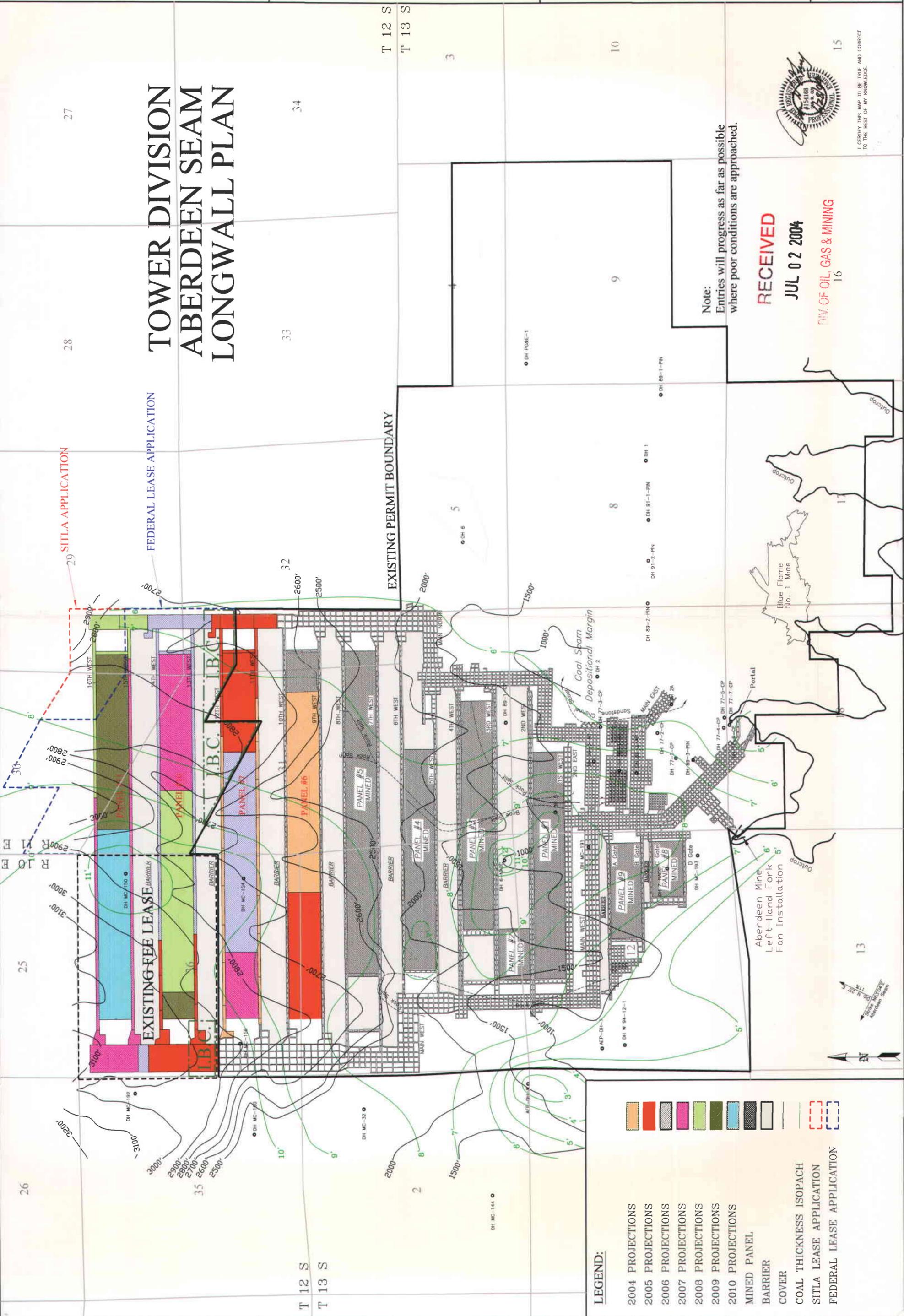
However, these species are under active consideration by the Service for addition to the Federal List of Endangered and Threatened Species and may be proposed or listed during the development of the proposed project.

<sup>10</sup>Water depletions from *any* portion of the occupied drainage basin are considered to adversely affect or adversely modify the critical habitat of the endangered fish species, and must be evaluated with regard to the criteria described in the pertinent fish recovery programs.

For additional information contact: U.S. Fish and Wildlife Service, Utah Field Office, 2369 West Orton Circle, Suite 50, West Valley City, Utah 84119 Telephone: (801) 975-3330



# TOWER DIVISION ABERDEEN SEAM LONGWALL PLAN



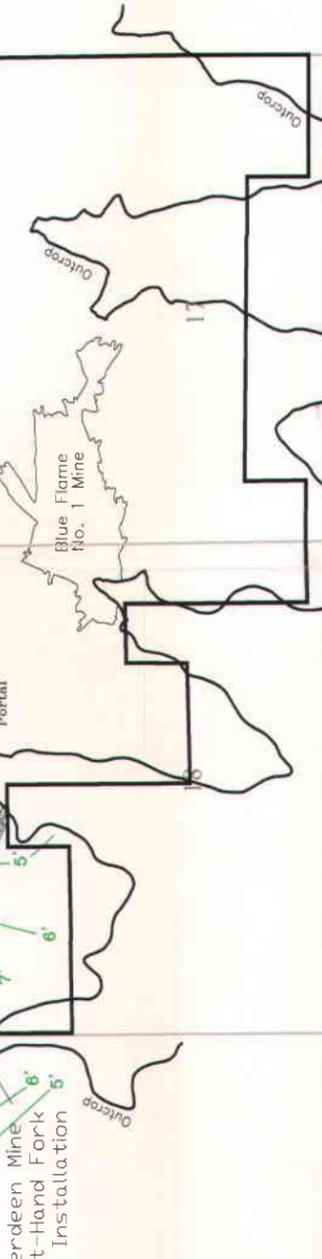
Note:  
Entries will progress as far as possible  
where poor conditions are approached.

**RECEIVED**  
**JUL 02 2004**  
DIV. OF OIL, GAS & MINING  
16



I CERTIFY THIS MAP TO BE TRUE AND CORRECT  
TO THE BEST OF MY KNOWLEDGE.

- LEGEND:**
- 2004 PROJECTIONS
  - 2005 PROJECTIONS
  - 2006 PROJECTIONS
  - 2007 PROJECTIONS
  - 2008 PROJECTIONS
  - 2009 PROJECTIONS
  - 2010 PROJECTIONS
  - MINED PANEL
  - BARRIER
  - COVER
  - COAL THICKNESS ISOPACH
  - SITLA LEASE APPLICATION
  - FEDERAL LEASE APPLICATION



25 26 27 28 29  
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15

13