

For Pam  
DOGMA  
Mtn. Coal  
Exploration  
License

**FEDERAL COAL**  
**EXPLORATION LICENSE APPLICATION**  
**&**  
**EXPLORATION PLAN**

**82/PB Doc's NOV - 5 1991**

**TRAIL MOUNTAIN AREA**  
**EMERY COUNTY, UTAH**

RECEIVED  
OCT 24 11:12 17  
DEPT OF ENERGY  
SALT LAKE CITY

**MOUNTAIN COAL COMPANY**  
**PRICE, UTAH**  
**OCTOBER, 1991**

## **INTRODUCTION**

This Exploration License Application has been prepared by Mountain Coal Company (Formerly Beaver Creek Coal Company) in accordance with the requirements of the Code of Federal Regulations, Title 43, Chapter II, Subpart 3410. The proposed exploration area covers lands in Emery County, Utah, within which Mountain Coal Company plans to conduct an exploration drilling program, as described herein, to evaluate the reserves and quality of coal seams within the Blackhawk Formation.

The format used in 43 CFR 3410 is used as the format for this Exploration License Application. The exploration plan outlined within this Exploration License Application complies with the requirements of 43 CFR, Chapter II, Subpart 3482, as required by Section 3410.2-1(a)(3). The exploration plan format designated for Bureau of Land Management has been followed in this Exploration License Application.

The information contained in this Exploration License Application demonstrates that environmental protection and reclamation are integral parts of the proposed exploration program, and that reclamation will be performed in tandem with exploration activities. Sufficient information is provided in the Exploration Plan to demonstrate the effectiveness of Mountain Coal Company's proposed reclamation method.

**FEDERAL COAL EXPLORATION LICENSE APPLICATION  
TRAIL MOUNTAIN AREA  
TABLE OF CONTENTS**

<b>TEXT</b>	<b>PAGE NO.</b>
<b><u>EXPLORATION LICENSE APPLICATION</u></b>	
Introduction	i
Table of Contents	ii
Prelicensing Procedures (43 CFR II, Subpart 3410)	1
Legal Description of Exploration Area	2
"Notice of Invitation" for Publication	5
<b><u>EXPLORATION PLAN</u></b>	
Introduction	7
Table of Contents	8
Name & Address of Applicant	9
Narrative Description of Proposed Exploration Area	12
Narrative Description of Proposed Exploration Plan	13
Estimated Timetable of Proposed Exploration	15
Map of Proposed Exploration Plan Area	18
Names and Addresses of Surface & Subsurface Owners	19
	20

**FEDERAL COAL**  
**EXPLORATION LICENSE APPLICATION**

**EXPLORATION PLAN**

**TRAIL MOUNTAIN AREA**

**EMERY COUNTY, UTAH**

**MOUNTAIN COAL COMPANY**

**PRICE, UTAH**

**OCTOBER, 1991**

**FEDERAL COAL EXPLORATION LICENSE APPLICATION**

(AS OUTLINED IN 43 CFR, CHAPTER II, SUBPART 3410)

UNAPPROVED  
DATE: 11/12/17  
BY: [illegible]

**3410.2** - "PRELICENSING PROCEDURES."

**3410.2-1** - "APPLICATION FOR AN EXPLORATION LICENSE."

**3410.2-1(a)** - "EXPLORATION LICENSE APPLICATIONS SHALL BE SUBMITTED AT THE BUREAU OF LAND MANAGEMENT STATE OFFICE HAVING JURISDICTION OVER THE LANDS COVERED IN THE APPLICATION (43 CFR SUBPART 1821)."

This Exploration License Application is submitted to the Bureau of Land Management District Office in Salt Lake City, Utah, which has jurisdiction over the lands covered in this Application.

"THE APPLICATIONS SHALL BE SUBJECT TO THE FOLLOWING REQUIREMENTS:"

**3410.2-1(a)(1)** - "NO SPECIFIED FORM OF APPLICATION IS REQUIRED."

**3410.2-1(a)(2)** - " AN AREA IN A PUBLIC LAND SURVEY STATE FOR WHICH AN APPLICATION IS FILED SHALL BE DESCRIBED BY LEGAL DESCRIPTION OR, IF ON UNSURVEYED LANDS, BY METES AND BOUNDS, IN ACCORDANCE WITH 3471.1-1(D)(1) OF THIS TITLE. AN APPLICATION FOR AN EXPLORATION LICENSE ON ACQUIRED LANDS SHALL DESCRIBE THE AREA ACCORDING TO THE DESCRIPTION IN THE DEED OR DOCUMENT BY WHICH THE UNITED STATES ACQUIRED THE TITLE IN ACCORDANCE WITH 3471.1-1(D)(2) OF THIS TITLE."

The following table lists the legal description of the lands outlined in this Application, according to coal plat records maintained by the Bureau of Land Management.

**LEGAL DESCRIPTION  
TRAIL MOUNTAIN 1992  
EXPLORATION LICENSE APPLICATION AREA**

**T. 17 S., R. 6 E., Salt Lake Meridian, Emery County, Utah.**

Section 2, SW1/4;

Section 3, All;

Section 4, Lots 1, 2, 3, S1/2 NE1/4, SE1/4 NW1/4, E1/2 SW1/4, SE 1/4;

Section 9, E1/2, E1/2 W1/2;

Section 10, All;

Section 11, W1/2;

Section 13, W1/2 W1/2;

Section 14, All;

Section 15, All;

Section 16, NE1/4 NW1/4;

Section 21, E1/2 W1/2, E1/2;

Section 22, All;

Section 23, All;

Section 24, W1/2 W1/2;

Section 25, N1/2 NW1/4;

Section 26, W1/2 SW1/4 NE 1/4, N1/2 NE 1/4, NW1/4, N1/2 SW1/4, W1/2 NW1/4 SE1/4;

Section 27, NE1/4, NW1/4, N1/2 SW1/4, N1/2 SE1/4;

Section 28, All;

Section 29, E1/2 SE1/4;

Section 32, E1/2;

Section 33, All;

8,504.64  
Containing ~~8484.64~~ acres, more or less.

**3410.2-1(a)(3)** - "EACH APPLICATION SHALL CONTAIN THREE COPIES OF AN EXPLORATION PLAN WHICH COMPLIES WITH THE REQUIREMENTS OF 3482.1(a) OF THIS TITLE."

Three copies of the entire Exploration Permit Application are enclosed. The Exploration Plan makes up the second section of this Application. As required in 3482.1(a)(2), five copies of the Exploration Plan have been submitted to the authorized officer.

**3410.2-1(a)(4)** - "EACH APPLICATION AND ITS SUPPORTING DOCUMENTS SHALL BE FILED WITH A NONREFUNDABLE FILING FEE (43 CFR 3473.2)."

Enclosed is the non-refundable filing fee of \$250.00.

**3410.2-1(a)(5)** - "EXPLORATION LICENSE APPLICATIONS SHALL NORMALLY COVER NO MORE THAN 25,000 ACRES IN A REASONABLY COMPACT AREA AND ENTIRELY WITHIN ONE STATE. AN APPLICATION FOR AN EXPLORATION LICENSE COVERING MORE THAN 25,000 ACRES MUST INCLUDE A JUSTIFICATION FOR AN EXCEPTION TO THE NORMAL ACREAGE LIMITATION."

The total number of acres in the proposed exploration area is 8,484.64. The Exploration License Application area is within the 25,000 acre size limitation.

**3410.2-1(b)** - "NOTHING IN THIS SUBPART SHALL PRECLUDE THE AUTHORIZED OFFICER FROM ISSUING A CALL FOR EXPRESSIONS OF LEASING INTEREST IN AN AREA CONTAINING EXPLORATION LICENSES OR APPLICATIONS FOR EXPLORATION LICENSES."

**3410.2-1(c)** - "APPLICANTS FOR EXPLORATION LICENSES SHALL BE REQUIRED TO PROVIDE AN OPPORTUNITY FOR OTHER PARTIES TO PARTICIPATE IN EXPLORATION UNDER THE LICENSE ON A PRO RATA COST SHARING BASIS."

**3410.2-1(c)(1)** - "IMMEDIATELY UPON THE FILING OF AN APPLICATION FOR AN EXPLORATION LICENSE THE APPLICANT SHALL PUBLISH A "NOTICE OF INVITATION," APPROVED BY THE AUTHORIZED OFFICER, ONCE EVERY WEEK FOR TWO CONSECUTIVE WEEKS IN AT LEAST ONE NEWSPAPER OF GENERAL CIRCULATION IN THE AREA WHERE THE LANDS COVERED BY THE LICENSE APPLICATION ARE SITUATED. THIS NOTICE SHALL CONTAIN AN INVITATION TO THE PUBLIC TO PARTICIPATE IN THE INVITATION TO THE PUBLIC TO PARTICIPATE IN THE EXPLORATION UNDER THE LICENSE AND SHALL CONTAIN THE LOCATION OF THE BUREAU OF LAND MANAGEMENT OFFICE IN WHICH THE APPLICATION SHALL BE AVAILABLE FOR INSPECTION. COPIES OF THE NOTICE OF INVITATION SHALL BE FILED WITH THE AUTHORIZED OFFICER AT THE TIME OF PUBLICATION BY THE APPLICANT, FOR POSTING IN THE PROPER BUREAU OF LAND MANAGEMENT OFFICE AND FOR BUREAU OF LAND MANAGEMENT'S PUBLICATION OF THE NOTICE OF INVITATION IN THE FEDERAL REGISTER."

A copy of the "Notice of Invitation" to be published in the local newspapers and the Federal Register is included at the end of this section.

**3410.2-1(c)(2)** - "ANY PERSON WHO SEEKS TO PARTICIPATE IN THE EXPLORATION PROGRAM CONTAINED IN THE APPLICATION SHALL NOTIFY THE AUTHORIZED OFFICER AND THE APPLICANT IN WRITING WITHIN 30 DAYS AFTER THE PUBLICATION IN THE FEDERAL REGISTER. THE AUTHORIZED OFFICER MAY REQUIRE MODIFICATION OF THE ORIGINAL EXPLORATION PLAN TO ACCOMMODATE THE LEGITIMATE EXPLORATION NEEDS OF PERSONS SEEKING TO PARTICIPATE, AND TO AVOID THE DUPLICATION OF EXPLORATION ACTIVITIES IN THE SAME AREA, OR MAY NOTIFY THE PERSON SEEKING TO PARTICIPATE THAT THE PERSON SHOULD FILE A SEPARATE APPLICATION FOR AN EXPLORATION LICENSE."

**3410.2-1(d)** - "AN APPLICATION TO CONDUCT EXPLORATION WHICH COULD HAVE BEEN CONDUCTED AS A PART OF EXPLORATION UNDER AN EXISTING OR RECENT COAL EXPLORATION LICENSE MAY BE REJECTED."

**NOTICE OF INVITATION TO PARTICIPATE  
IN COAL EXPLORATION PROGRAM  
MOUNTAIN COAL COMPANY**

Mountain Coal Company is inviting all qualified parties to participate in its proposed exploration of certain Federal coal deposits in the following described lands in Emery County, Utah:

**T. 17 S., R. 6 E., Salt Lake Meridian, Emery County, Utah**

- |             |   |
|-------------|---|
| Section 2,  | SW1/4;  |
| Section 3,  | All;  |
| Section 4,  | Lots 1, 2, 3, S1/2 NE1/4, SE1/4 NW1/4, E1/2 SW1/4, SE 1/4;              |
| Section 9,  | E1/2, E1/2 W1/2;  |
| Section 10, | All;  |
| Section 11, | W1/2;   |
| Section 13, | W1/2 W1/2   |
| Section 14, | All;  |
| Section 15, | All;  |
| Section 16, | NE1/4 NW1/4;  |
| Section 21, | E1/2 W1/2, E1/2;  |
| Section 22, | All;  |
| Section 23, | All;  |
| Section 24, | W1/2 W1/2;  |
| Section 25, | N1/2 NW1/4;   |
| Section 26, | W1/2 SW1/4 NE 1/4, N1/2 NE 1/4, NW1/4, N1/2 SW1/4, W1/2<br>NW1/4 SE1/4; |
| Section 27, | NE1/4, NW1/4, N1/2 SW1/4, N1/2 SE1/4;                                   |
| Section 28, | All;  |
| Section 29, | E1/2 SE1/4;   |
| Section 32, | E1/2;   |
| Section 33, | All;  |

Containing <sup>8504.64</sup>~~8484.64~~ acres, more or less.

Any party electing to participate in this exploration program must send written notice of such election to the Bureau of Land Management, Utah State Office, 324 S. State Street, Suite 301, Salt Lake City, Utah 84111-2303, and to Mountain Coal Company, P.O. Box 1378, Price, Utah, 84501. Such written notice must be received within thirty days after publication of this notice in the Federal Register.

**FEDERAL COAL**  
**EXPLORATION LICENSE APPLICATION**

**EXPLORATION PLAN**

**TRAIL MOUNTAIN AREA**

**EMERY COUNTY, UTAH**

**MOUNTAIN COAL COMPANY**

**PRICE, UTAH**

**OCTOBER, 1991**

# **EXPLORATION PLAN**

## **INTRODUCTION**

This Exploration Plan has been prepared by Mountain Coal Company (formerly Beaver Creek Coal Company) in accordance with the requirements of the Code of Federal Regulations, Title 43, Chapter II, Subparts 3482 (Exploration Plans) and 3484 (Performance Standards) as well as CFR Title 30, Chapter VII, Part 815 (Permanent Program Performance Standards - Coal Exploration) and the Utah Mining Code Rules for Coal Exploration UMC R614-200 - 203 (General Requirements: Exploration of Less than 250 Tons).

The format used in the Exploration Plan follows the format of 43 CFR, Chapter II, Subpart 3482.1 (exploration and resource recovery and protection plans).

**EXPLORATION PLAN  
TABLE OF CONTENTS**

<b>TEXT</b>	<b>PAGE NO.</b>
Introduction	8
Table of Contents	9
List of Figures, Tables, Attachments	11
<u>3482.1 (a)(3) i, ii</u> - Names and Addresses of Applicant, Operator, Lessee of Record, and Representative of Applicant:	12
<u>3482.1 (a)(3) iii</u> - Narrative Description of Proposed Exploration Area:	13
Federal Lease Serial Numbers	
Surface Topography	13
Geology	13
Water Resources	14
Vegetation	14
Soils	14
Wildlife	14
Threatened or Endangered Species	15
Land Use	15
Cultural Resources	15
Proposed Access Roads	15
<u>3482.1 (a)(3) iv</u> - Narrative Description of Coal Exploration Methods:	15
Pre-Drilling Activities	15
Road Construction	16
Drill Site Construction	16

Methods and Equipment to be Used	16
Estimated Size and Depth of Holes	17
Modification of Drill Holes to Surveillance or Water Wells	17
Proposed Drill Hole Plugging Method	17
Reclamation Plan	17
<u>3482.1 (a)(3) v</u> - Estimated Timetable for Construction Drilling, and Reclamation Activities:	18
<u>3482.1 (a)(3) vi</u> - Amount of Coal to be Removed:	18
<u>3482.1 (a)(3) vii</u> - Measures to be Used to Comply with Performance Standards for Exploration (43 CFR II 3484.1(a), 30 CFR 815.15, and Utah State Permanent Program Rules:	18
<u>3482.1 (a)(3) viii</u> - Map of Exploration Area:	19
<u>3482.1 (a)(3) ix</u> - Surface and Subsurface Owners of Record:	20

## **LIST OF TABLES:**

<b><u>FIGURE NO.</u></b>		<b><u>PAGE NO.</u></b>
1.	Locations and Depths of Proposed Drill Holes:	21
2.	Areas of Disturbance Associated with Access Road and Drill Site Construction:	22

## **LIST OF FIGURES**

1.	Location Map - Trail Mountain Exploration Area:	23
2.	Generalized Stratigraphy of the Trail Mountain Area:	24
3.	Method of Plugging Drill Holes:	25
4.	Proposed Drill Hole and Access Road Location Map:	Pocket

## **EXPLORATION PLAN**

### **3482.1(A)(3) i, ii - Names and Addresses of Applicant, Operator, and Lessee of Record:**

#### **APPLICANT:**

Mountain Coal Company (formerly Beaver Creek Coal Company)  
P.O. Box 1378  
1305 S. Carbon Ave.  
Price, Utah 84501

(801) 637-5050

#### **OPERATOR:**

Mountain Coal Company (formerly Beaver Creek)

(Address and Number same as above)

#### **LESSEE OF RECORD:**

Unleased Federal Coal (No Lessee)

#### **ADJACENT LEASES:**

Trail Mountain Mine lease U-64375 (Mountain Coal Co.)  
Trail Mountain Mine lease U-49332 (Mountain Coal Co.)  
PacifiCorp lease U-083066

Overlaps Lease Application No. U-68012 (PacifiCorp)  
Overlaps Exploration Licenses UTU-66524 and UTU-67727  
(PacifiCorp)

#### **REPRESENTATIVE OF APPLICANT:**

Mark Scanlon

Mountain Coal Company  
P.O. Box 1378  
1305 S. Carbon Ave.  
Price, Utah 84501

(801) 637-5050 ext. 49

## EXPLORATION PLAN

### 3482.1(A)(3)(iii) - Narrative Description of Exploration Area:

The proposed exploration area is located approximately 11 miles northwest of Orangeville, Utah (See Figure 1).

The proposed exploration area lies entirely within T.17 S. R.6 E., to the north and northwest of the existing Trail Mountain Mine. The proposed exploration areas are given in Table 1 and shown in Figures 1 and 4. A legal description of the proposed exploration area is presented within the license application.

### SURFACE TOPOGRAPHY:

Exploration activities will take place on top of Trail Mountain and in Cottonwood Canyon, between 8,400 and 9,900 feet elevation. The top of Trail Mountain consists of gently rolling terrain bounded by steep escarpments of the Castlegate Sandstone. The bottom of Cottonwood Canyon consists of gently inclined terrain cut by Cottonwood Creek (a perennial stream). Cliffs of the Castlegate Sandstone form steep bluffs above the canyon bottom.

### GEOLOGY:

The proposed Trail Mountain exploration application area lies near the center of the Wasatch Plateau Coal Field within the Mahogany Point and Joes Valley Reservoir U.S.G.S. 7 1/2 minute quadrangle maps (see Figure 4).

Previous geological work has been done in this area by Spieker (1931), Ellis and Frank (1981), and Kitzmiller (1982). The U.S. Geological Survey and the Utah Geological and Mineral Survey have conducted previous exploration drilling programs in and adjacent to the proposed exploration area.

The general stratigraphy of the area consists of members of the Mancos Shale and Mesaverde Group of the Cretaceous System, and the overlying Wasatch Group of Tertiary age (see Figure 2).

The Masuk Shale member of the Mancos Shale outcrops lowest in the area. About 0 - 500' of this unit are exposed along the lower reaches of Straight Canyon and Cottonwood Canyon.

Overlying the Mancos Shale are the Mesaverde Group beds, which consist of, in ascending order, the Star Point Sandstone, the Blackhawk Formation (coal bearing), and the Price River Formation, itself consisting of the lower massive Castlegate Sandstone member and the Upper Price River member. Mesaverde Group outcrops form the steep canyon walls in the area.

The North Horn Formation and overlying remnants of the Flagstaff Limestone of Tertiary age cap the top of Trail Mountain.

The Blackhawk Formation of the Mesaverde Group is the major coal-bearing formation of the area. The only known minable coal at Trail Mountain is the Hiawatha Seam, which is found immediately on top of the Star Point Sandstone, at the contact of the Star Point Sandstone and the overlying Blackhawk Formation. In the northern portion of the exploration area, the Blind Canyon seam, which lies about 100 feet above the Hiawatha seam, may be present in minable thicknesses.

The strata in the Trail Mountain area dip generally at 2 - 5 degrees to the south and west. Minor faulting related to the Joes Valley fault system is likely to occur along the western extent of the exploration area. The Roans Canyon fault zone may extend into the area of proposed drillhole TMX-14.

#### WATER RESOURCES:

The climate in the Trail Mountain area is considered semi-arid, receiving 10 - 20 inches of precipitation annually, depending on elevation (precipitation increases as elevation increases).

Major streams in the area include Cottonwood Creek, flowing through the eastern portion of the application area, and Straight Canyon Creek to the south, which is supplied year-round by Joes Valley reservoir.

Perched ground water aquifers are known to exist in the North Horn Formation, and in sandstones of the Blackhawk Formation, and the Star Point Sandstone has been identified as a potential regional aquifer. Several springs originating from the North Horn Formation supply water to stock and wildlife ponds on the top of Trail Mountain. Several springs are known to feed Cottonwood Creek as well.

#### VEGETATION:

Vegetation in the exploration area consists of aspen, conifer, pinyon and juniper trees, and various grasses and mountain shrubs. No threatened or endangered plant species have been identified in the exploration areas.

#### SOILS

Soils in the exploration areas are mainly derived from the North Horn and Blackhawk formations and have a high clay content. By limiting the size of drill sites and retaining topsoil for reclamation purposes, revegetation should not be a problem in this area.

#### WILDLIFE:

Trail Mountain is a deer and elk winter range. Other animals in the area include cougar, bobcat, rabbit, squirrel, mice and other rodents, reptiles and amphibians. The proposed exploration program will be scheduled to avoid conflicts with the deer and elk on winter range.

#### THREATENED OR ENDANGERED SPECIES:

No threatened or endangered plant or animal species have been identified within the proposed exploration areas.

#### LAND USE:

The present land use of the proposed exploration area consists of domestic grazing, wildlife habitat, watershed, timber lands, recreational lands, and intensive big game hunting. Mountain Coal is presently mining coal underground in a lease area near the proposed exploration area. PacifiCorp is presently mining coal in the Deer Creek and Cottonwood mines on the east side of Cottonwood Creek. Several natural gas wells have been developed along the bottom of Cottonwood Creek.

#### CULTURAL RESOURCES:

As specified in 43 CFR II Subpart 3482 (a)(3)(viii), Mountain Coal will conduct a cultural resource survey of the proposed drilling locations and access roads. This study will be conducted as soon as ground conditions permit access to the proposed locations. After archaeological studies are concluded, results will be reported immediately to the appropriate regulatory agencies. There are no known structures or sites eligible for listing on the National Register of Historic Places within the proposed exploration area.

#### PROPOSED ACCESS ROUTES:

U.S.D.A. Forest Service roads #50040 and #50034 will be the main access routes to the proposed exploration area. The proposed drill sites have been located as near to existing roads as possible. Temporary roads, to be constructed and reclaimed as they are used, will be needed for access to the drill sites (see Figure 4 and Table 2). Special-Use and Road-Use permits will be obtained from the U.S.D.A. Forest Service prior to any drilling activities.

#### 3482.1(a)(3)(iv) - Narrative Description of Coal Exploration Methods:

##### PRE-DRILLING ACTIVITIES:

Prior to any construction or drilling activities, an on-site inspection of proposed drill sites and access routes will be conducted with representatives from all appropriate regulatory agencies to discuss site-specific concerns.

Proper Road-Use and Special-Use permits will be obtained prior to use of U.S.D.A. Forest Service Roads.

State, U.S.D.A. Forest Service, and Bureau of Land Management regulatory personnel will be notified at least 48 hours before any construction or drilling equipment is moved into the project areas. All construction and drilling activities will be supervised by an authorized representative of the applicant. A copy of the exploration permit and all pertinent permit documents will be available for inspection on-site at all times.

Campsites and/or staging areas to be used by the drilling contractor will be reviewed with and approved by the U.S.D.A. Forest Service prior to use.

Any proposed changes in the Exploration Plan after permit approval will be reviewed with the appropriate regulatory agencies before the changes take effect.

#### ROAD CONSTRUCTION:

Existing roads and trails will be used whenever possible, and movement of equipment across undisturbed land will be kept to a minimum. When necessary, brush will be cleared for a 12' wide path to the drill site. Trees over 8" in diameter will be cut down and skidded to a site designated by the U.S.D.A. Forest Service. New or additional roads will be constructed only when necessary and only as the drilling program progresses. Any top soil removed during road construction will be stockpiled and redistributed when the roads are reclaimed. Erosion control structures such as water bars will be installed in newly constructed roads as required by the State of Utah. Rehabilitation of existing trails and reclamation of constructed roads will be done in accordance with applicable regulations and stipulations.

#### DRILL SITE CONSTRUCTION:

All drill sites have been located close to existing roads (see Figure 4). Each drill site will be approximately 100' x 150' in size, or the minimum size necessary for efficient drilling operations. Top soil that is present will be stripped from the drill sites and stockpiled to prevent contamination. A mud pit or pits will be dug at each site to contain drill cuttings. Water for drilling operations will be obtained at a site determined in cooperation with the State of Utah, U.S.D.A. Forest Service and the Cottonwood Creek Irrigation Co.

#### METHODS AND EQUIPMENT FOR DRILLING:

Site preparation will be done with one D-8 sized bulldozer or equivalent and one backhoe. Brush and/or trees will be cleared from the site, then the top soil will be pushed aside before pad construction is begun. Each drill site will be sized to allow sufficient space for all necessary drilling equipment.

Rotary Drilling and coring will be done by a rubber-tired truck-mounted drilling rig. Support equipment will consist of one or two water trucks, one rig-up or support truck, and 4x4 pickups for the crews and company representatives. Stationary equipment for each site will consist of a pipe truck or trailer, one or more truck-mounted air compressors or boosters and a doghouse/supply trailer. One truck mounted geophysical logging unit will be used on each hole location.

Each hole will be rotary drilled to a point approximately 50' above the top of the Hiawatha seam. Casing will be installed in the hole as necessary to keep the hole open and to prevent drilling and circulation problems if possible. Cuttings will be sampled and logged every 10 feet when circulation is present. After the core is retrieved from the hole, the hole will be logged with a standard suite of geophysical coal logs. The hole will then be plugged according to the standards set forth in 43 CFR II 3484.1(a).

The initial diameter of each drill hole will be approximately 10 inches. The core retrieved from the hole will be 2.4 inches or 3 inches in diameter. The primary drilling medium will be compressed air with mist/foam injection to aid in the circulation of cuttings to the surface. If air and foam prove to be an insufficient drilling medium, or if lost circulation becomes a problem, drilling mud and lost circulation materials will be used.

Care will be taken to ensure that the prevailing hydrologic balance will not be adversely affected by the drilling methods used in this program. Biodegradable drilling soap is the only chemical anticipated for use during drilling, and any other potentially toxic materials used will be handled and disposed of in accordance with State and Federal regulations.

#### ESTIMATED SIZE AND DEPTH OF HOLES:

Below the surface casing (approximately 12 inches in diameter), each hole will be started with a 9 or 10 inch rotary bit. This larger diameter hole will be drilled as far as possible to allow 7-inch diameter casing to be set through the North Horn and upper Price River formations, both of which are known for poor drilling conditions. Below these formations, a smaller (6 1/2 inch) diameter rotary hole will be drilled to core point (50 feet above the Hiawatha seam). The 6 1/2 inch rotary hole will be cased if necessary. The outer diameter of the cored portion of the hole will be 5 inches or less. A complete listing of the locations and depths of the proposed drill holes appears on Table 1.

#### MODIFICATION OF DRILL HOLES TO SURVEILLANCE OR WATER WELLS:

If significant aquifers are encountered in any of the proposed drill holes, regulatory officials will be notified. They may direct Mountain Coal Company to complete such a hole as a water monitoring well. Since Mountain Coal Company does not anticipate penetrating any significant aquifers in any of the holes, no plans are enclosed for water well completions.

#### PROPOSED DRILL HOLE PLUGGING METHODS:

The hole plugging method described in 43 CFR II 3484.1(a) will be used for all holes. Each hole will be plugged with cement from bottom to 50 feet above the uppermost thick coal seam and from 50 feet below to 50 feet above any aquifers encountered in the hole (see Figure 3). The rest of the hole will be filled with an approved completion mud or gel or cement to within 5 feet of the surface. A 5 foot cement surface plug will be set, and an appropriately labeled monument marker will be cemented into the surface plug. Surface casing will be cut off at or below the level of the soil surface.

#### RECLAMATION PLAN:

Reclamation activities will follow as closely as possible the completion of each hole.

1. Upon completion of drilling activities at a given site, all debris, trash, and drilling related equipment will be removed from the site.

2. When the mud pit is sufficiently dry, it will be filled with stored soil material and compacted to minimize any settling.
3. A backhoe and a bulldozer will redistribute material on and around the drill pad to achieve as closely as is practicable the original contour of the site.
4. Stored top soil will be distributed as evenly as possible over the disturbed pad area.
5. The entire drill pad area will be re-seeded using a State - approved seed mix at the rate specified.
6. The access road will be restored as closely as possible to the original contour and re-seeded as above.
7. The drill pad and access road reclamation procedure outlined above will apply only to those areas newly disturbed for this proposed exploration. Existing roads will be left in a condition equal to or better than that observed on Mountain Coal Company's entry into the area.

**3482.1(a)(3)(v) - Estimated Timetable for Construction, Drilling, and Reclamation Activities:**

Because access to the proposed exploration area is dependent on the weather and ground conditions, the estimated startup date for construction and drilling activities will be on or around June 1, 1992.

At this time, Mountain Coal intends to drill all holes during the 1992 drilling season which leaves sufficient time for reclamation activities to be completed at the end of the program.

**3482.1(a)(3)(vi) - Amount of Coal to be Removed:**

Coal to be removed during this exploration will be in the form of 2 to 3 inch diameter cores. Using a total coal thickness of 12 feet in each hole and a core diameter of 3" total weight of coal to be removed will be less than 300 pounds. This coal will be tested for a wide range of quality parameters by a qualified laboratory.

**3482.1(a)(3)(vii) - Measures to be Used to Comply with Performance Standards for Exploration (43 CFR 3484.1(a), 30 CFR 815.15, and Utah State Permanent Program Rules):**

3484.1(a)(1) - (Operator shall comply with applicable requirements of surface management agency, 30 CFR 815.15, or approved State program)

All applicable parts of the Federal and State Performance Standards for Coal Exploration have been covered in the preceding exploration and reclamation plans. Mountain Coal has reviewed, and will comply with, all applicable requirements of 30 CFR 815.15 and the Utah Mining Code as stated in UMC R614-200 - 203.

**3484.1(a)(2) - (Installation of casing and blowout preventers in drillholes in known oil, gas, and geothermal areas)**

The Cottonwood Canyon area is a known natural gas field. Gas occurs in the Ferron Sandstone, approximately 3,000 feet below the Star Point Sandstone. Since the proposed drilling will not penetrate the entire Star Point Sandstone and not drill into the underlying Mancos Shale, blowout preventers will not be used. Casing will be set in each hole as necessary to maintain circulation of cuttings to the surface.

**3484.1(a)(3) - (Drillhole plugging requirements)**

Each drillhole will be plugged according to the requirements outlined in this section: The hole will be plugged with cement from 50 feet below to 30 feet above any coal bed over 4 feet thick and any aquifer.

The remainder of the hole will be filled with a completion mud (bentonite gel) and drill cuttings or cement to within 5 feet of the surface. A cement surface plug will be set, capped with an appropriately marked brass or aluminum monument, at or below ground level.

**3484.1(a)(4) - (Retention of drill and geophysical logs by applicant)**

Mountain Coal will retain in its files all drill and geophysical logs for at least 1 year, and will make them available for inspection by any authorized officer. All un-analyzed drill cores will be kept in Mountain Coal's possession for at least 1 year if requested, and will be available for inspection by any authorized officer.

**3484.1(a)(5) - (Utilizing drill holes as water monitoring wells)**

Mountain Coal does not anticipate encountering any significant aquifers during this drilling program. Mountain Coal does not intend to complete any of these holes as water monitoring wells.

**3482.1(a)(3)(viii) - Map of Exploration Area:**

A map of the proposed exploration area at a scale of 1:24,000 (1" = 2,000'), showing all drill hole locations, existing roads and access roads to be constructed is included as Figure 4 of this plan.

**3482.1(a)(3)(ix) - Surface Owners and Subsurface Owners of Record:**

**SURFACE OWNER:**

U.S. Department of Agriculture  
U.S. Forest Service  
Manti-LaSal National Forest  
Ferron District Office  
Ferron, Utah 84532

**SUBSURFACE OWNER:**

U.S. Department of Interior  
Bureau of Land Management  
Utah State Office  
324 S. State Street  
Suite 301  
Salt Lake City, Utah 84111-2303

**TABLE 1**

**LOCATIONS AND DEPTHS OF PROPOSED DRILL HOLES:  
(All are located in T.17 S. R.6 E.)**

HOLE NO.	LOCATION	EST. ELEV.	EST. TOTAL DEPTH*
TMX-10	NE1/4 NE1/4 Sec. 33	8320'	1900'
TMX-11	SE1/4 SW1/4 Sec. 22	9180'	2460'
TMX-12	SE1/4 NE1/4 Sec. 9	9880'	2310'
TMX-13	SW1/4 NW1/4 Sec. 11	8220'	680'
TMX-14	SE1/4 SE1/4 Sec. 14	7850'	620'

\* Hole depths include a 30' "rat hole" at the bottom of the hole to ensure complete geophysical logging.

**TABLE 2**

**AREAS OF DISTURBANCE ASSOCIATED WITH ACCESS ROAD  
AND DRILL SITE CONSTRUCTION:**

Hole No.	Constructed Road Length	Acres of Road Disturbance	Total Disturbance (Road + 100' x 150' Pad)
TMX-10	200'	.06	.40 ACRES
TMX-11	200'	.06	.40
TMX-12	200'	.06	.40
TMX-13	200'	.06	.40
TMX-14	200'	.06	.40
TOTAL	1,000'	0.30	2.00 ACRES

(Assume 12' disturbed width associated with road construction and 100' x 150' disturbed area for drill pads.)

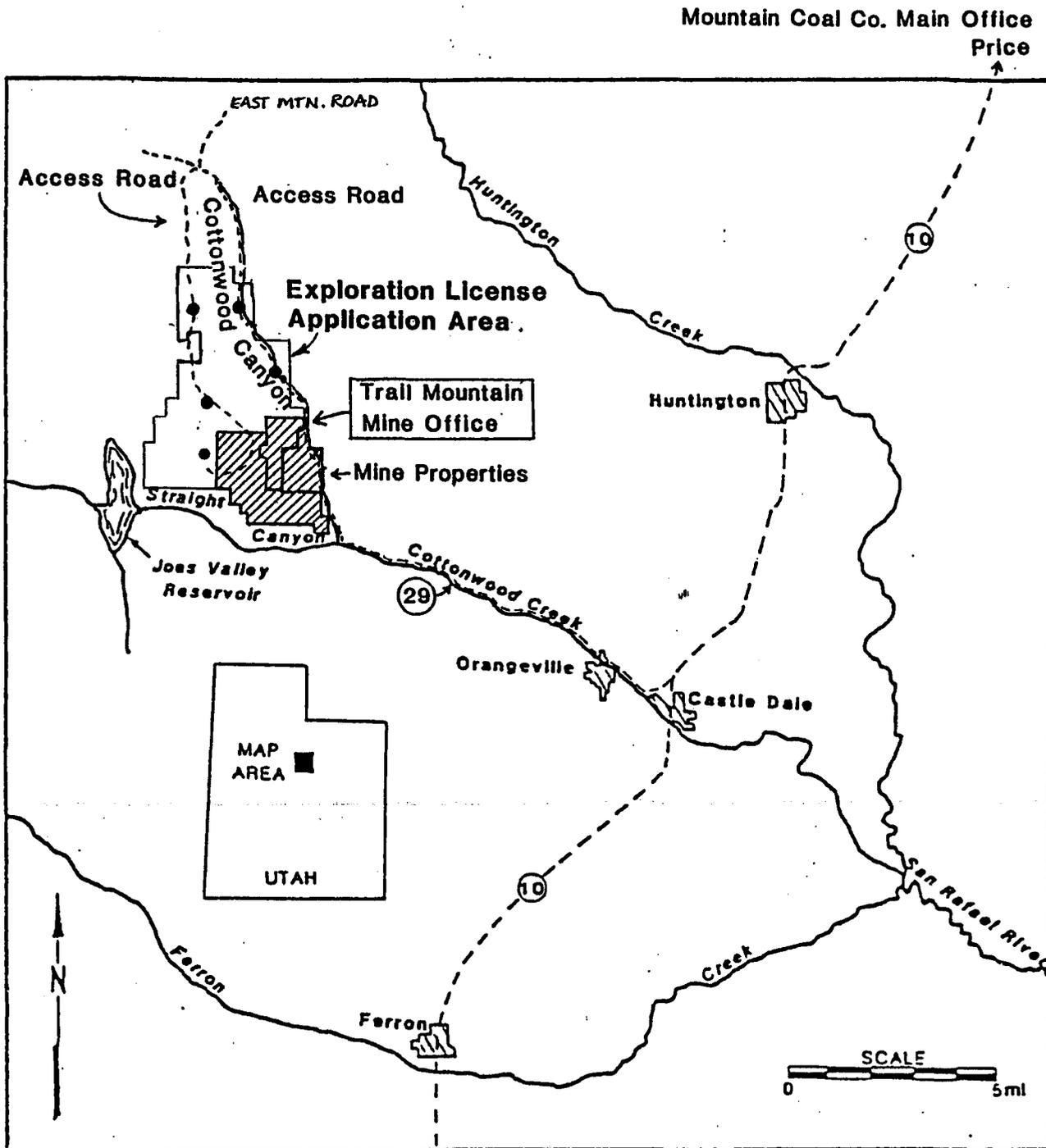


Figure 1. Location of Proposed Exploration Area.

System	Group	Formation		Thickness (feet)	Description
Tertiary	Wasatch	Flagstaff Limestone		100-1,000	Light gray to cream limestone; thin and even bedded; dense; fossiliferous; ledge- and cliff-forming.
		North Horn Formation		900-2,000	Mostly red-, brown-, and salmon-colored shales; varying thicknesses of sandstone, freshwater limestone and conglomerate; slope-forming.
Cretaceous	Mesaverde	Price River Fm.	Upper Price River Member	400-800	Mostly tan and gray, medium- to coarse-grained sandstone; some gray shale and conglomeratic sandstone; ledge- and slope-forming.
			Castlegate Sandstone Member	150-500	Light gray, yellowish brown, and white, medium- to coarse-grained sandstone and conglomeratic sandstone; cliff-forming.
		Disconformity			
		Blackhawk Formation		400-1,100	Light to medium gray sandstones; gray to black shales; gray siltstones; important coal beds in lower half; sandstones weather tan, brown, yellowish brown; ledge- and slope-forming.
	Star Point Sandstone		200-1,000	Tan, light gray, and white massive sandstones separated by one or more shale tongues; cliff-forming.	
	Mancos Shale	Masuk Shale		300-1,300	Light gray to blue gray sandy marine shale; thins to west and south; slope-forming.

Figure 2. Generalized stratigraphic column of rock units exposed in the Wasatch Plateau Coal Field (Davis and Doelling, 1977).

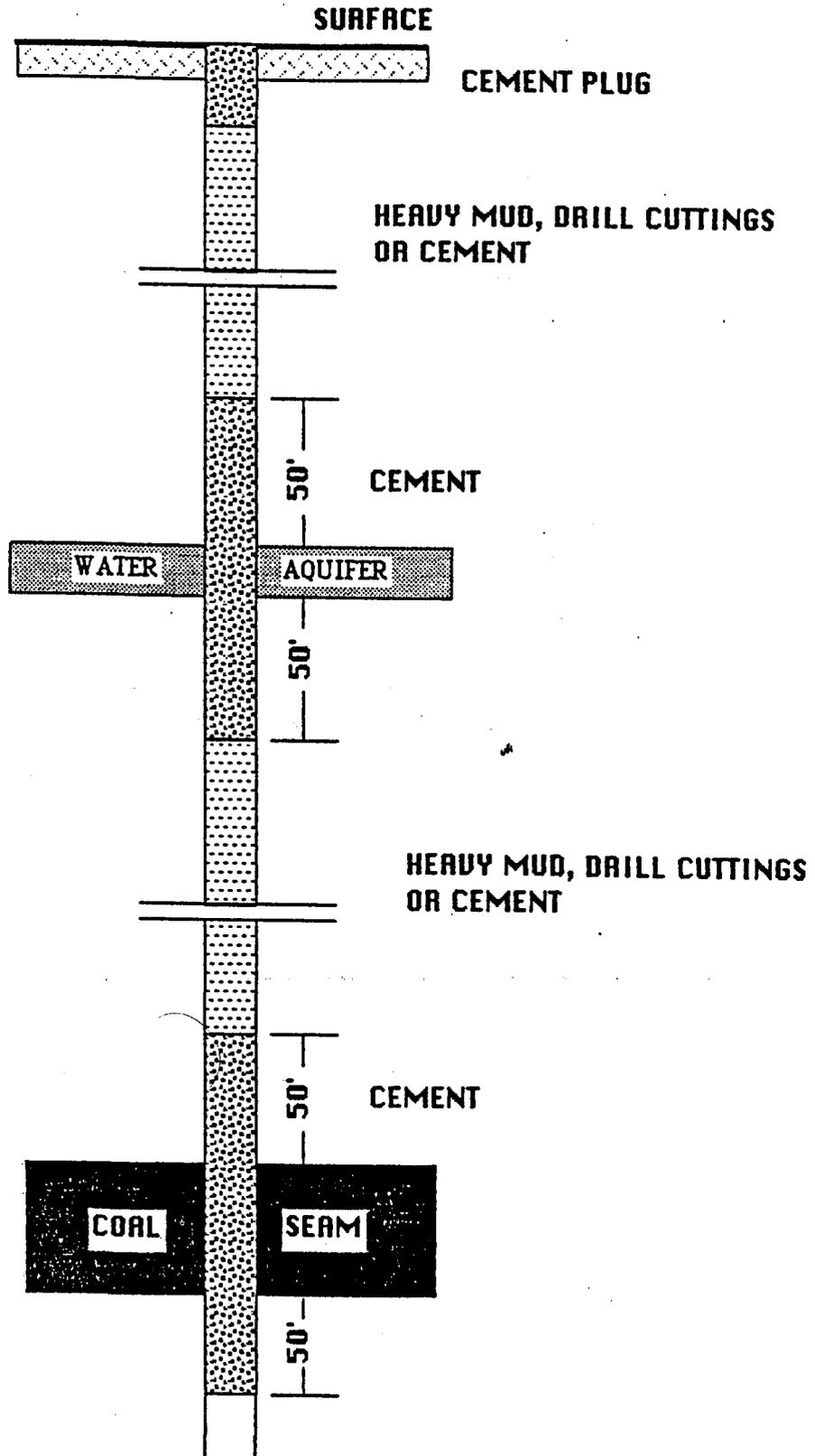


Figure 3. Drill hole plugging method.