

R645-301-300.

BIOLOGY

R645-301-310.

INTRODUCTION

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

R645-301-332.

**IMPACTS OF SUBSIDENCE ON
RENEWABLE RESOURCE LANDS**

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.

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 REVEGETATION SUCCESS

See R645-301-240.

R645-301-341.300. STUDIES AND TESTING TO DEMONSTRATE FEASIBILITY OF REVEGETATION 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.

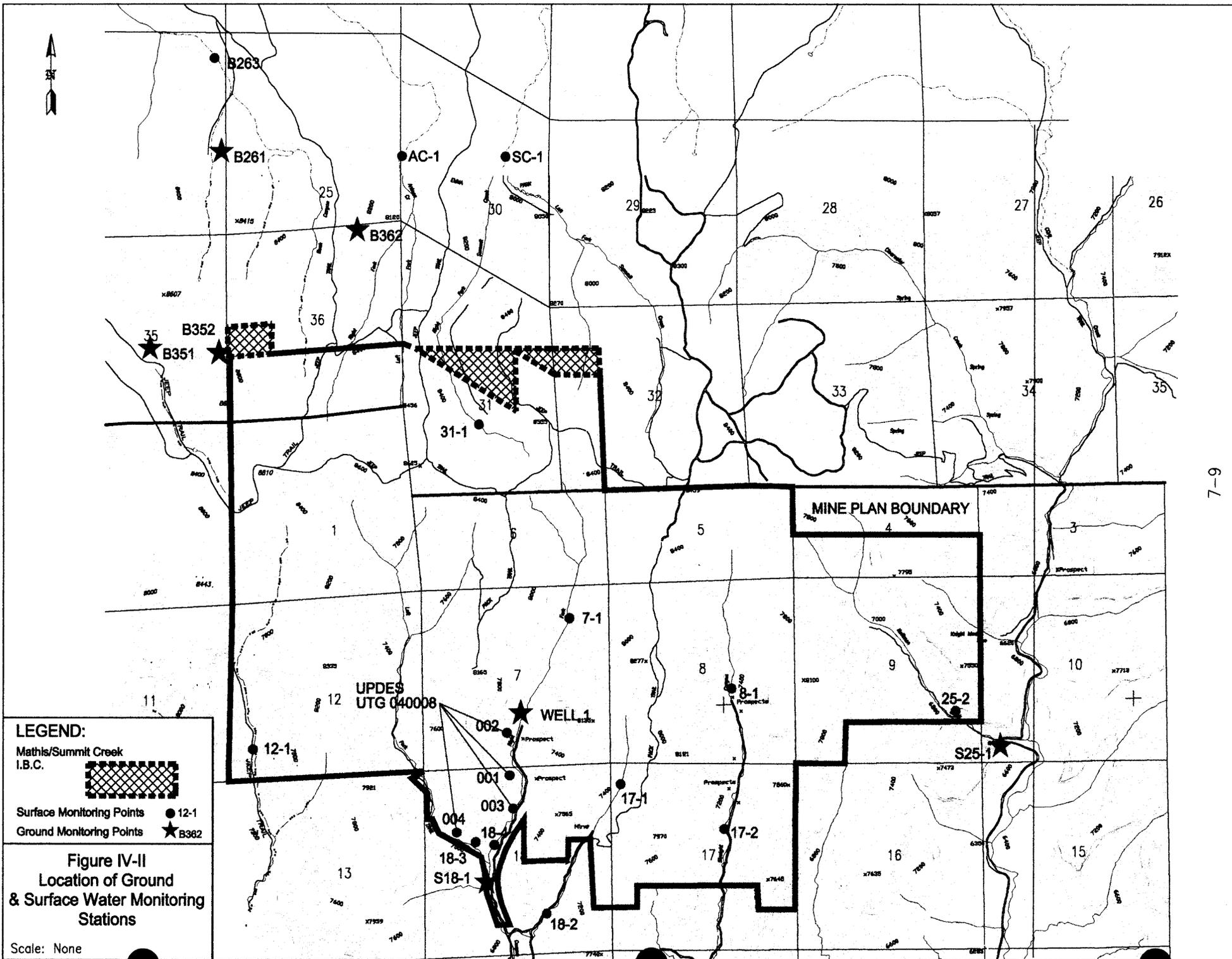
As stated earlier, the mines in this area are relatively dry. Like most any underground mine, minor "drippers" and some seepage is encountered. Such areas can accumulate moderate amounts of water underground, particularly in the areas of old workings. Such was the case when, in 1981, the new mine cut 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.



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

HISTORY OF VIOLATIONS

6/01 - 6/04

(Appendix B)

Andalex Violation List C007/019; C007/033

N04-49-2-1 of 01/23/04 terminated 04/23/04 because of failure to maintain culvert and drainage diversion ditch. Terminated after silt thawed out and was cleaned from area.

None in 2003, 2002 and 2001.

Genwal Violation List, C015/032

None in 2004

N03-49-2-1 of 7/30/03 terminated on 8/20/03 because of failure to submit surface blast plan pf more than 5 pounds. Abated with submittal and approval of plan.

N03-49-1-1 of 1/8/03 terminated on 4/15/03 because of failure to request permit renewal 120 days prior to permit expiration. Abated with submittal of permit renewal application.

None in 2002 and 2001.

West Ridge Violation List C007/041

N04-49-1-1 of 1/22/2004 terminated on 1/22/2004 because of failure to request permit renewal 120 days prior to permit expiration. Abated with submittal of permit renewal application.

None in 2003.

N02-49-2-1 of 11/19/02 terminated on 2/18/03 because of diverting mine water through channels and culverts and storing in sediment pond. Abated with submittal of permit change allowing use.

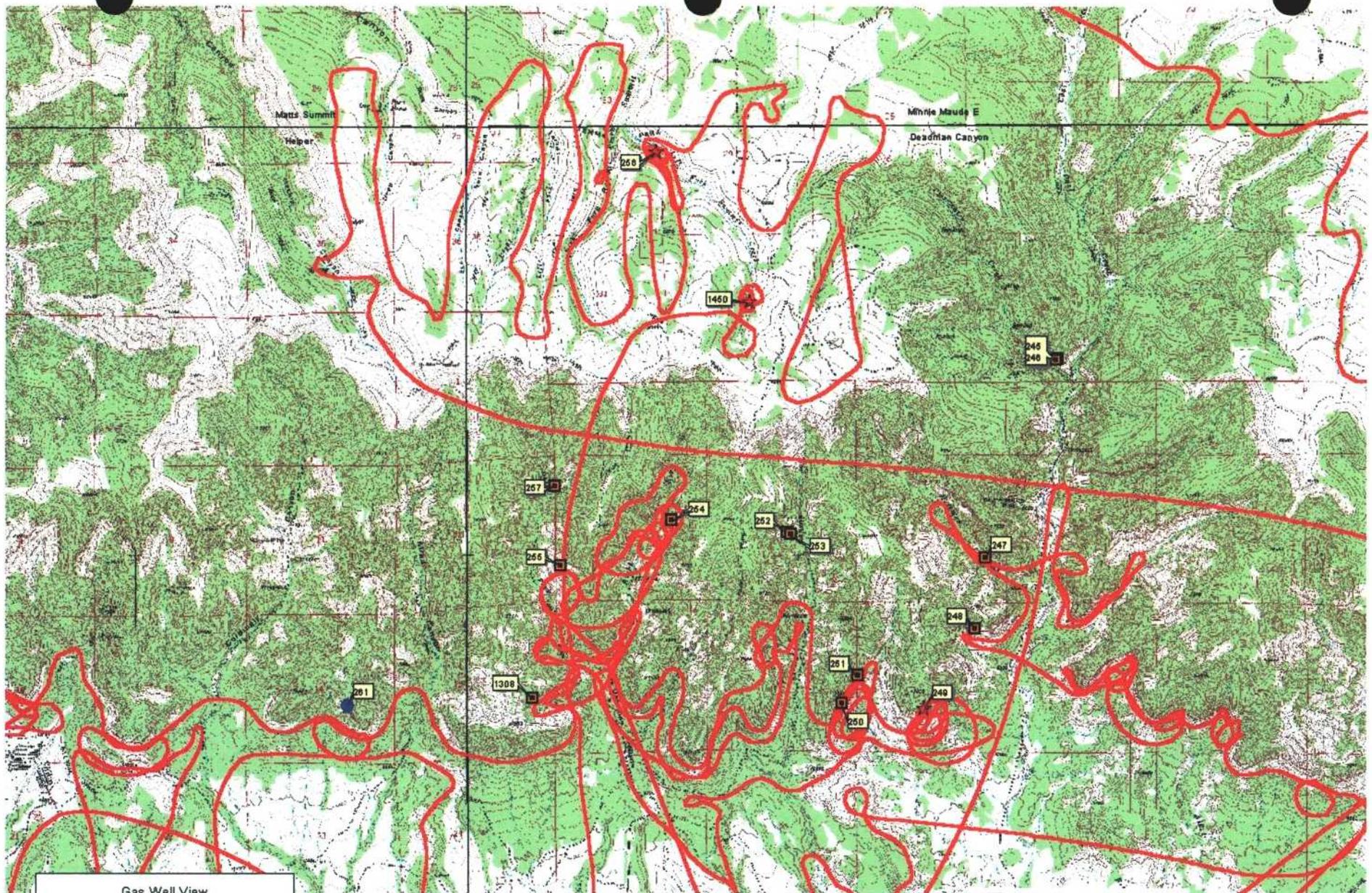
N02-49-1-1 of 2/19/02 terminated on 5/20/02 because failure to maintain or construct diversions according to approved MRP. Abated with the completion of a permit change approval and construction measures.

None in 2001.

APPENDIX D
2004 RAPTOR SURVEY

Attributes of Raptor Nests 2004

Nest_no	X_utm27	Y_utm27	Date	Species	Type	Status_04	Eggs	Yng
1273	526493	4403904	20040524	Golden Ea	Cliff	active	0	1
255	522438	4395087	20040525	Golden Ea	Cliff	active	2	0
1308	522139	4393646	20040518	Golden Ea	Cliff	inactive		
250	525475	4393599	20040519	Golden Ea	Cliff	inactive		
251	525648	4393907	20040519	Golden Ea	Cliff	inactive		
247	527019	4395177	20040524	Golden Ea	Cliff	inactive		
248	526904	4394406	20040524	Golden Ea	Cliff	inactive		
1450	524476	4397936	20040525	Red-tailed	Cliff	inactive		
261	520148	4393561	20040518	Falcon	Cliff	not found		
254	523633	4395580	20040525	Golden Ea	Cliff	not found		
256	523468	4399555	20040525	Red-tailed	Cliff	not found		
245	527796	4397318		Golden Ea	Cliff	not surveye		
246	527779	4397311		Golden Ea	Cliff	not surveye		
252	524884	4395448		Golden Ea	Cliff	not surveye		
253	524925	4395428		Golden Ea	Cliff	not surveye		
257	522377	4395938		Golden Ea	Cliff	not surveye		
897	521734	4406198		Golden Ea	Cliff	not surveye		
1272	526535	4403904		Golden Ea	Cliff	not surveye		
898	521151	4406672		Raven	Cliff	not surveye		
899	519672	4407309		Raven	Cliff	not surveye		
249	526361	4393552		Red-tailed	Cliff	not surveye		
900	519500	4406779		Red-tailed	Cliff	not surveye		



Gas Well View

<ul style="list-style-type: none"> ● Raptor Nests 2004 ◆ American Goshawk ○ Bald Eagle ● Cooper's Hawk ● Falcon ● Red-tailed Hawk ● Sharp-shinned Hawk ■ Golden Eagle ▲ Great Horned Owl 	<ul style="list-style-type: none"> ● Peregrine Falcon ● Prairie Falcon ● Raven ● Red-tailed Hawk ● Unknown ● Osprey — 2004 Flightlines □ One acre boundaries
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Raptor Survey 2004 Tower Mine

STATE OF UTAH
NATURAL RESOURCES
Division of Wildlife Resources

Anthony Wright
Division of Wildlife Resources
475 W. Price River Drive
Price, UT 84501



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."

WITNESSETH:

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. D'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

329-56-7255

528-66-3380

528-66-3381

529-21-2381

528-21-9058

LESSORS:

MATHIS LAND, INC., a Utah Corporation

By: William Dale Mathis
Its: President

Rex Morrell Mathis
Rex Morrell Mathis

JoAnn L. Mathis Ross
JoAnn L. Mathis Ross

William Dale Mathis
William Dale Mathis

HEIRS OF GWEN DORA MATHIS PICKUP:

Mark Pickup
Mark Pickup
Mace

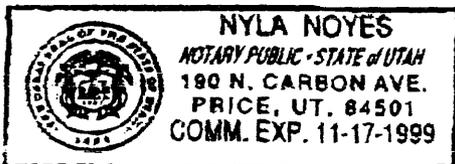
Shawnda Pickup Cave
Shawnda Pickup Cave

00065992 BK00408 Pg00350

00065992 Bk00408 Pg00352

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

On the 15th 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: Criv, Utah

My commission expires:

11-17-99

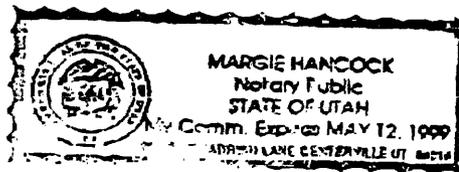
STATE OF UTAH)
: ss.
COUNTY OF SALT LAKE)

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

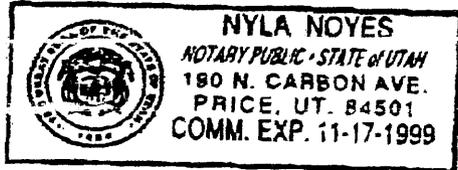
My commission expires:

5/12/99



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

On the 10th 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.



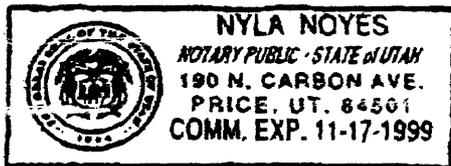
Nyla Noyes
Notary Public
Residing at: Price, Utah

My commission expires:

11-17-99

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

On the 4th 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

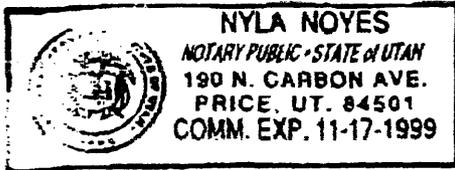
My commission expires:

11-17-99

00065992 BK00408 Pg00353

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

On the 4th 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.



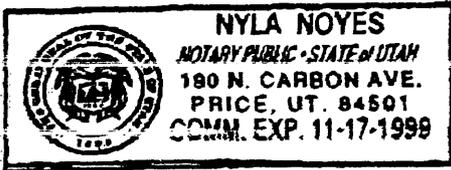
Nyla Noyes
Notary Public
Residing at: 11-17-99 Price Utah

My commission expires:

11-17-99

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

On the 6th 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

00065992 BK0040B Pg00354

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

(Appendix M)

CARBON

Graham Beardtongue

Penstemon grahamii

Uinta Basin Hookless Cactus

Sclerocactus glaucus

Bonytail^{4,10}

Gila elegans

E

Colorado Pikeminnow^{4,10}

Ptychocheilus lucius

E

Humpback Chub^{4,10}

Gila cypha

E

Razorback Sucker^{4,10}

Xyrauchen texanus

E

Bald Eagle³

Haliaeetus leucocephalus

T

Mexican Spotted Owl⁴

Strix occidentalis lucida

T

Western Yellow-billed Cuckoo

Coccyzus americanus occidentalis

Black-footed Ferret⁶

Mustela nigripes

E

¹ Nests in this county of Utah.

² Migrates through Utah, no resident populations.

³ Wintering populations (only five known nesting pairs in Utah).

⁴ Critical habitat designated in this county.

⁵ Critical habitat proposed in this county.

⁶ Historical range.

⁷ Experimental nonessential population.

⁸ Introduced, refugia population.

⁹ 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.

¹⁰Water 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