

R645-301-100. GENERAL

The Mathis Tract and New Federal Summit Creek Lease Boundary Change is simply an extension of our underground mine workings and will in no way involve any new surface facilities or otherwise have any affect on the surface. It does not involve any new hydrologic basins. Refer to R645-301-200 through R645-301-800 for additional information.

R645-301-110. LEGAL, FINANCIAL, AND COMPLIANCE INFORMATION

Legal, Financial, Compliance and Information

The objective of this chapter is to set forth all relevant information concerning ownership and control of Andalex Resources, Inc., the ownership and control of the property to be affected by mining activities and all other information and documentation required.

Please note that right-of-entry information for all new Leases is included in Appendix J, "Other Approvals". This includes the short form of the Mathis lease recorded at Carbon County.

Compliance Information

a) Suspension and Revocation

Andalex Resources, Inc., affiliates or persons controlled by or under common control with Andalex haven't had a mining permit suspended or revoked within the last five years.

b) Forfeiture of Bond

Andalex Resources, Inc., affiliates or persons controlled by or under common control with Andalex have not forfeited a mining bond or similar security in lieu of bond.

c) History of Violations

Appendix B contains a listing of all violations received within the last three years prior to the date of this application by Andalex and affiliated companies.

UTU-66060 (Graves Lease) is subject to the terms and conditions set forth in the Federal Coal Lease issued by the Bureau of Land Management October 3, 1994. Specifically, Part I, section 2 of the lease "grants and leases to the Lessee the exclusive right and privilege to drill for, mine, extract, remove, or otherwise process and dispose of the coal deposits in, upon, or under the lands described below" as Tract 1 (Original Lease) and Tract 2 (Modification).

ANDALEX estimates that there are approximately 518,000 recoverable tons included within the 160 acre lease modification. This number of recoverable tons however is subject to the mineability of the coal. That is, The Aberdeen coal seam pinches out in a north-easterly direction. Also, the depth of cover increases dramatically to the north which could restrict recovery.

New Federal Summit Creek Lease UTU-79975 (Mathis/Summit Creek I.B.C.)

Beginning at the NW Corner of Section 31 (T12S, R11E)
thence S 00°24'W 2675.8';
thence S 61°52'E 743.0' to point of beginning;
thence due East 3867.5' to the east section line of said Section 31;
thence due South 735.0' along the East section line of said Section 31;
thence N 61°62'W 1553.2';
thence due South 1334.3' to the Southeast corner of Lot 11;
thence N 61°52'W 2832.3' to point of beginning.

Beginning at the NW corner of Section 32 (T12S, R11E)
thence due South 592.0' along the West section line of said Section 32 to point of beginning;
thence due East 1320';
thence due South 747.6';
thence due West 1320';
thence due North 747.6' along the West section line of said Section 32 to point of beginning.
Containing 72.32 acres, more or less.

New Federal Summit Creek Lease - UTU-79975

T. 12 S., R. 11 E. SLM, Utah
Sec. 29, SW $\frac{1}{4}$ SW $\frac{1}{4}$, SW $\frac{1}{4}$ SE $\frac{1}{4}$
Sec. 30, Lots 4, 12, 14, 15, 16
Sec. 31, Lots 1, 2, 7 through 11 (less IBC described above)
Sec. 32, W $\frac{1}{2}$ NE $\frac{1}{4}$, E $\frac{1}{2}$ NW $\frac{1}{4}$, NW $\frac{1}{4}$ NW $\frac{1}{4}$, NE $\frac{1}{4}$ SW $\frac{1}{4}$ (less IBC described above) Containing

630.21 acres, more or less.

The private fee leases are described as follows:

The Mathis Tract - Fee Lease

T.12S., R.10E., SLM, Utah

IBC: Section 36: S1/2S1/2, S1/2N1/2S1/2, containing 240 acres.

Mathis/Summit Creek I.B.C.: Section 36: N¹/₂NW¹/₄SW¹/₄, containing 20 acres.

Section 36: N¹/₂NE¹/₄SW¹/₄, N¹/₂N¹/₂SE¹/₄, N¹/₂, containing 380 acres.

T.13S., R.11E., SLM, Carbon County, Utah

Sec. 7: S1/2 NW1/4

N1/2 SW1/4

SE1/4 SW1/4 containing 200 acres, more or less

The name and address of the lessor is Zion Securities Corporation, 10 East South Temple Street, Salt Lake City, Utah. This lease was originally made and entered into between Zion's and Centennial Coal Associates on August 1, 1972. AMCA Coal Leasing Inc. acquired the lease in February, 1977.

T.13S., R.11E., SLM, Carbon County, Utah

Sec. 9: SE1/4 NW1/4

S1/2 NE1/4

NE1/4 NE1/4

N1/2 SE1/4 containing 240 acres, more or less

The name and address of the lessor is Sunedco Coal Company, 7401 West Mansfield Avenue, Suite 418, P.O. Box 35-B, Lakewood, Colorado 80235. AMCA Coal Leasing, Inc. acquired the lease in June, 1988.

UTU-69600

T.13S., R10E. SLM, Carbon County, Utah

Sec 1: SW1/4

Sec 12: lots 2-11, W1/2 W1/2, NE1/4 SW1/4 containing 802 acres, more or less

The name and address of the lessor is American Electric Power Service Corporation, Fuel Supply Department, P.O. Box 700, Lancaster, Ohio 43130. This agreement was executed on May 1, 1992.

BLM Right-of-Way U-62045

T.13S., R.11E., SLM, Carbon County, Utah

Sec. 18: SE1/4 NE1/4 NW1/4 containing 10 acres, more or less.

BLM Right-of-Way UTU-64158 (Left Fork Fan)

T.13S., R.10E., SLM, Carbon County, Utah
Sec. 13: Lot 1 (portions of)

T.13S., R.11E., SLM, Carbon County, Utah
Sec. 18: Lot 2, NE¹/₄SW¹/₄ (portions of) containing 1.45
acres, more or less.

The lessor is the Department of the Interior, Bureau of Land
Management, 324 South State Street, Salt Lake City, Utah 84111.

Private Land Easement

T.13S., R.11E., SLM, Carbon County, Utah
Sec. 18: A portion of NE¹/₄ NE¹/₄ SE¹/₄ NW¹/₄
containing 1.5 acres, more or less.

This easement has been granted by Mrs. Gladys Artman whose
address is P.O. Box 22, Mountain City, Georgia 30562.

Permit Area

The following is a description of the Permit Area as shown
on Plate 1-A, with descriptions for Federal and State Leases, Fee
Leases and Private Land Easements.

Federal Leases

T.13S., R.11E., SLM, Carbon County, Utah (SL-027304)
Sec. 7: S¹/₂SE¹/₄, Lot 4
Sec. 18: NW¹/₄NE¹/₄, Lot 1, N¹/₂NE¹/₄NW¹/₄, SW¹/₄NE¹/₄NW¹/₄

T.13S., R.11E., SLM, Carbon County, Utah (SL-063058)
Sec. 8: S¹/₂SW¹/₄
Sec. 17: N¹/₂NW¹/₄, SE¹/₄NW¹/₄, SW¹/₄NW¹/₄, NE¹/₄NW¹/₄SW¹/₄, W¹/₂NW¹/₄SW¹/₄
Sec. 18: NE¹/₄NE¹/₄, E¹/₂SE¹/₄NE¹/₄, NW¹/₄SE¹/₄NE¹/₄, SW¹/₄NE¹/₄, E¹/₂NE¹/₄SE¹/₄

T.13S., R.11E., SLM, Carbon County, Utah (U-010581)
Sec. 5: ALL
Sec. 6: ALL
Sec. 7: Lot 1, NE¹/₄, NE¹/₄NW¹/₄, N¹/₂SE¹/₄
Sec. 8: N¹/₂, N¹/₂S¹/₂, S¹/₂SE¹/₄
Sec. 9: W¹/₂SW¹/₄
Sec. 17: N¹/₂NE¹/₄, S¹/₂NE¹/₄, N¹/₂NE¹/₄SW¹/₄, NE¹/₄SE¹/₄, N¹/₂NW¹/₄SE¹/₄

T.13S., R.11E., SLM, Carbon County, Utah (U-52341)
Sec. 9: NE¹/₄SW¹/₄

T.13S., R.11E., SLM, Carbon County, Utah (U-05067)

Sec. 4: S $\frac{1}{2}$
Sec. 9: NW $\frac{1}{4}$ NE $\frac{1}{4}$, W $\frac{1}{2}$ NW $\frac{1}{4}$, NE $\frac{1}{4}$ NW $\frac{1}{4}$

T.13S., R.10E., SLM, Carbon County, Utah (UTU-66060)
Sec. 1: Lots 1-4, S $\frac{1}{2}$ N $\frac{1}{2}$, SE $\frac{1}{4}$
Sec. 12: Lot 1

T.12S., R.11E., SLM, Carbon County, Utah
Sec. 31: Lots 3-6, 12-22
Sec. 32: W $\frac{1}{2}$ SW $\frac{1}{4}$, SW $\frac{1}{4}$ NW $\frac{1}{4}$

T.12S., R.11E., SLM, Carbon County, Utah (UTU-79975)
I.B.C.

Beginning at the NW Corner of Section 31 (T12S, R11E)
thence S 00°24'W 2675.8';
thence S 61°52'E 743.0' to point of beginning;
thence due East 3867.5' to the east section line of said
Section 31;
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Section 31;
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Section 32 to point of beginning;
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thence due West 1320';
thence due North 747.6' along the West section line of said
Section 32 to point of beginning.
Containing 72.32 acres, more or less.

*T.12S., R.11E., SLM, Carbon County, Utah (UTU-79975)
Sec. 29: SW $\frac{1}{4}$ SW $\frac{1}{4}$, SW $\frac{1}{4}$ SE $\frac{1}{4}$
Sec. 30: Lots 4, 12, 14, 15, 16
Sec. 31: Lots 1, 2, 7-11 (less IBC described above)
Sec. 32: N $\frac{1}{2}$ NW $\frac{1}{4}$, W $\frac{1}{2}$ NE $\frac{1}{4}$, SE $\frac{1}{4}$ NW $\frac{1}{4}$ (less IBC described above)

maximum draw angle over longwall extraction of (+) 15.2° and a minimum of (-) 7.4°. (See App. T.) The massive sandstones and geologic conditions above the Price River Coal mine are the same as those found above the Andalex permit area. Therefore, similar subsidence results will occur.

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.

Mitigative Measures

If minor subsidence would occur, there would be no material damage or diminution of valuable or foreseeable use of lands including wildlife habitat. It should be noted that subsidence has been occurring in the Book Cliffs coal field for decades with no diminution of resources. The Bureau of Mines Subsidence Study over the #3 Mine longwall panels has substantiated this. (See App. T.) There are no man-made structures or hydrologic concerns located within the affected area of Andalex's mining plan. It has been demonstrated that broad areas of subsidence over longwall panels do not represent adverse impact, if they are even noticeable. Smaller cracks, should they occur, heal themselves quickly and thoroughly.

The one spring located in Hoffman Creek is located stratigraphically well below the lowest coal to be mined. Springs above the seams outside the permit area will not be affected due to their distance from mining activity. Andalex has committed to replacing water should it be proven that mining has disrupted water flow at any location.

In the event mining related subsidence should cause material damage to the land, Andalex Resources, Inc. will take appropriate steps to mitigate or repair such damage. Such repairs or mitigation may consist of one or more of the following steps:

- (1) Filling of hazardous subsidence cracks;
- (2) Leveling or regrading of subsidence damaged areas;
- (3) Reseeding of repaired areas;
- (4) Purchase of damaged site.

In the event mining related activities should be shown to adversely

affect State-appropriated water supplies, Andalex Resource, Inc. will attempt to repair and restore the affected supply; however, in the event, the supply cannot be restored, the loss may be mitigated by replacement of equivalent water rights from the 19 shares of primary water owned by Andalex Resources, Inc.

Methods to be used to repair damaged supplies may include installation of pipes and/or spring boxes, concreting or filling of cracks with impervious material, reconstructing ponds or damaged channels, or other methods of repair found to be acceptable and based on consultation with the Division and water right owner. It should be noted that any work performed on such hydrologic structures will be first permitted as necessary (i.e. Stream Alteration Permits, etc.).

Monitoring

There are no structures or surface features which could be affected adversely by subsidence. Monitoring stations, however, have been set up at the locations shown on Plate 25. Locations over the first longwall mining are also shown on Plate 28.

The purpose of the detailed monitoring program over the initial longwall mining is to establish baseline information which is useful in the long-term operation of the Andalex mines. This program will consist of surveyable monuments (nail, rebar, etc.) established on 100-foot centers (where possible) over the lines

**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 three discharge points; two from sedimentation ponds (001, 003) and one from the underground mine (002). 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 Permit Expansion

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 North Mathis Tract and Summit Creek Federal Lease 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 additional springs within and north of the expansion area, B362 and B261. The locations of these springs are shown on Figure IV-11 of the MRP (Groundwater and surface water monitoring locations).

Details on each of the proposed new sites are discussed in Appendix L, "Probable Hydrologic Consequences of Coal and Mining in the Summit Creek and North Mathis Tracts, Andalex Resources, Inc., Tower Mine.

The monitoring plan for the proposed expansion area is summarized in Tables a, b, and c below. Please note these tables are shown only for the new springs to be monitored for the Mathis/Summit Creek Expansion area. All ground water monitoring sites are discussed in detail in the above referenced PHC in Appendix L, and shown on Figure IV-II.

Table a *North Mathis Tract and Summit Creek Federal Lease Groundwater Monitoring Plan		
Spring	Protocol	Comments
B362	A, 1	Flagstaff Limestone Spring in Antone Creek drainage.
B261	A, 1	Flagstaff Limestone spring in Dep Canyon (Pace Spring)

Table b Monitoring protocols for springs in the expansion area
Water level and flow measurements: A Spring: quarterly discharge measurements when accessible.
Water Quality: 1 Spring: quarterly operational water quality measurements (Table 6 List) when accessible.

Table c Groundwater operational water quality parameters	
Field Measurements	Reported as
pH	pH units
Specific Conductivity	pS/cm@25°C
Temperature	°C
Flow	gpm
Laboratory Measurements	
Total Dissolved Solids	mg/L
Carbonate	mg/L
Bicarbonate	mg/L
Calcium (dissolved)	mg/L
Chloride	mg/L
Iron (total)	mg/L
Iron (dissolved)	mg/L
Magnesium (dissolved)	mg/L
Manganese (total)	mg/L
Manganese (dissolved)	mg/L
Potassium (dissolved)	mg/L
Sodium (dissolved)	mg/L
Sulfate	mg/L

* See PHC in Appendix L for complete ground water monitoring plan.

Groundwater monitoring sites are depicted on Figure IV-11, and include Well #1, S18-1, S25-1, B351, B352 and new sites B261 and B362. (S18-1 and S25-1 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.

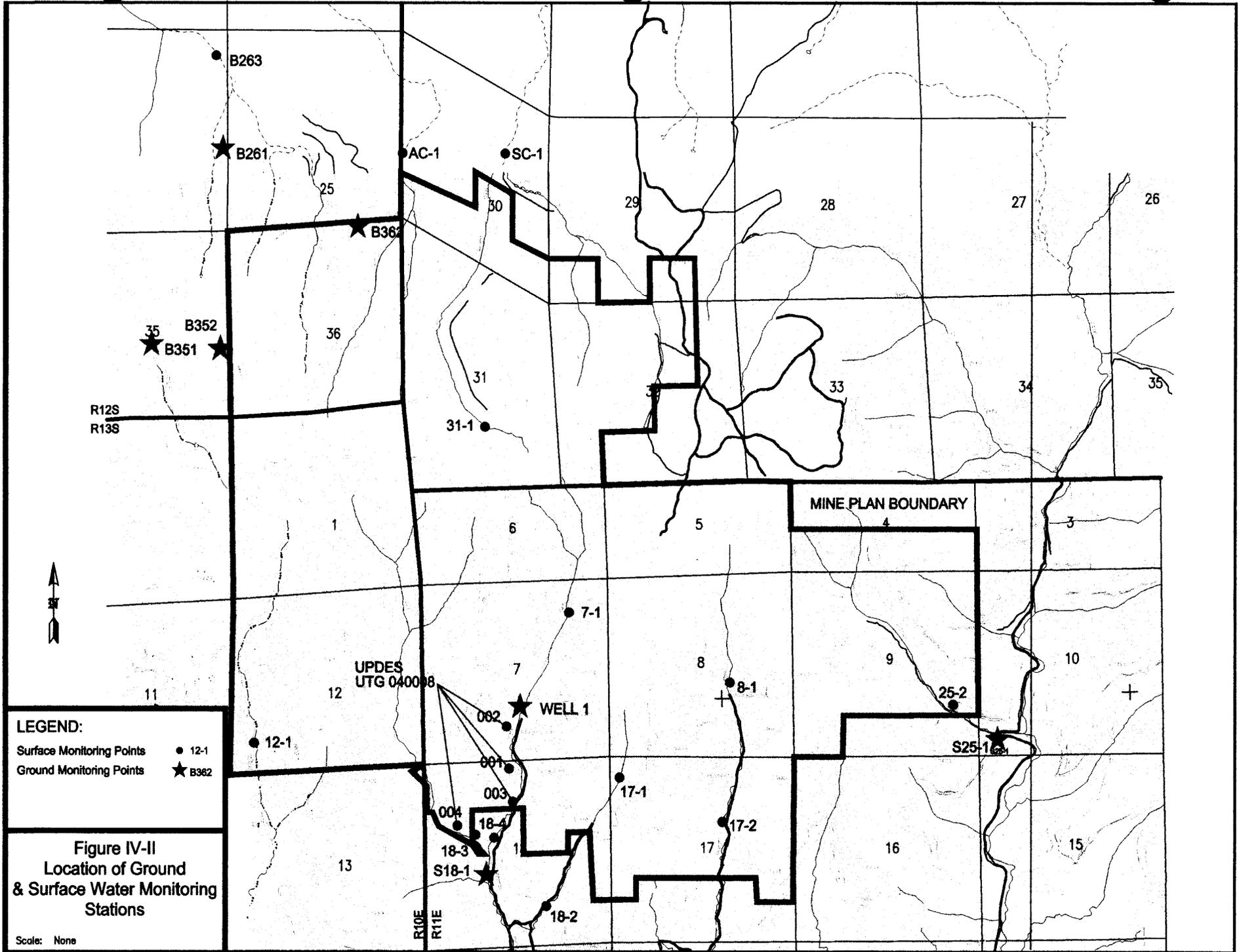
No flows presently exist underground that warrant monitoring; however, if significant flows are encountered underground, Andalex Resources will initiate monitoring according to the Division guidelines for groundwater baseline (and later, operational) monitoring. For the purpose of this section, "significant 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, 17-1, 17-2, 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.

6-7



LEGEND:

Surface Monitoring Points	● 12-1
Ground Monitoring Points	★ B362

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

Scale: None