



GENWAL COAL COMPANY

GENWAL COAL COMPANY
CRANDALL CANYON MINE
HUNTINGTON, UTAH
PERMIT # 015-032

SUBMITTAL

UNDERGROUND RIGHT-OF-WAY APPLICATION

SUBMITTED TO:

STATE OF UTAH DIVISION OF
OIL, GAS & MINING
3 TRIAD CENTER, SUITE 350
355 WEST NORTH TEMPLE
SALT LAKE CITY, UTAH 84180-1203



GENWAL COAL COMPANY

RECEIVED
JUL 03 1990

DIVISION OF
OIL, GAS & MINING

June 29, 1990

Mr. Darrin Haddock
Division of Oil, Gas & Mining
3 Triad Center, Suite 350
355 West North Temple
Salt Lake City, UT 84180-1203

RE: Public Notice for Advertisement

Dear Mr. Haddock:

Please find enclosed a copy of Genwal Coal Company's Public Notice, that was placed in the local paper for advertising the Right of Way.

Please attach this copy to your files on the Right of Way.

If you have any questions, or need any further information, please feel free call at me 687-9813.

Sincerely,

GENWAL COAL COMPANY

Randal Ralphs
Surface Foreman

tr

Enclosures

AFFIDAVIT OF PUBLICATION

STATE OF UTAH)
 ss.
County of Emery,)

I, Dan Stockburger, on oath, say that I am the Publisher of the
The Emery County Progress, a weekly newspaper of general cir-
culation, published at Castle Dale, State and County aforesaid,
and that a certain notice, a true copy of which is hereto attached,
was published in the full issue of such newspaper
for...Four...(4).....consecutive issues, and that the first
publication was on the

.....5th.....day of.....June....., 19..90.....

and that the last publication of such notice was in the issue of such
newspaper dated the

.....26th.....day of.....June....., 19..90.....

Dan Stockburger
.....

Subscribed and sworn to before me this

.....26th.....day of.....June....., 19..90.....

Holly Jo Crofts
.....
Notary Public.

My Commission expires October 22, 1990

Residing at Price, Utah

Publication fee, \$43.20.....

PUBLIC NOTICE

Public notice pursuant to UMC 786.11(a) R614-300-121.100 is hereby given regarding the proposed underground mining activities of Genwal Coal Company, Genwal Coal Company, P.O. Box 1201, Huntington, Utah has submitted to the Utah Division of Oil, Gas and Mining a complete Right-of-Way application, located in Crandall Canyon, described as T15S, R7E, SEC 31, SLB&M, Emery County, Utah (Physical specifications of: 1040' x 4670.50' totaling 111.5 acres contained within the S½ of the S½ of SEC 31).

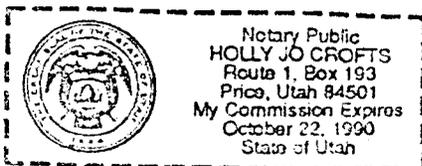
This location is contained on the U.S.G.S. Rilda Quadrangle 7.5 minute map.

Access to the proposed Right-of-Way will be from the existing Genwal portals, therefore no surface disturbance will be required.

A copy of the mine permit and Right-Of-Way application are available for public inspection at the Recorders office, Emery County Courthouse, Castle Dale, Utah and the Utah Division of Oil, Gas and Mining, 355 West North Temple, 3 Triad Center, Suite 350, Salt Lake City, Utah.

Written comments pertaining to the Right-Of-Way application pursuant to UMC 786.11, will be to the Utah Division of Oil, Gas and Mining, 355 West North Temple, 3 Triad Center, Suite 350, Salt Lake City, Utah 84180-1203.

Published in the Emery County Progress June 5, 12, 19 and 26, 1990.



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MAY 04 1990

DIVISION OF
OIL, GAS & MINING

CHAPTER 13

RIGHT-OF-WAY

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13.0 RIGHT-OF-WAY

13.1 Introduction

This chapter contains information for a special use permit for 111.5 acres of unleased federal land to be used as an underground right-of-way in T15S-R7E-Sec31, SLBM, by Genwal Coal Company Inc. (Genwal), a wholly owned subsidiary of the Nevada Electric Investment Company (NEICO). A special use permit for a right-of-way is requested in order to access contiguous state coal leases ML-21568 (T16S-R6E-Sec2) and ML-21569 (T15S-R6E-Sec36) held by NEICO, with federal coal leases UO-54762 and SL-062648 presently being mined by Genwal (Figure 13-1).

The proposed right-of-way is 4670.5 feet long and 1040 feet wide (Plate 13-1). In-place coal reserves total 1,390,600 tons, of which 202,700 tons will be recovered. Six entries (20 feet wide) are proposed, with 60 by 140 foot pillars. The pillars will be maintained throughout life-of-mine. Pilar height (thickness of coal seam) ranges from 5 to approximately 9.6 feet.

Work in the right-of-way will not result in additional surface structures. All work performed will be done underground. Access will be solely via one set of presently existent portals in the Hiawatha coal seam located in lease SL-062648 (Plate 3-2B).

A determination has been made that the proposed right-of-way in Crandall Canyon should not have an adverse impact on environmental quality. Work in the right-of-way will not effect any surface features. Genwal's proposed right-of-way should not adversely effect surface or ground water in the permit area or adjacent areas. Fish and wildlife, human values (historical and cultural) and vegetative resources should not be adversely impacted. Since the pillars will be maintained throughout life-of-mine, no subsidence will occur.

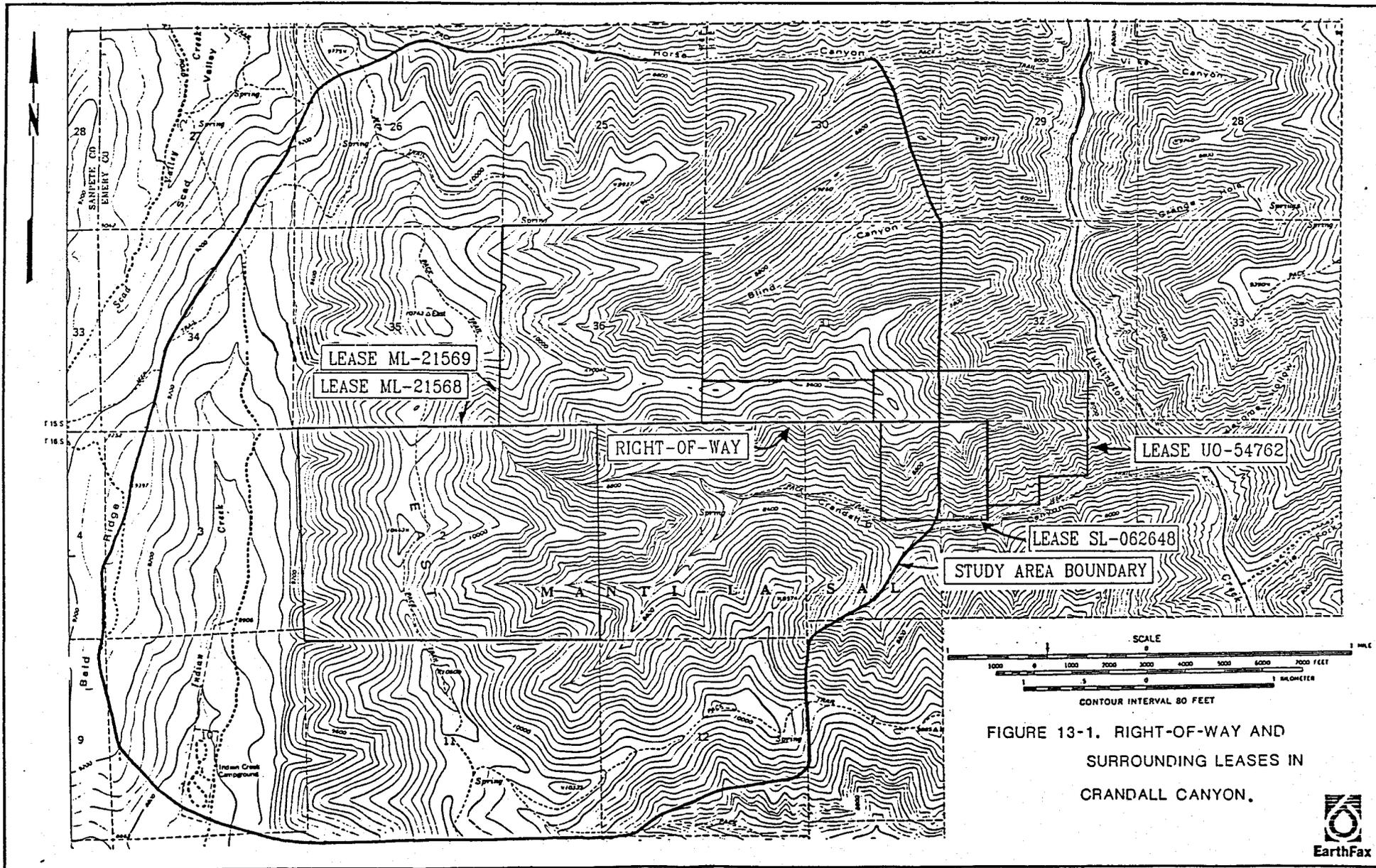


FIGURE 13-1. RIGHT-OF-WAY AND SURROUNDING LEASES IN GRANDALL CANYON.



This document is organized similar to:

- 1) the Genwal Coal Company Mining and Reclamation Plan, Crandall Canyon Mine, which was organized as suggested by the revised guidelines issued November 3, 1980 by Leland C. Spencer of the Utah Division of Oil, Gas and Mining (UDOGM), and
- 2) as suggested by the Utah Coal Mining and Reclamation Regulatory Program's, Rules Pertaining to Underground Coal Mining Activities, revised guidelines issued May, 1987 by the Utah Division of Oil, Gas and Mining.

13.2 Legal, Financial, Compliance, and Related Information

Legal, financial, and compliance information contained in Sections 2.1 through 2.9 of the Crandall Canyon Mining and Reclamation Plan applies to the proposed right-of-way. Additional information relating specifically to the proposed right-of-way is discussed below.

The right-of-way lies in currently unleased federally owned land. The legal owner of the surface rights is solely the:

United States Government
Administered by the United States
Department of Agriculture, Forest Service,
Intermountain Region
Manti-LaSal National Forest
599 West River Drive
Price, Utah 84501

The applicant is applying for a five year permit, commencing from the date of approval. Operations will continue longer than five years if the coal becomes available. Genwal will commit to comply with UMC 817.131-132 during episodes of temporary and permanent cessation of operations.

A newspaper advertisement (Appendix 13-1), in compliance with UMC 786.11(a) requirements, will be published in a local newspaper at least once a week for a period of four consecutive weeks.

Violations cited by the Utah Division of Oil, Gas and Mining that have occurred from 1988 to present are listed in Tables 1 and 2 of Appendix 13-2. Violations cited from 1982 through 1987 are found in Appendix 2-2.

13.3 Operation and Reclamation Plan

13.3.1 Surface Facilities/Construction Plans. No additional portals, surface buildings, or surface structures will be built as a result of construction and use of the right-of-way.

Coal handling, processing, preparation, and storage operations to be implemented are identical to those currently in operation and permitted (Section 3.2.4).

Power, water, and sewage systems to be used are those currently permitted and in-place (Sections 3.2.5, 3.2.6, and 3.2.7).

Effluent limitations and monitoring requirements are contained in the current NPDES permit (Appendix 3-8). An application for an extension of the current permit, which expires June 30 1990, has been submitted.

13.3.2 Operation Plan. Operation plans to be implemented are identical to those presently permitted/approved and in use (Section 3.3).

13.3.2.1 Mining Plans.

13.3.2.1.1 Projected Right-of-Way Development. A six entry underground right-of-way plan has been designed and appears in Plate 13-1. For further discussion refer to Section 13.6.1.

13.3.2.1.2 Retreat Mining. Retreat mining will not occur in the right-of-way. Pillars will be maintained throughout life-of-mine.

13.3.2.2 Waste Disposal Plans. Waste disposal methods to be used are identical to those currently permitted/approved and in practice (Section 3.3.9).

13.3.3 Environmental Protection.

13.3.3.1 Protection of Vegetative Resources.

13.3.3.1.1 Projected Impacts of Mining on Vegetative Resources. Since there are to be no new mine openings, surface structures, or subsidence (Section 13.6.2), no impact on vegetative resources is projected.

13.3.3.1.2 Monitoring Procedures. Vegetation mapping of the right-of-way area was accomplished in detail. Color aerial photographs were taken and used in the field to ground check vegetation types, and as mapping guides in the lab. The area was mapped by walking a portion of the area while mapping the vegetation types directly on the aerial photographs. The aerial photographs were then used to interpolate vegetation communities in areas not negotiated by foot. Helicopter surveys were conducted to enhance mapping of the major vegetation patterns. Vegetation data was then transferred to topographic maps (Plate 13-2).

13.3.3.2 Protection of Fish and Wildlife.

13.3.3.2.1 Projected Impacts of Mining on Fish and Wildlife. Since no surface disturbance is anticipated, no impact on fish and wildlife should occur. Larry Dalton, Division of Wildlife Resources, conducted an inventory of the right-of-way area on September 29, 1989 which revealed no raptor cliff nests. The area is of poor quality for cliff nesting raptors (Appendix 13-3).

*Applicant should just state
Springs are monitored in area
any changes in stream flow
will be reported*

13.3.3.2.2 Mitigating Measure to be Employed to Protect Fish and Wildlife. Genwal recognizes that the Division of Wildlife Resources and the Utah Division of Oil, Gas & Mining regard all seeps and springs to be important to wildlife. Should any seeps and springs become affected (flow decreased by 50% or more) by the proposed right-of-way, Genwal will notify the appropriate agencies and an acceptable mitigation plan will be developed as discussed in Section 3.4.6.2.

13.3.3.2.3 Monitoring Procedures. The applicant has committed to report to the regulatory authority the presence of any threatened or endangered species in the area. In the event any threatened or endangered species is observed to move into the right-of-way area, Genwal will notify the appropriate agencies and acceptable monitoring and mitigation plans will be developed.

13.3.3.3 Protection of Human Values.

13.3.3.3.1 Projected Impacts of Mining on Human Values, Historical and Cultural. A letter dated March 19, 1990 from James Dykman, Division of State History states:

"no prehistoric or historic sites have been recorded within the project area because no cultural resource surveys have been conducted. However, such sites may well exist in the project area." (Appendix 13-4).

The cultural resource survey conducted in October 1988 by Les Wilke, Archeologist, Manti-LaSal National Forest (Appendix 5-6), in permit area UO-54762 which is immediately adjacent to and contains terrain very similar to the right-of-way area (i.e. high topographic areas above canyon bottoms), found no cultural resources. Cultural resources present in the region generally lie near canyon bottoms adjacent to stream beds (Section 5). Therefore, Genwal determines there is at best only a low potential for historical resources existing in the right-of-way area.

As a result of: 1) the low potential for historical resources existing in the right-of-way, and 2) the anticipation of no surface disturbance, Genwal has determined that no impact on possible human value sites should occur. Consequently, Genwal has determined there is insufficient evidence to warrant a field survey to identify possible historic sites in the right-of-way area.

13.3.4 Reclamation Plan.

13.3.4.1 Sealing of Mine Openings.

No new portals to the surface will result from mining and subsequent use of the proposed right-of-way. Currently no boreholes intersect the proposed right-of-way. Any future wells that intersect the proposed right-of-way will be abandoned in compliance with the UMC 817.13, 817.14, and 817.50 regulations.

13.4 Geology

13.4.1 Regional Geology and Geology of Right-of-Way Vicinity. A detailed discussion of the regional geologic framework, geology of the right-of-way area (stratigraphy and structure) appears in Chapter 6, and in the Seep and Spring Inventory of the Neico State Lands Coal Leases (ML-21568 and 21569) and Adjacent Areas, prepared by EarthFax Engineering, November 1989. A copy of the 1989 Seep and Spring Inventory has been forwarded to the Utah Division of Oil, Gas and Mining (UDOGM), and will be enclosed in the 1990 first quarter report.

13.4.2 Rock Characteristics of Coal and Adjacent Units. Chemical analyses of the coal seam, and the strata immediately above and below in the areas that have been mined to date and that are currently being mined have been conducted (Sections 6.3, 6.4, 6.4.1, 6.4.2, and 6.5.5.2, and Appendix 6-2).

Geochemical analyses of the right-of-way will be conducted in compliance with the UDOGM's Guidelines For Underground and Surface Coal Mining, revised April, 1988. The following analyses of the Hiawatha coal seam and the immediate over- and underlying strata will be conducted: pH, electrical conductivity, particle size (texture), sodium absorption ratio, selenium, total N, boron, maximum acid and neutralization potentials, and organic carbon (communication: March 1990, Henry Sauer, UDOGM). Specific sample analysis methods suggested in Table 6 of the above referenced UDOGM guideline will be utilized. Samples will be collected and analyses run at the time of commencement of mining operations, as lithologic/hydrologic conditions change during mining operations, and as directed by the UDOGM.

13.4.3 Geologic Effects On Mining. Discussions of mining hazards, surface hazards, and impacts of mining appear in Section 6.6.

13.5 Hydrology

13.5.1 Groundwater Hydrology.

13.5.1.1 Methodology and Regional Groundwater Hydrology. Seep and spring survey methodology, and the regional groundwater hydrology are outlined in Sections 7.1.1 and 7.1.2.1 respectively, and Section 2.0 of the November 1989 Seep and Spring Inventory.

13.5.1.2 Right-of-Way Plan Area Aquifers. Results of seep and spring surveys conducted in 1985, 1987, and 1989 (previously submitted to UDOGM) that encompass the right-of-way area appear in the November 1989 Seep and Spring Inventory. Hydrologic characteristics of the North Horn, Price River, and Blackhawk Formations are reviewed in Section 7.1.2.2, and in the 1989 Seep and Spring Inventory. Locations of the seeps and springs discovered during the inventories, and the proposed right-of-way are shown in Figure 13-2. No seeps and springs overlie the proposed right-of-way.

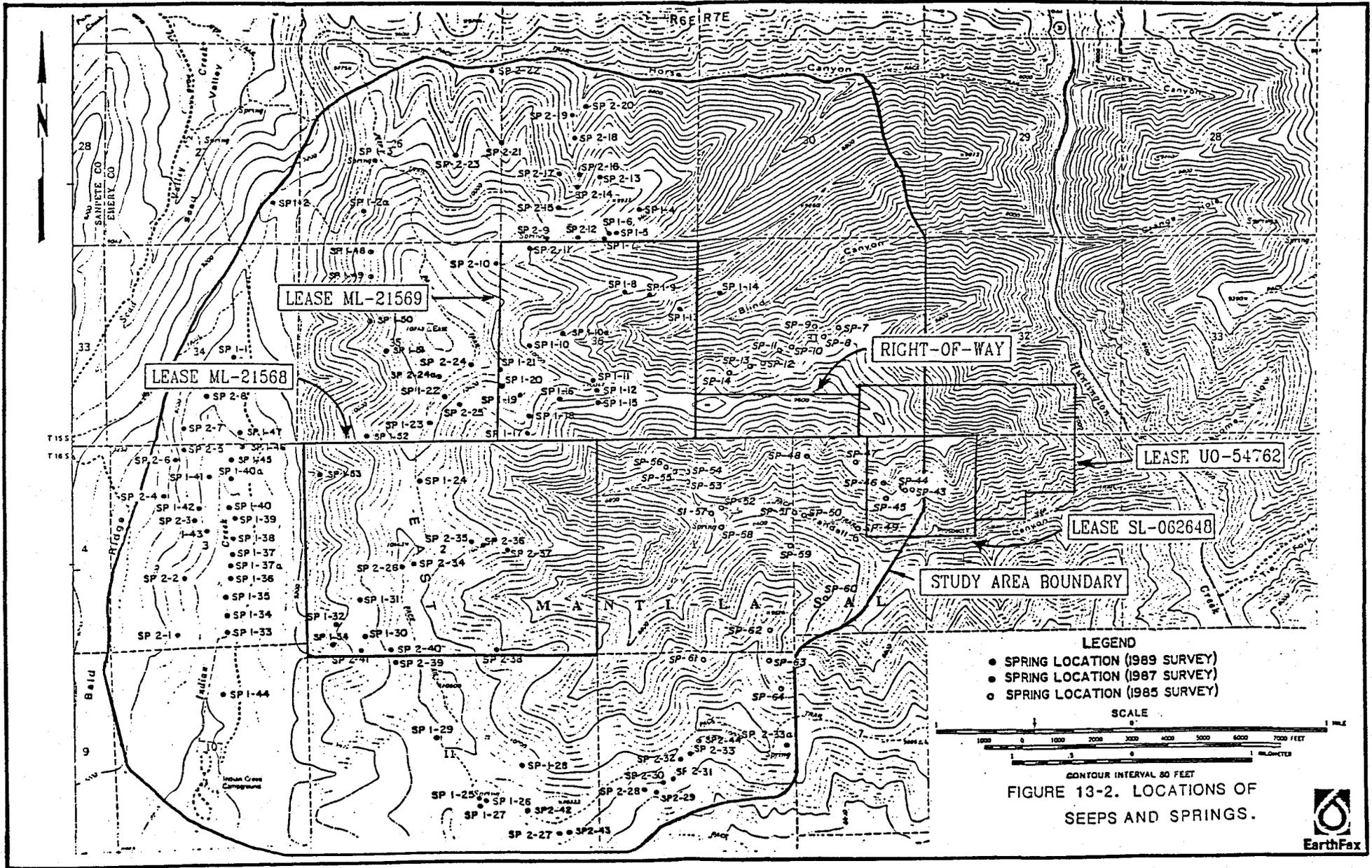


FIGURE 13-2. LOCATIONS OF SEEPS AND SPRINGS.



13.5.1.3 Groundwater Development and Mine Dewatering.

13.5.1.3.1 Water Supply. As previously noted, no seeps or springs inventoried overlie the right-of-way. Table 13-1 contains a listing of ground water rights in the area adjacent to the right-of-way. This data was obtained from the files of the Utah Division of Water Rights in March 1990. More in-depth information concerning these rights is contained in Appendix 13-5. Locations of these water rights are denoted in Figure 13-3.

Water right 93-1408, corresponds to seep SP-47 observed in the seep and spring inventories (November 1989 Seep and Spring Inventory). SP-47 occurs along a sandstone bedding plane in the Castlegate Formation, and was dry in the October 1985, and October 1989 inventories. No sign of current use by wildlife (including stock animals) was observed. Water right 93-1409 corresponds to spring SP-58 (November 1989 Seep and Spring Inventory). SP-58 flows from fractured sandstone in the Blackhawk Formation, and is used by wildlife. The spring associated with water right 93-1407 was not observed during any of the seep and spring inventories. Although it is possible that some seeps and springs were not found (due to heavy undergrowth and/or inaccessibility), the likelihood of missing a major spring is small. Hence, 93-1407 is likely similar to 93-1408 (SP-47), existing only as a seep.

U.S.F.S.
Step 2
identify
WOC #93-
1407

13.5.1.3.2 Mine Dewatering. Present inflow into the underground mine workings totals no more than 100 gallons per minute. Inflow water is used in underground mining operations. An application for an extension to the current NPDES Permit has been submitted to the UDOGM.

13.5.1.4 Effects of Mining Operation on Groundwater. Mine dewatering (resulting in removal of water from the aquifers) is the primary mechanism by which the groundwater system may be impacted by right-of-way construction. It is believed that the vast majority of the water emitting from springs SP-47 and SP-58 originates from melting of the snowpack. As such, dewatering resulting from right-of-way construction has very little potential for impact.

Table 13-1. Groundwater rights in the right-of-way plan and adjacent areas.

W.U. Claim No.	Owner	Flow (cfs)	Use	Period of Use	Source
93-1407	U.S. Forest Service	.011(a)	Stockwater	July 6 to Sept 25	Spring
93-1408	U.S. Forest Service	.011(a)	Stockwater	July 6 to Sept 25	Spring
93-1409	U.S. Forest Service	.011(a)	Stockwater	July 6 to Sept 25	Spring

(a) Part of water right WUC 93-1403 on Crandall Canyon Allotment

Based on this information, only minimal impacts on groundwater resources may occur as a result of right-of-way construction.

13.5.1.5 Mitigation and Control Plan. Based on information presented in the preceding section, only minimal impacts on groundwater resources in the vicinity of the right-of-way may result.

Should it be necessary to develop alternate water supplies due to unexpected diminution or interruption of flows as a direct result of mining activities, the applicant will contact the Utah Division of Wildlife Resources and develop plans to install a guzzler on a case-by-case basis.

13.5.1.6 Groundwater Monitoring Plan. Groundwater monitoring for the right-of-way area will include collection of water quality and quantity data from spring SP-47 (water right 93-1408) and SP-58 (water right 93-1409) as outlined in Section 7.1.6. Samples will be preserved and analyzed according to procedures outlined in Section 7.1.6. Appendix 13-6 contains an example of the water sampling field report forms to be used.

Quarterly inventories identifying the location and geologic occurrence of mine inflows (if they occur) that exceed three gallons per minute will be conducted. Specific inflows will be selected for continued monitoring in consultation with the UDOGM. Inflow samples will be collected quarterly (normally in January, April, July, and October) and analyzed according to table 7-4. Samples collected every fifth year during the low-flow period (normally October) will be analyzed according to Table 7-5.

13.5.2 Surface water Hydrology.

13.5.2.1 Methodology and Existing Surface Water Resources.

Detailed discussions of the methodology of investigation, and existing surface water resources are found in Sections 7.2.1 and 7.2.2 respectively.

13.5.2.2 Surface Water Development and Control.

13.5.2.2.1 Water Supply. No surface water development has occurred in the right-of-way plan area.

Table 13-2 contains a listing of surface water rights in the areas adjacent to the right-of-way. This data was obtained from the files of the Utah Division of Water Rights in March 1990. More in-depth data pertaining to these water rights is found in Appendix 13-5. Locations of these surface water rights are denoted in Figure 13-4.

All surface rights noted on Table 13-2 and Figure 13-4 are held by the U.S. Forest Service or the State of Utah Division of State Lands and Forestry, for stock watering purposes. However, during the seep and spring surveys (June 1985, October 1985, July 1987, October 1987, October 1989) no signs of stock usage of these surface water rights were observed. Although the rights exist, usage of these rights is apparently curtailed.

13.5.2.2.2 Runoff- and Sediment-Control Facilities. A detailed discussion of runoff- and sediment-control facilities consisting of: sedimentation pond and dam, primary and emergency spillways (riprap, bed material, and filter blanket), and boulder-covered slope are found in Section 7.2.3.2 (see also Appendices 7-4, 7-5, 7-6, and 7-7).

13.5.2.3 Effects of Mining on Surface Water. Runoff- and sediment-control facilities discussed in Section 7.2.3.2 were designed to safely and effectively convey and control runoff from the specified storm events. As a result, sediment yields in the permit area will be minimized.

No additional sumps are to be built in conjunction with development of the right-of-way. Hence, modification of the existent NPDES permit is not necessitated.

Table 13-2. Surface water rights in the right-of-way plan and adjacent areas.

W.U. Claim No.	Owner	Flow (cfs)	Use	Period of Use	Source
93-183	U.S. Forest Service	(a)	Stockwater	July 6 to Aug 25	Stream
93-184	UT State Lands & Forestry	(b)	Stockwater	Jan 1 to Dec 31	Stream
93-190	U.S. Forest Service	(c)	Stockwater	June 21 to Sept 30	Stream
93-191	U.S. Forest Service	(a)	Stockwater	July 6 to Sept 25	Stream
93-258	UT State Lands & Forestry	(b)	Stockwater	Jan 1 to Dec 31	Stream
93-483	U.S. Forest Service	(a)	Stockwater	July 6 to Sept 25	Stream
93-1180	U.S. Forest Service	(c)	Stockwater	June 21 to Sept 30	Stream

- (a) Part of water right WUC 93-1403 on Crandall Canyon Allotment
- (b) Part of water right WUC 93-500
- (c) Part of water right WUC 93-116 on Gentry Mountain Allotment

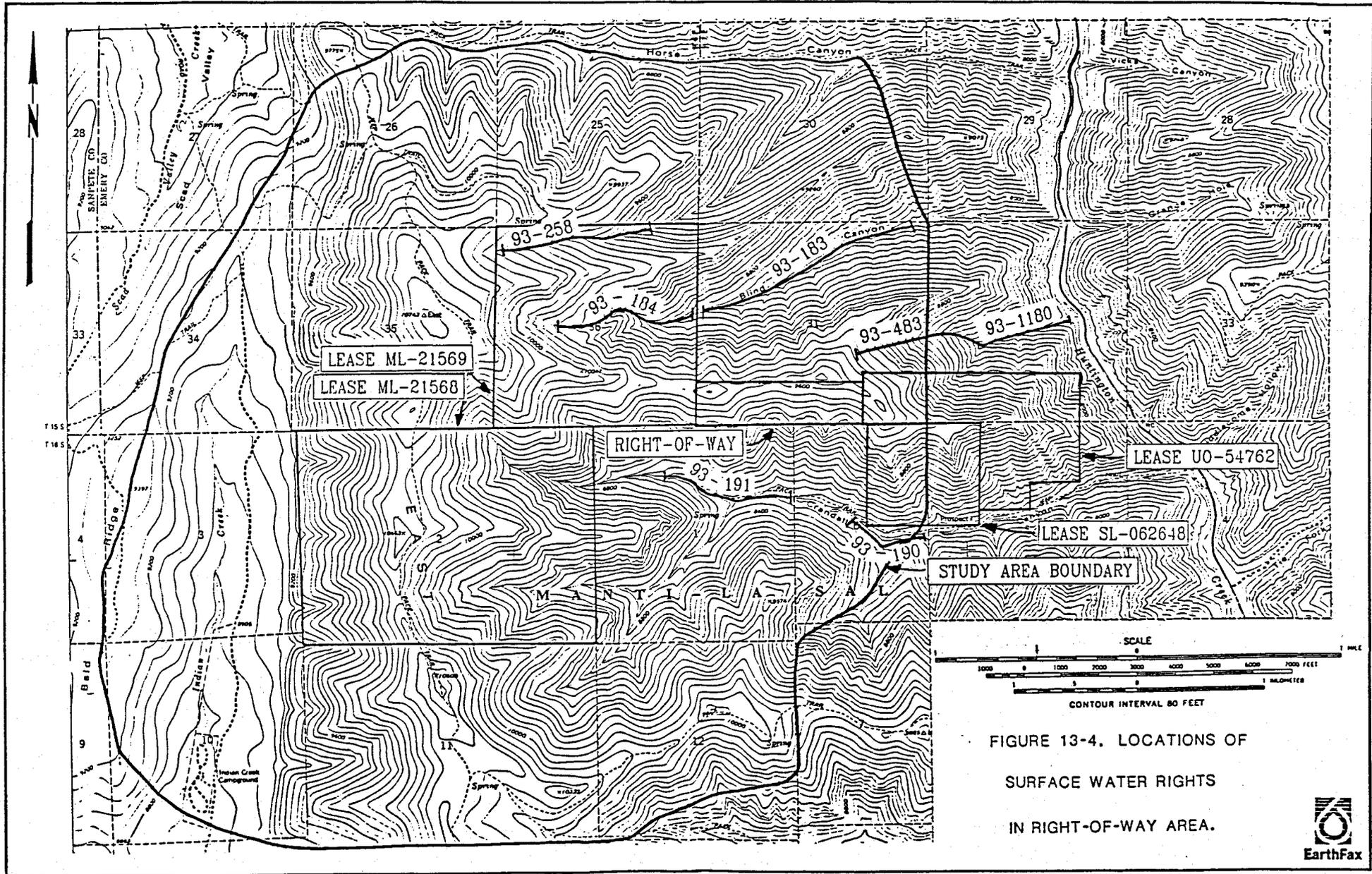


FIGURE 13-4. LOCATIONS OF
SURFACE WATER RIGHTS
IN RIGHT-OF-WAY AREA.



13.5.2.4 Mitigation and Control Plans. The forenamed runoff- and sediment control facilities, designed to protect and mitigate potential impacts to the surface hydrologic balance of the area, will be subject to quarterly inspections to ensure continual effective operation. Necessary repairs will be conducted immediately. An example of a typical inspection form to be used is found in Appendix 13-6.

13.5.2.5 Surface Water Monitoring Plan. Details of the surface water monitoring plan are discussed in Section 7.2.6.

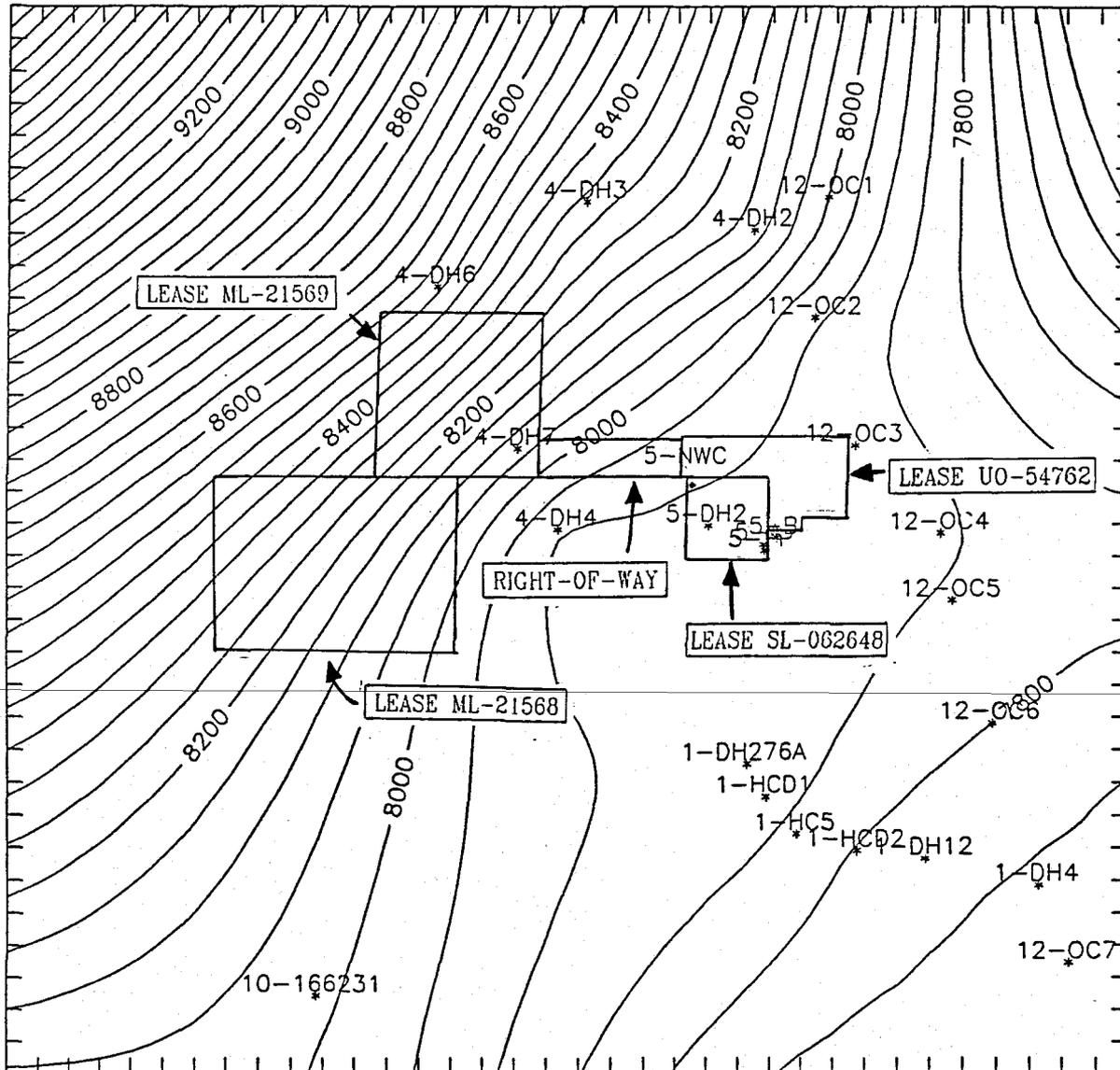
13.6 Geotechnical

13.6.1 Underground Mine Design. The proposed right-of-way, 111.5 acres in area, is oriented in an east-west direction, and extends from the western boundary of lease UO-54762 to the eastern boundary of lease ML-21569. The right-of-way is 4670.5 feet long (east - west), by 1040 feet wide (north - south). Geologic strata strike N56°E, and dip 3° to the southeast (Figure 13-5). The right-of-way dips 1.5° to the east. A total of 1,390,600 in-place tons of coal are present, 202,700 tons of which will be recovered.

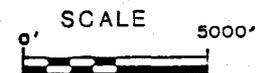
The plan view of the underground mine design appears in Plate 13-1. Barrier pillars of 270 feet and 350 feet in width flank the north and south boundaries, respectively. A six-entry mine design has been developed. Each entry and crosscut is 20 feet wide. Ceiling heights (thickness of Hiawatha coal) range from 5 to about 9.6 feet (Figure 13-6).

13.6.1.1 Coal Pillar Design. The coal pillars are designed to preclude the occurrence of subsidence. Pillars will be first-mined only, and maintained throughout life-of-mine.

Pillars are 60 feet wide and 140 feet long. Pillar center spacing is 80 and 160 feet. Pillar height grades from 5 feet at the eastern end to a maximum of about 9.6 feet at the western end, resulting in a weighted average height of



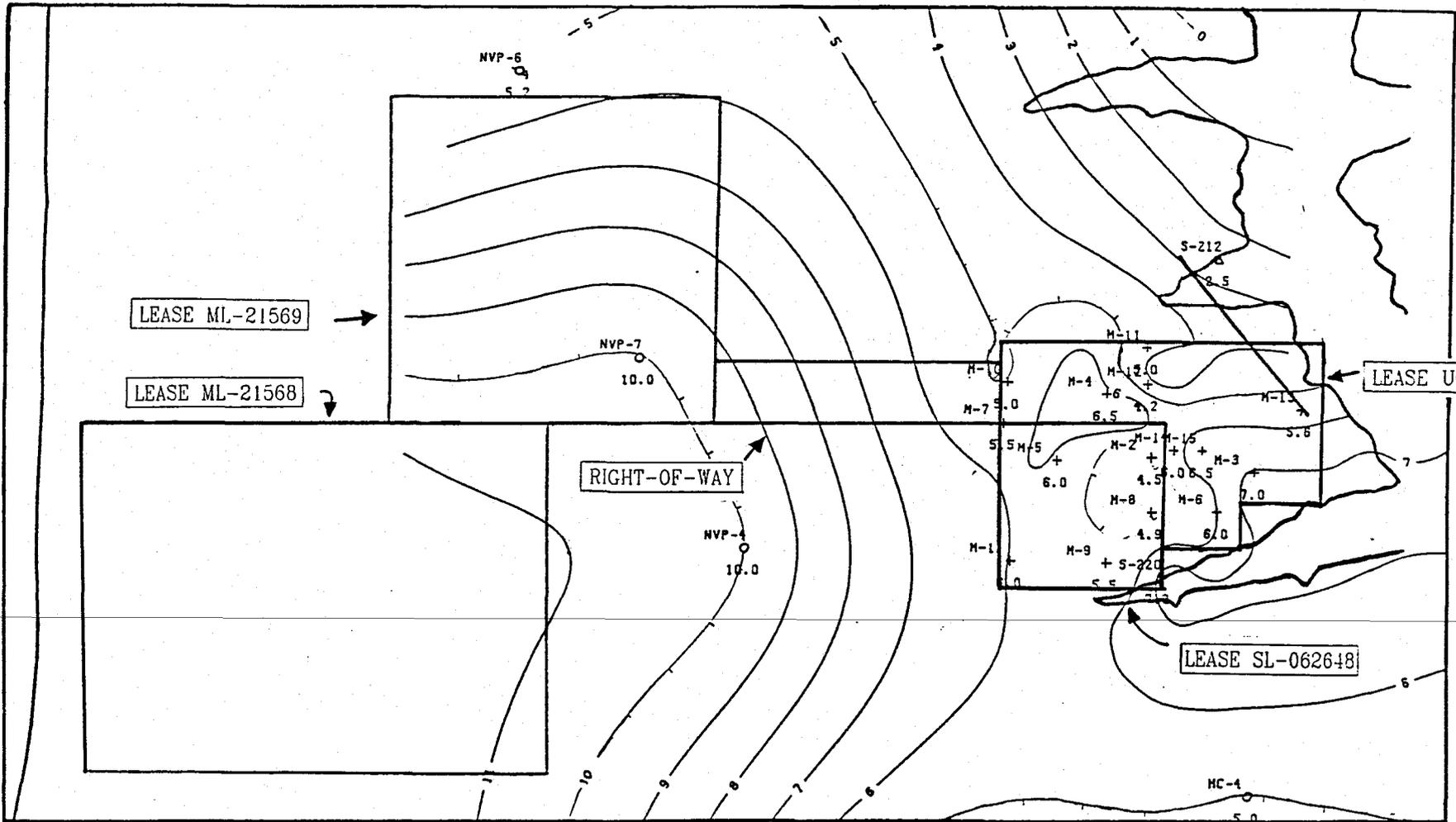
CONTOUR INTERVAL 50 FT.



EarthFax Engineering Inc.
Engineers/Scientists

FIGURE 13-5 STRUCTURE TOP

MAP OF HIAWATHA COAL SEAM.



SCALE
 0' 2000'
 CONTOUR INTERVAL 1 FT.



EarthFax Engineering Inc.
 Engineers/Scientists

FIGURE 13-6. ISOPACH MAP OF
 HIAWATHA COAL SEAM.

about 7.16 feet. Overburden thickness above the area to be mined ranges from 1300 feet to 1700 feet, with a weighted average of about 1500 feet (Figure 13-7).

Methods used to evaluate safety factors of the pillar design are discussed in Sections 12.3.1 and 12.3.2, as well as in Appendix 12-1. A minimum acceptable safety factor for main entries is 1.5 (Appendix 12-1). Calculations of right-of-way pillar safety factors are found in Appendix 13-7. Right-of-way safety factors range from 1.85 to 3.03, well above the minimum acceptable value of 1.5. As the ratio of pillar length to height approaches 12, pillars are regarded as being able to bear any load (Section 12.3.2). The pillar length to height ratio in the right-of-way ranges from 14.6 to 28, well above the value of 12; thus the right-of-way pillars should be able to bear any load.

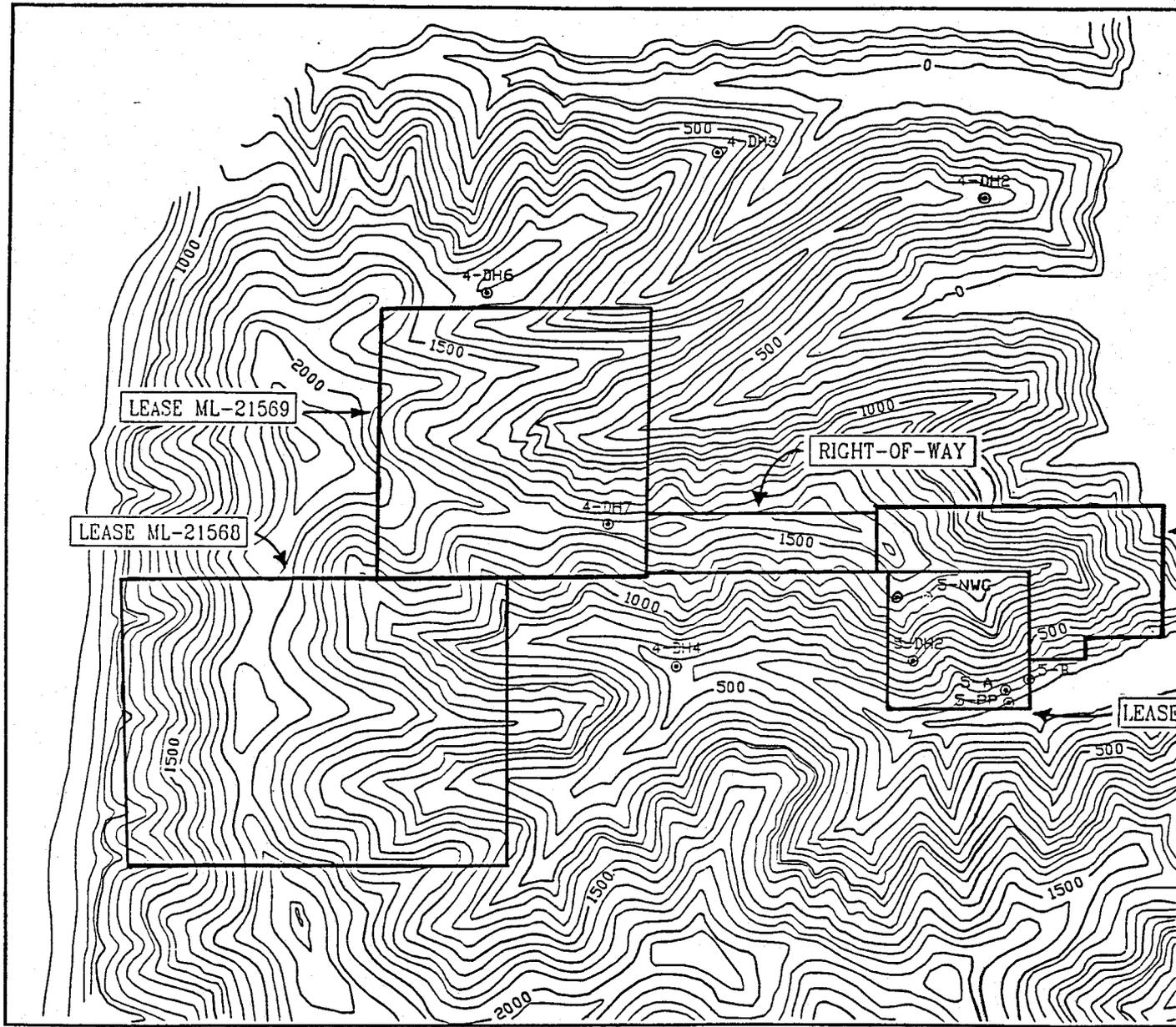
13.6.1.2 Roof Span Design. Accepted practice in the Wasatch Plateau is to use 20 foot entry and crosscut widths. Previous experience in the Crandall Canyon and nearby mines have supported this roof span width. Roof span in the right-of-way is 20 feet in entries and crosscuts. Roof support bolting consisting of 4 foot resin pins with 4 foot centers are proposed for the right-of-way.

13.6.2 Subsidence Effects of Mining.

13.6.2.1 Projected Subsidence Effects. Genwal has determined that no surface or subsurface subsidence shall occur. Mine pillars are to be maintained throughout life-of-mine, and have been designed to preclude the occurrence of subsidence. The determination that no subsidence will occur, is further supported by the absence of subsidence in those areas where pillars have been pulled.

Examinations of federal, state, and county records, as well as the surface revealed there are no man-made structures, utilities right-of-ways, or public or private resources necessitating protection from subsidence. Material damage or diminution of value or foreseeable use of lands will not occur.

13-21



LEGEND

-  OVERBURDEN ISOPACH
-  DRILL HOLE
-  LEASES



SCALE



CONTOUR INTERVAL 100'



EarthFax Engineering Inc.
Engineers/Scientists

FIGURE 13-7. ISOPACH MAP
OF HIAWATHHA COAL SEAM
OVERBURDEN

13.6.2.2 Subsidence Monitoring Plan. An aerial (photogrammetric) subsidence monitoring plan has been designed, and is currently being conducted. Baseline flight lines were flown over Sections 31 and 32 of T15S-R7E, Sections 5 and 6 of T16S-R7E, and Sections 1 and 2 of T16S-R6E, and Sections 35 and 36 of T15S-R6E in October 1989. Pin locations will be surveyed when weather conditions permit, and a pin map will be generated. Aerial surveys will be conducted each year the right-of-way is in operation.

APPENDIX 13-1
NEWSPAPER ADVERTISEMENT

APPENDIX 13-2
MINE OPERATION VIOLATIONS

TABLE 1. Mine Operation Violations - 1988.

Violation/ Cessation	Issued Date	Abatement/ Statement	Lapsed Time	Term/Vac Date	Lapsed Time	Pertinent Regulations
N88-16-01-01 01 of 01	01/21/88	02/10/88 02/16/88	20 26	02/16/88 T	26	UMC817.21
N88-16-02-01 01 of 01	02/04/88	03/03/88 02/05/88	28 1	02/04/88 T	0	UMC817.22
N88-16-03-01 01 of 01	03/25/88	03/25/88 03/30/88	0 5	03/25/88 T	0	UMC817.52
N88-17-03-01 01 of 01	09/29/88	05/01/89 09/29/88	214 0	09/29/88 T	0	UMC771.19 After fact violation, no action possible.
N88-17-04-01 01 of 01	10/04/88	00/00/00 10/17/88	0 13	10/14/88 T	0	UMC771.19 UMC817.52

During this period 0 unvacated co's and 5 unvacated nov's were issued for this mine.

TABLE 2. Mine Operation Violations - 1989.

Nov. #	Date Issued	Date Abated	Description of Violation
N89-27-2-1	2/22/89	3/3/89 *4/17/89	Facility not permitted. *Vacated - U.S. Fuel Co. was responsible for mining activities within approved permit area - they were issued citation.
N89-27-4-1	3/7/89	3/13/89	Failure to protect topsoil from water erosion.
N89-16-1-1	5/1/89	5/4/89	Failure to submit Annual Report in a timely manner.
N89-27-7-2	5/11/89	6/29/89	Failure to comply with the terms and conditions of the permit (failure to drill monitor well MW-3 as per permit).
N89-27-7-2	5/11/89	5/11/89	Failure to comply with the terms and conditions of the permit (ground and surface water monitoring/error in parameter list).
N89-27-9-1	7/27/89		Failure to comply with the approved plan.

APPENDIX 13-3

CORRESPONDENCE WITH UTAH DIVISION OF WILDLIFE RESOURCES



State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WILDLIFE RESOURCES

Norman H. Dingerter
Governor
Dee C. Harrison
Executive Director
Timothy H. Provan
Division Director

Southeastern Region
455 West Railroad Avenue
Price, Utah 84501 2829
801-637 3310

March 21, 1990

Mr. Allen Childs
Genwal Coal Company
P.O. Box 1201

Dear Allen:

This correspondence supercedes the October 6, 1989 communication between the Division and Geneal Coal Company.

Division of Wildlife Resources' biologists (Miles Moretti and Tom McKay) conducted an inventory for cliff nests of raptors on September 29, 1989. A Jet Ranger helicopter was utilized to survey Section 2 (T 16 S, R 6 E, Emery County, Utah) Section 36 (T 15 S, R 6 E, Emery County, Utah) and the South 1/2 of Section 31 (T 15 S, R 7 E, Emery County, Utah). No nests were found. Generally speaking, the habitation in this area is of poor quality for cliff nesting raptors.

Allen, I want to thank you for making a helicopter available to conduct this work. The results should prove useful to your company in developing a mine plan.

Sincerely,

A handwritten signature in cursive script, appearing to read 'Larry B. Dalton'.

Larry B. Dalton
Wildlife Program Manager
Resources Analysis/Habitat Protection

LBD/dd

cc: Ralph Miles, DWR
Susan Linner, DOGM
Clark Johnson, USFWS
Rod Player, USFS
Linda Seibert, BLM

APPENDIX 13-4

CORRESPONDENCE WITH UTAH DIVISION OF STATE HISTORY



State of Utah

Appendix 13-4

Division of State History
(Utah State Historical Society)
Department of Community and Economic Development

Norman H. Bangerter
Governor
Max J. Evans
Director

300 Rio Grande
Salt Lake City, Utah 84101-1182
(801) 533-5792

March 19, 1990

Mr. Brent K. Bovee
Geologist
EarthFax Engineering Inc.
7324 South 1300 East, Suite 100
Midvale, UT 84047

RE: Permit Application for Genwal Coal Company, Right-of-Way, T15S, R7E, Sec 31

In Reply Please Refer to Case No. 90-0320

Dear Mr. Bovee:

The Utah State Historic Preservation Office reviewed our cultural resource files for the above requested project area. No prehistoric or historic sites have been recorded within the project area because no cultural resource surveys have been conducted. However, such sites may well exist in the project area.

A survey of the area will likely lead to the identification of more resources, some of which may be eligible for the National Register. It is your responsibility, based on this assessment, to determine the need for further actions, such as field surveys or predictive models to identify historic properties. If you choose to do this, we will be glad to comment on your evaluation of historic properties against the National Register criteria (36 CFR 60.4) should any sites be found. We will also assist in applying the criteria of effect as outlined in 36 CFR 800.5.

This information is provided on request to assist Genwal Coal in identifying historic properties as specified in 36 CFR 800 for Section 106 consultation procedures. If you have questions or need additional assistance, please contact me at (801) 533-7039.

Sincerely,

Janice Reed Campbell
for James L. Dykman
Regulation Assistance Coordinator

JLD:90-0320/8554V OSM

c: Mr. Allen Childs
Genwal Coal Company
P. O. Box 1201
Huntington, Utah 84528

APPENDIX 13-5
WATER RIGHTS INFORMATION

WRNUM: 93-183 APPLICATION/CLAIM NO.: CERT. NO.:

OWNERSHIP*****

NAME: USA Forest Service OWNER MISC:
ADDR: 324 25th Street
CITY: Ogden STATE: UT ZIP: 84401 INTEREST: 100%

LAND OWNED BY APPLICANT? Yes

DATES, ETC.*****

Filing: / / Priority: 00/00/1875 Advertise Paper: Date: / / Protested? Appr/Rej: / /
Proof Due: / / Ext Filed: / / Elec/Proof: Filed: / / Cert. or WUC Issued: / /
Lap, Etc.: / /

PD Book No. 1 Type of Right: DIL Status: Source of Info: PDET Map: 14 Date Verified: 11/17/1982 Initials: KUS
PD REMARKS REFERENCE -- Name: Interest: Flow: Type of Right: Priority: Source:

LOCATION OF WATER RIGHT*****

FLOW: SOURCE: Blind Canyon Creek
TRIBUTARY 1: TRIBUTARY 2:
COUNTY: Emery COMMON DESCRIPTION: DRAINAGE AREA: San Rafael River
POINT OF DIVERSION: Stockwatering directly on stream from a point in Lot 4 Sec 31, T15S, R7E, SLBM,
to a point in NE>NE> Sec 31, T15S, R7E, SLBM.
Source:

USES OF WATER RIGHT*****

CLAIMS USED FOR PURPOSE DESCRIBED: See WUC 1403. Type of Reference -- Claims: X Purpose: Remarks:
Referenced To: 93-1403 Claims Groups:
###STOCKWATERING: 153 Equivalent Livestock Units Diversion Limit: PERIOD OF USE: 07/06 TO 09/25
Crandall Canyon Allotment

***** END OF DATA *****

WRNUM: 93-184 APPLICATION/CLAIM NO.: CERT. NO.:

OWNERSHIP*****

NAME: State of Utah Division of State Lands & Forestry OWNER MISC:
ADDR: 3 Triad Center, Suite 400, 355 West North Temple
CITY: Salt Lake City STATE: UT ZIP: 84180 INTEREST: 100%

LAND OWNED BY APPLICANT? Yes

DATES, ETC.*****

Filing: / / Priority: 00/00/1902 Advertise Paper: Date: / / Protested? Appr/Rej: / /
Proof Due: / / Ext Filed: / / Elec/Proof: Filed: / / Cert. or WUC Issued: / /
Lap, Etc.: / /

PD Book No. 1 Type of Right: DIL Status: Source of Info: PDET Map: 14 Date Verified: 11/17/1982 Initials: KWS

PD REMARKS REFERENCE -- Name: Interest: Flow: Type of Right: Priority: Source:

LOCATION OF WATER RIGHT*****

FLOW: SOURCE: Blind Canyon Creek
TRIBUTARY 1: TRIBUTARY 2:
COUNTY: Emery COMMON DESCRIPTION: DRAINAGE AREA: San Rafael River
POINT OF DIVERSION: Stockwatering directly on stream from a point in SW>NW> Sec 36, T15S, R6E, SLBM,
Source: to a point in SE>NE> Sec 36, T15S, R6E, SLBM.

USES OF WATER RIGHT*****

CLAIMS USED FOR PURPOSE DESCRIBED: See WUC 500. Type of Reference -- Claims: X Purpose: Remarks:
Referenced To: 93-500 Claims Groups: Diversion Limit: PERIOD OF USE: 01/01 TO 12/31
***STOCKWATERING: 400 Equivalent Livestock Units

***** END OF DATA *****

WRNUM: 93-190

APPLICATION/CLAIM NO.:

CERT. NO.:

OWNERSHIP*****

NAME: USA Forest Service
ADDR: 324 25th Street
CITY: Ogden

STATE: UT ZIP: 84401

OWNER MISC:
INTEREST: 100%

LAND OWNED BY APPLICANT? Yes

DATES, ETC.*****

Filing: / / Priority: 00/00/1875 Advertise Paper: Date: / / Protested? Appr/Rej: / /
Proof Due: / / Ext Filed: / / Elec/Proof: Filed: / / Cert. or WUC Issued: / /
Lap, Etc.: / /

PD Book No. 1 Type of Right: DIL Status: Source of Info: PDET Map: 14 Date Verified: 11/17/1982 Initials: KWS
PD REMARKS REFERENCE -- Name: Interest: Flow: Type of Right: Priority: Source:

LOCATION OF WATER RIGHT*****

FLOW: SOURCE: Crandall Canyon Creek
TRIBUTARY 1: TRIBUTARY 2:
COUNTY: Emery COMMON DESCRIPTION: DRAINAGE AREA: San Rafael River
POINT OF DIVERSION: Stockwatering directly on stream from a point in Lot 4 Sec 6, T16S, R7E, SLBM,
Source: to a point in NE>SE> Sec 6, T16S, R7E, SLBM.

USES OF WATER RIGHT*****

CLAIMS USED FOR PURPOSE DESCRIBED: See WUC 116.
Referenced To: 93-116 Claims Groups: Type of Reference -- Claims: X Purpose: Remarks:
###STOCKWATERING: 1440 Equivalent Livestock Units Diversion Limit: PERIOD OF USE: 06/21 TO 09/30
Gentry Mountain Allotment

***** END OF DATA *****

WRNUM: 93-191 APPLICATION/CLAIM NO.: CERT. NO.:

OWNERSHIP*****

NAME: USA Forest Service OWNER MISC:
ADDR: 324 25th Street
CITY: Ogden STATE: UT ZIP: 84401 INTEREST: 100%

LAND OWNED BY APPLICANT? Yes

DATES, ETC.*****

Filing: / / Priority: 00/00/1875 Advertise Paper: Date: / / Protested? Appr/Rej: / /
Proof Due: / / Ext Filed: / / Elec/Proof: Filed: / / Cert. or WUC Issued: / /
Lap, Etc.: / /

PD Book No. 1 Type of Right: DIL Status: Source of Info: PDET Map: 14 Date Verified: 11/17/1982 Initials: KUS
PD REMARKS REFERENCE -- Name: Interest: Flow: Type of Right: Priority: Source:

LOCATION OF WATER RIGHT*****

FLOW: SOURCE: Crandall Canyon Creek
TRIBUTARY 1: TRIBUTARY 2:
COUNTY: Emery COMMON DESCRIPTION: DRAINAGE AREA: San Rafael River
POINT OF DIVERSION: Stockwatering directly on stream from a point in SW>NW> Sec 1, T16S, R6E, SLBM,
to a point in SE>NE> Sec 1, T16S, R6E, SLBM.
Source:

USES OF WATER RIGHT*****

CLAIMS USED FOR PURPOSE DESCRIBED: See WUC 1403. Type of Reference -- Claims: X Purpose: Remarks:
Referenced To: 93-1403 Claims Groups:
***STOCKWATERING: 153 Equivalent Livestock Units Diversion Limit: PERIOD OF USE: 07/06 TO 09/25
Crandall Canyon Allotment

***** E N D O F D A T A *****

WRNUM: 93-258 APPLICATION/CLAIM NO.: CERT. NO.:

OWNERSHIP*****

NAME: State of Utah Division of State Lands & Forestry OWNER MISC:
ADDR: 3 Triad Center, Suite 400, 355 West North Temple
CITY: Salt Lake City STATE: UT ZIP: 84180 INTEREST: 100%

LAND OWNED BY APPLICANT? Yes

DATES, ETC.*****

Filing: / / Priority: 00/00/1902 Advertise Paper: Date: / / Protested? Appr/Rej: / /
Proof Due: / / Ext Filed: / / Elec/Proof: Filed: / / Cert. or WUC Issued: / /
Lap, Etc.: / /

PD Book No. 1 Type of Right: DIL Status: Source of Info: PDET Map: 14 Date Verified: 11/17/1982 Initials: KWS

PD REMARKS REFERENCE -- Name: Interest: Flow: Type of Right: Priority: Source:

LOCATION OF WATER RIGHT*****

FLOW: SOURCE: George Spring Creek
TRIBUTARY 1: TRIBUTARY 2:
COUNTY: Emery COMMON DESCRIPTION: DRAINAGE AREA: San Rafael River
POINT OF DIVERSION: Stockwatering directly on stream from a point in NW>NW> Sec 36, T15S, R6E, SLBM,
to a point in NE>NE> Sec 36, T15S, R6E, SLBM.
Source:

USES OF WATER RIGHT*****

CLAIMS USED FOR PURPOSE DESCRIBED: See WUC 500. Type of Reference -- Claims: X Purpose: Remarks:
Referenced To: 93-500 Claims Groups:
***STOCKWATERING: 400 Equivalent Livestock Units Diversion Limit: PERIOD OF USE: 01/01 TO 12/31
***** E N D O F D A T A *****

Form 114
25M 4-63

IN THE SEVENTH JUDICIAL DISTRICT COURT, IN AND FOR THE
COUNTY OF EMERY STATE OF UTAH

IN THE MATTER OF THE GENERAL DETERMINATION
OF RIGHTS TO THE USE OF ALL WATER BOTH SURFACE
AND UNDERGROUND WITHIN THE DRAINAGE AREA OF THE
SAN RAFAEL RIVER IN SANPETE AND EMERY COUNTIES
IN UTAH.

STATEMENT OF WATER
USER'S CLAIM
CODE NO. SERIAL NO.
93 483
MAP NO. 14

NOTE: This blank is sent to you in accordance with Utah Law. The information called for herein will be used in connection with the adjudication of water rights on the above mentioned drainage area. All questions applicable to your claim must be answered fully, and one copy of this form must be filed with the Clerk of the District Court at Castle Dale Utah, within sixty (60) days from date of service of the attached Notice. A copy shall be filed with the State Engineer, State Capitol, Salt Lake City. Failure to file the attached Statement of the Water User's Claim with the Clerk of the District Court within the time stated will forever bar and estop you from asserting any right to the use of water from said drainage area.

1. Name of Claimant U.S. Forest Service
Federal Building Interest Claimed Full
2. Address Ogden, Utah 84401
3. Name of particular spring, stream, well, or other source from which water is diverted is Shingle Canyon Creek in Emery County.
4. Priority date claimed 1875 Date when water was first used
Date when work on diverting system was first begun _____ Date when diverting system was completed _____
Nature of work _____
5. Class of Right (Indicate by X):
(a) Right to surface water initiated by beneficial use before 1903 Claim No. _____ Diligence
(b) _____ Right to underground water initiated before 1935 Claim No. _____
(c) _____ Right decreed by court, cite title of case _____
(d) _____ Application filed, State Engineer's Office No. _____ Cert. of App. No. _____
(e) _____ Right acquired by adverse use prior to 1939 _____
6. Nature (Indicate by X), Amount, and Annual Period of Use (by month & day):
(a) _____ Irrigation Sec. Ft. _____ from _____ to _____ (both dates incl.)
(b) Stockwatering Sec. Ft. _____ from July 6 to September 25 (both dates incl.)
(c) _____ Domestic Sec. Ft. _____ from _____ to _____ (both dates incl.)
(d) _____ Municipal Sec. Ft. _____ from _____ to _____ (both dates incl.)
(e) _____ Sec. Ft. _____ from _____ to _____ (both dates incl.)
7. Direct Flow Appropriation (must be described with reference to U. S. Government Survey Corner)
(a) Point of diversion from ~~spring~~ stream, ~~well~~ Stockwater directly on stream from a point of stream's issuance in the NW 1/4 Sec. 31, T15S, R7E, SLBM, to a point where the stream leaves the W 1/2 Sec. 31, T15S, R7E, SLBM.
(b) Description of spring area _____
(c) Point of redirection or point of return to natural channel _____
(d) If flow is intermittently diverted, list by number or description, all rights involved _____
8. Where water is used for irrigation purposes:
(a) Area irrigated in legal subdivisions of land by 40-acre tract. (All sources of water for same land or lands must be described in each instance by name or claim number) _____

(b) Do you get water under a ditch owned by several users. _____ If so, give names of all users and divisions of interest _____
9. Where water is used for Stockwatering:
(a) Number of each kind of stock watered Crandall Canyon - 763 Sheep & Goats
(b) All sources of water for same stock. (Describe by name or claim number) _____

10. Where water is used for Domestic: _____
(a) _____
(b) _____ All sources of water for same use
(Describe by name or claim number) _____

11. Where water is used for Municipal Purposes:
 (a) Name of city or town supplied Population
 Number of families Quantity of water
12. Where water is used for a purpose not above enumerated:
 (a) Nature of Use Extent of Use
13. Appropriation for Storage Purposes:
 (a) Name of reservoir
 (b) Location of reservoir by legal subdivisions described by 40-acre tracts
 (c) Maximum capacity of reservoir in acre feet Year construction commenced
 Completed Water first used Is reservoir located on or off stream.....
 (d) Period of Storage from to (both dates incl.). Period of use from
 to (both dates incl.). Maximum area in acres inundated Max. depth in feet.....
 Average depth in feet..... Is reservoir drained each year..... Maximum number of fillings per
 year..... Is reservoir used for equalizing purposes..... If feeder canal is used, give maximum
 carrying capacity in sec. ft.....
14. Diverting Works:
 (a) Surface water diverting dam: Material composed of
 Max. length..... Max. height..... Max. width at bottom..... Max. width
 at top.....
 (b) Underground water diverting works: Is well flowing or pump..... Depth of well.....
 Diameter of well..... Length of drain..... Width of drain..... Depth of drain.....
 Diameter of drain..... Length of tunnel..... Width of tunnel..... Height of tunnel.....
 Type of pump..... Capacity of pump.....
 (c) Surface and underground water conveying works: Length of ditch to first place of use..... Width of
 ditch at top Width of ditch at bottom..... Depth of water..... Grade of
 ditch per 1000 ft..... Material through which ditch passes..... Maximum length of
 pipe line to first place of use..... Diameter of pipe line Grade of pipe line per
 1000 feet.....
15. The undersigned hereby enters his appearance and waives service of summons or other process.

STATE OF UTAH

COUNTY OF

SS. (To be used if claimant is an individual)

..... being first duly sworn, upon oath deposes and says that he is the claimant whose name appears hereon, that he has read the foregoing statement of his claim and knows the contents thereof, that he has signed the same, and that the answers set forth therein are true to his best knowledge and belief.

Signature of Claimant

Subscribed and sworn to before me this day of 19.....

NOTARY PUBLIC

STATE OF UTAH

COUNTY OF Weber

SS. (To be used if claimant is a corporation or an estate)

Richard F. Sanders being first duly sworn, upon oath deposes and says that he is the of the above claimant, that he makes this certification on behalf of said claimant, that he has read the foregoing statement of claim and knows the contents thereof, and that he has signed the name of said claimant to said statement, that the answers set forth therein are true to his best knowledge and belief.

(for) T. A. ROEDERER

Subscribed and sworn to before me this 10th day of March 1983 DRF, Resources

Signature of Notary Public
NOTARY PUBLIC

WRNUM: 93-1180 APPLICATION/CLAIM NO.: CERT. NO.:

OWNERSHIP*****

NAME: USA Forest Service OWNER MISC:
ADDR: 324 25th Street
CITY: Ogden STATE: UT ZIP: 84401 INTEREST: 100%

LAND OWNED BY APPLICANT? Yes

DATES, ETC.*****

Filing: / / Priority: 00/00/1875 Advertise Paper: Date: / / Protested? Appr/Rej: / /
Proof Due: / / Ext Filed: / / Elec/Proof: Filed: / / Cert. or WUC Issued: / /
Lap, Etc.: / /

PD Book No. 1 Type of Right: DIL Status: Source of Info: PDET Map: 14 Date Verified: 11/17/1982 Initials: KWS

PD REMARKS REFERENCE -- Name: Interest: Flow: Type of Right: Priority: Source:

LOCATION OF WATER RIGHT*****

FLOW: SOURCE: Shingle Canyon Creek
TRIBUTARY 1: TRIBUTARY 2:
COUNTY: Emery COMMON DESCRIPTION: DRAINAGE AREA: San Rafael River
POINT OF DIVERSION: Stockwatering directly on stream from a point in NE>SE> Sec 31, T15S, R7E, SLBM,
to a point in SW>NE> Sec 32, T15S, R7E, SLBM.
Source:

USES OF WATER RIGHT*****

CLAIMS USED FOR PURPOSE DESCRIBED: See WUC 116. Type of Reference -- Claims: X Purpose: Remarks:
Referenced To: 93-116 Claims Groups:
###STOCKWATERING: 1440 Equivalent Livestock Units Diversion Limit: PERIOD OF USE: 06/21 TO 09/30

Gentry Mountain Allotment

***** END OF DATA *****

WRNUM: 93-1407 APPLICATION/CLAIM NO.: CERT. NO.:

OWNERSHIP*****

NAME: USA Forest Service OWNER MISC:
ADDR: 324 25th Street
CITY: Ogden STATE: UT ZIP: 84401 INTEREST: 100%
LAND OWNED BY APPLICANT? Yes

DATES, ETC.*****

Filing: / / Priority: 00/00/1875 Advertise Paper: Date: / / Protested? Appr/Rej: / /
Proof Due: / / Ext Filed: / / Elec/Proof: Filed: / / Cert. or WUC Issued: / /
Lap, Etc.: / /

PD Book No. 1 Type of Right: DIL Status: Source of Info: PDET Map: 14 Date Verified: 11/17/1982 Initials: KWS
PD REMARKS REFERENCE -- Name: Interest: Flow: Type of Right: Priority: Source:

LOCATION OF WATER RIGHT*****

FLOW: 0.011 cfs SOURCE: Crandall Ridge Spring
TRIBUTARY 1: TRIBUTARY 2:
COUNTY: Emery COMMON DESCRIPTION: DRAINAGE AREA: San Rafael River
POINT OF DIVERSION: Stockwatering directly on spring located in SW>SE> Sec 31, T15S, R7E, SLBM.
Source:

USES OF WATER RIGHT*****

CLAIMS USED FOR PURPOSE DESCRIBED: See WUC 1403.
Referenced To: 93-1403 Claims Groups: Type of Reference -- Claims: X Purpose: Remarks:
###STOCKWATERING: 153 Equivalent Livestock Units Diversion Limit: PERIOD OF USE: 07/06 TO 09/25
Crandall Canyon Allotment

***** END OF DATA *****

WRNUM: 93-1408 APPLICATION/CLAIM NO.: CERT. NO.:

OWNERSHIP*****

NAME: USA Forest Service OWNER MISC:
ADDR: 324 25th Street
CITY: Ogden STATE: UT ZIP: 84401 INTEREST: 100%

LAND OWNED BY APPLICANT? Yes

DATES, ETC.*****

Filing: / / Priority: 00/00/1875 Advertise Paper: Date: / / Protested? Appr/Rej: / /
Proof Due: / / Ext Filed: / / Elec/Proof: Filed: / / Cert. or WUC Issued: / /
Lap, Etc.: / /

PD Book No. 1 Type of Right: DIL Status: Source of Info: PDET Map: 14 Date Verified: 11/17/1982 Initials: KWS
PD REMARKS REFERENCE -- Name: Interest: Flow: Type of Right: Priority: Source:

LOCATION OF WATER RIGHT*****

FLOW: 0.011 cfs SOURCE: Humphrey Spring
TRIBUTARY 1: TRIBUTARY 2:
COUNTY: Emery COMMON DESCRIPTION: DRAINAGE AREA: San Rafael River
POINT OF DIVERSION: Stockwatering directly on spring located in NW>NE> Sec 6, T16S, R7E, SLBM.
Source:

USES OF WATER RIGHT*****

CLAIMS USED FOR PURPOSE DESCRIBED: See WUC 1403. Type of Reference -- Claims: X Purpose: Remarks:
Referenced To: 93-1403 Claims Groups:
##STOCKWATERING: 153 Equivalent Livestock Units Diversion Limit: PERIOD OF USE: 07/06 TO 09/25
Crandall Canyon Allotment

***** END OF DATA *****

WRNUM: 93-1409 APPLICATION/CLAIM NO.: CERT. NO.:

OWNERSHIP*****

NAME: USA Forest Service OWNER MISC:
ADDR: 324 25th Street
CITY: Ogden STATE: UT ZIP: 84401 INTEREST: 100%

LAND OWNED BY APPLICANT? Yes

DATES, ETC.*****

Filing: / / Priority: 00/00/1875 Advertise Paper: Date: / / Protested? Appr/Rej: / /
Proof Due: / / Ext Filed: / / Elec/Proof: Filed: / / Cert. or WUC Issued: / /
Lap, Etc.: / /

PD Book No. 1 Type of Right: DIL Status: Source of Info: PDET Map: 14 Date Verified: 11/17/1982 Initials: KWS
PD REMARKS REFERENCE -- Name: Interest: Flow: Type of Right: Priority: Source:

LOCATION OF WATER RIGHT*****

FLOW: 0.011 cfs SOURCE: Crandall Canyon Spring
TRIBUTARY 1: TRIBUTARY 2:
COUNTY: Emery COMMON DESCRIPTION: DRAINAGE AREA: San Rafael River
POINT OF DIVERSION: Stockwatering directly on spring located in SW>NW> Sec 1, T16S, R6E, SLBM.
Source:

USES OF WATER RIGHT*****

CLAIMS USED FOR PURPOSE DESCRIBED: See WUC 1403.
Referenced To: 93-1403 Claims Groups: Type of Reference -- Claims: X Purpose: Remarks:
###STOCKWATERING: 153 Equivalent Livestock Units Diversion Limit: PERIOD OF USE: 07/06 TO 09/25
Crandall Canyon Allotment

***** END OF DATA *****

APPENDIX 13-6
INSPECTION REPORT FORMS

**GENWAL COAL COMPANY
WATER SAMPLING FIELD REPORT**

LOCATION: _____

DATE: _____

SAMPLER: _____

FIELD PARAMETERS:

TEMP: _____

pH: _____

COND: _____

FLOW: _____

DIS. O2: _____

WEATHER: _____

COMMENTS: _____

**GENWAL COAL COMPANY
WATER SAMPLING FIELD REPORT**

LOCATION: _____

DATE: _____

SAMPLER: _____

FIELD PARAMETERS:

TEMP: _____

pH: _____

COND: _____

FLOW: _____

DIS. O2: _____

WEATHER: _____

COMMENTS: _____

APPENDIX 13-7
COAL PILLAR SAFETY FACTOR CALCULATIONS

COAL PILLAR SAFETY FACTORS

Methods used to calculate coal pillar safety factors appear in Appendix 12-1. Average uniaxial compressive strength (C_p) and overburden pressure gradient (S_v) values used in section 12.3.2 are used in calculation of right-of-way safety factors.

EQUATIONS:

$$\text{Pillar Strength } (C_p): C_p = C (.778 + .222 (W/H))$$

C = Coal Uniaxial Compressive Strength
 W = Width of Pillar
 H = Height of Pillar

$$\text{Recovery Factor } (R): R = A_0/A_t$$

A_0 = Area of Entry
 A_t = Total Area

$$\text{Safety Factor } (F.S.): F.S. = C_p (1-R)/S_v$$

S_v = Vertical Stress = 1 psi/foot of overburden

CALCULATIONS:

Eastern end of the right-of-way (area with smallest pillar height):

Criteria: H = 5 feet
 S_v = 1650 psi
 C = 2200 psi
 W = 60 feet
 Pillar length = 140 feet
 Pillar centers = 80 and 160 feet

$$C_p = 2200(.778 + .222(60/5)) = 7572 \text{ psi}$$

$$R = 20(80+140)/80 \times 160 = .34$$

$$F.S. = 7572(1-.34)/1650 = 3.03$$

Western end of the right-of-way (area with greatest pillar height):

Criteria: H = 9.6 feet
 $S_v = 1700$ psi
 $C = 2200$ psi
 $W = 60$ feet
 Pillar length = 140 feet
 Pillar centers = 80 and 160 feet

$$C_p = 2200(.778 + .222(60/9.6)) = 4764 \text{ psi}$$

$$R = 20(80+140)/80 \times 160 = .34$$

$$\text{F.S.} = 4764(1 - .34)/1700 = 1.85$$

Average right-of-way pillar height and overburden:

Criteria: H = 7.16 feet
 $S_v = 1500$ psi
 $C = 2200$ psi
 $W = 60$ feet
 Pillar length = 140 feet
 Pillar centers = 80 and 160 feet

$$C_p = 2200(.778 + .222(60/7.16)) = 5804 \text{ psi}$$

$$R = 20(80+140)/80 \times 160 = .34$$

$$\text{F.S.} = 5804(1 - .34)/1500 = 2.55$$