

PRP-2



PRP-3



PRP-1



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DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

EXPLORATION PLAN
FEDERAL COAL LEASE
U-61049
EMERY COUNTY, UTAH
F.S. SURFACE

CYPRUS COAL COMPANY
Operator For
INTERMOUNTAIN POWER AGENCY

DECEMBER 1990

INTRODUCTION

This Exploration Plan has been prepared by Cyprus Coal Company ("Cyprus") (a Delaware corporation) acting as operator for IPA (Intermountain Power Agency, a political subdivision of the state of Utah) for this exploration project. Pursuant to 43 CFR 3480.0-5(27) Cyprus will be operating under a written agreement with IPA.

The federal coal lease for which this exploration plan has been prepared is not contained within an approved permit area and therefore the format utilized follows that of 43 CFR (10-1-86, edition) Subpart 3482. The appropriate regulation is referenced and underlined and Cyprus' response follows.

Five copies of this plan are herewith submitted to the Moab, Utah BLM office.

The information contained in this exploration plan demonstrates that environmental protection and reclamation are integral parts of the proposed exploration program and that reclamation will progress as contemporaneously as practical with the program. Sufficient information is provided in the exploration plan to substantiate the effectiveness of Cyprus' proposed reclamation method.

3482.1(a)(3) Exploration plans shall contain all of the following:

3482.1(a)(3)(i) The name, address, and telephone number of the applicant, and, if applicable the operator/lessee of record.

Applicant and Operator:
Cyprus Coal Company
9100 East Mineral Circle
Post Office Box 3299
Englewood, Colorado 80155
Telephone: 303/643-5100

Lessee of Record:

Attention: Michael J. Nosanov
Department of Water and Power
the City of Los Angeles
(Operating Agent for
Intermountain Power Agency)
111 North Hope Street
Box 111
Los Angeles, CA 90051-0100
Telephone: (213) 481-5810

3482.1(a)(3)(ii) The name, address, and telephone number of the applicant who will be representing and be responsible for conducting the exploration.

Gregory L. Hunt
Cyprus Coal Company
9100 East Mineral Circle
Post Office Box 3299
Englewood, Colorado 80155
Telephone: (303) 643-5071

3482.1(a)(3)(iii) A narrative description of the proposed exploration area, cross-referenced to the map required under paragraph (a)(3)(viii) of this section, including applicable federal lease and license serial numbers; surface topography; geologic, surface water, and other physical features; vegetative cover; endangered or threatened species listed pursuant to the Endangered Species Act of 1973 (16 U.S.C. 1531, et seq.); districts, sites, buildings, structures, or objects listed on, or eligible for listing on, the National Register of Historic Places; and known cultural or archeological resources located within the proposed exploration area.

Federal Lease

This exploration plan encompasses that portion of federal coal lease U-61049 where the surface is controlled by the U.S. Forest Service.

Legal Description of Entire Lease

Refer to the proposed drill hole locations map; attached, for portion of the lease covered by this exploration plan.

T. 16S., R. 7E., SLM, Utah	T. 16S., R. 8E., SLM, Utah
Sec. 1, lot 2, SW $\frac{1}{4}$ NE $\frac{1}{4}$, W $\frac{1}{2}$ SE $\frac{1}{4}$;	Sec. 7, lots 3 and 4, E $\frac{1}{2}$ SW $\frac{1}{4}$;
Sec. 12, W $\frac{1}{2}$ NE $\frac{1}{4}$, E $\frac{1}{2}$ W $\frac{1}{4}$ SE $\frac{1}{4}$;	Sec. 18, LOTS 1-4, E $\frac{1}{2}$, E $\frac{1}{2}$ W $\frac{1}{2}$;
Sec. 13, E $\frac{1}{2}$, E $\frac{1}{2}$ W $\frac{1}{2}$;	Sec. 19, SW $\frac{1}{4}$ NE $\frac{1}{4}$, NW $\frac{1}{4}$ SE $\frac{1}{4}$;
	Sec. 20, SE $\frac{1}{4}$ NW $\frac{1}{4}$, NE $\frac{1}{4}$ SW $\frac{1}{4}$

	Approximate Acreage
<u>Serial Number</u>	<u>of Entire Lease</u>
U-61049	2,036.09

Surface Topography Features

The lease is characterized as having true "Plateau" topography, being a flat-topped plateau elevated above the adjacent desert lands with deeply incised drainages forming steep-walled canyons cutting into the plateau from the east and south.

Geologic Features

The lease lies within the Wasatch plateau coal field which contains mineable coal only within the upper Cretaceous Blackhawk formation. This formation consists of lower tidal-flat and lagoonal intertonguing sandstone, siltstone, mudstone, carbonaceous-shale and coal. Within the lease boundaries two potentially economic coal seams lie within 300 feet above the base of the Starpoint sandstone (Fig. 1). The Hiawatha seam immediately overlies the Starpoint sandstone and is the seam of most interest while the Tank seam resides approximately 300 feet above the Starpoint sandstone. All drill holes are planned to penetrate into the Starpoint sandstone, ensuring penetration of the entire coal-bearing interval.

REGIONAL STRATIGRAPHIC COLUMN

(Modified after Mercier 1984)

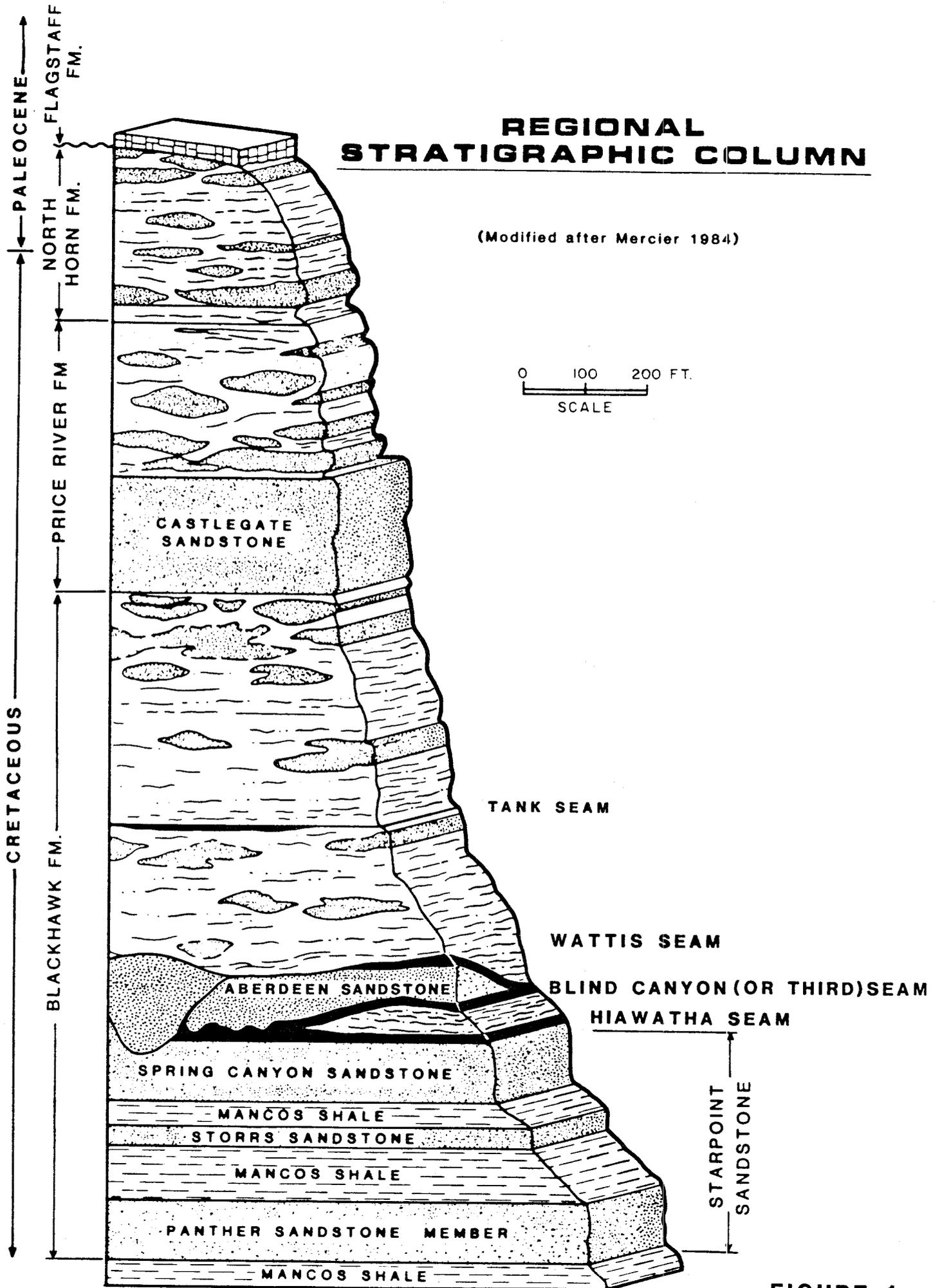


FIGURE 1

Strata within the lease boundary dip gently 3-5° to the south and are cut by only one known fault, the Eastern Boundary Fault of the Bear Canyon graben. The exploration program includes work to delineate any additional faults.

The proposed drilling program is designed to increase subsurface structural control and determine coal quantity and quality.

OTHER PHYSICAL FEATURES

Soils

The lease contains soils derived from sandstone, limestone and shale parent material. The following descriptions are based on SCS Range sites.

Soils associated with the sagebrush plant communities vary from shallow on the ridges to fairly deep at some sites. Water holding capacity is good with a large percent available for plant growth. Texture is moderately fine to moderately coarse and may contain moderate amounts of gravel and stone. Soils are loams, sandy loams and fine sandy loams.

Soils associated with the aspen plant communities are moderately deep to deep sandy loams and clayloams. Organic matter is relatively high with good soil moisture conditions which make soils favorable for plant growth.

Conifer plant communities occur on moderately deep, fine textured soils. The profile is typically noncalcareous with the upper horizons neutral to slightly acid.

Soils associated with the meadow and riparian vegetation types are moderately deep, high in organic matter, poorly drained and acid in reaction. They range from sandy loam to clay with the potential of peat forming in the surface layer. These soils are usually very productive.

Surface Water

There are no streams, lakes, or rivers on the lease. There are drainages which apparently run water during heavy rain storms and thus could be designated ephemeral streams.

Ground Water

Previous drilling, spring monitoring, and mining on lease tracts to the north and west of this lease in very similar geology, and hydrology suggest that only one regional aquifer (Starpoint Aquifer) should be present within the lease boundaries. Small Perched aquifers within the Price River formation are also anticipated and are probably the source for the four identified springs within the lease (93-1429, 93-1430, 93-1431, 93-1433). As indicated in the response to 3482.1(a)(3)(vii), measures will be taken to prevent the intermixing of groundwaters.

Vegetative Cover

The surface of this lease is covered with sage brush, grasses and stands of aspen and conifers.

Threatened or Endangered Species

Species lists for both plants and animals prepared from studies on similar sites in the vicinity of the lease area have been compared to the list prepared under 50 CFR 17.11 and 17.12, Endangered and Threatened Wildlife and Plants, USDI, U.S. Fish and Wildlife Service, January 1982. None of the species identified in the area was found on this list.

Wildlife and Fish

Mammals which may occur in the area include elk, deer, black bear, cougar, bobcat, coyote, badger, porcupine, snowshoe hare, golden mantled squirrel, Uinta ground squirrel, red fox, grey fox, marmot, flying squirrel and other species of small rodents.

The lease is used by deer and elk as summer range. The proposed drill sites are within Utah Division of Wildlife Resources mule deer herd Unit No. 34 and the elk herd is in the Wattis Planning Unit.

Birds that inhabit or frequent the area include the golden eagle, redtailed hawk, rough-legged hawk, goshawk, screech owl, common raven, red-shafted flicker, yellow-bellied sapsucker, robin, mountain bluebird, phaino popla, gray-headed junco, Stellar's jay, mountain chickadee, vesper sparrow, Audubon's warbler, Clark's nutcracker, mourning dove, nuthatches, sparrows and probably various other species.

Reptiles and amphibians of the area probably include: boreal toad, leopard frog, northern sagebrush lizard, Rocky Mountain rubber boa, Great Basin gopher snake and Great Basin rattlesnake.

National Historic Register Sites

Within the lease boundary there are no district, sites, buildings, structures, or objects listed on, or known to be eligible for listing on the National Register of Historic Places.

Cultural or Archaeological

Proper archaeological clearance will be obtained prior to any surface disturbances in full accordance with federal and state codes.

3482.1(a)(3)(iv) A narrative description of the methods to be used to conduct coal exploration, reclamation, and abandonment of operations including, but not limited to -

The proposed coal exploration program will utilize drilling, coring and geophysical logging and surface geophysical surveys as methods of data collection.

Drilling

Data collection will involve rotary drilling and core sampling. Only the coal seams and immediate roof and floor will be core drilled. The overlying material will be plug-drilled to a predetermined core point. The primary equipment for the drilling phase will be a truck-mounted rotary drilling machine. Backup and auxiliary equipment may include but not be

limited to a water truck, a D-8 Caterpillar or similar track-type dozer, a rubber-tired backhoe, an electric generator, personnel trailer, and electric and mechanical geophysical logging equipment. Access by personnel to drilling sites will be by four-wheel drive pick-up truck.

The size of the drill holes will range from 4-3/4 inches in diameter to 9-1/2 inches in diameter. Six or nine inch nominal diameter surface casing will be inserted through the surface alluvium and certain other intervals depending on hole conditions. Approximately 50 feet of core will be recovered per hole. The average depth of the drill holes will be approximately 1500 feet. The following suite of logs is planned to be run on each drill hole: natural gamma, gamma-gamma density, resistivity, caliper, and verticality. When desired, this suite may be expanded to include any or all of the following: sonic, spontaneous potential, dip meter, neutron-neutron, and temperature.

Drill hole locations will require mud pits to be dug to contain the drilling medium. These pits will be constructed to a sufficient size to contain all effluent drilling materials. Pits of this size are estimated to be 12' by 30'. To prevent overflow, the waste pits will be pumped out and the waste fluids will be properly disposed of.

Where possible, all drill hole sites will be located on existing roads and trails. When it is not possible to locate sites on or along these existing facilities, a temporary access trail will be constructed by simply driving overland without removing topsoil. Where it is practical and/or required, topsoil and vegetation will be removed and stored for use in reclamation activities.

Primary access to the proposed drill hole locations is provided by the road over private ground through Mohrland Canyon.

Proposed drill hole PRP-1 (proposed drill hole map and photo in Attachment A) is sited approximately 500 feet from an existing road. Proposed access is via a temporary trail to be created by driving overland, winding

between stands of trees and sage, and not removing topsoil. At the drill site, topsoil would be removed and stockpiled for reclamation.

Proposed drill hole PRP-2 (proposed drill hole map and photo in Attachment A) is sited on an existing road at the edge of a clearing apparently created and used by a previous logging operation. Some sage will need to be cleared but equipment will be positioned to prevent the removal of trees to the extent practical.

Proposed drill hole PRP-3 (proposed drill hole map, and photo in Attachment A) is located alongside an existing road on a sage and grass covered flat.

Reclamation

Each exploration site which requires reclamation will have trash and debris removed, mud pits (at drill locations) backfilled, and topsoil (when removed) distributed upon completion of exploration activity. All roads and trails constructed or used during the exploration program will be rehabilitated. Existing roads will be returned to a condition equal to or better than their condition prior to commencement of the exploration activities. New roads which have been constructed will be leveled or returned to approximate original contour, scarified, and re-seeded once their existence is no longer needed for exploration activities. The seeding of rehabilitated locations and access roads will be accomplished in the first favorable seeding season following completion of the exploration program. The re-establishment of vegetation on reclaimed sites and abandoned roads, after exploration activities are concluded, is the planned method to prevent possible soil erosion.

After the topsoil is re-spread, the surface will be scarified, if necessary. Upon recommendations of the BLM, fertilizer and seed will be applied at the proper mix and rate specified.

Abandonment

3482.1(a)(3)(iv)(A) The types, sizes, numbers, capacity and uses of equipment for drilling and blasting, and road or other access route construction;

The activities and uses of equipment has previously been discussed. The following table describes the equipment expected to be utilized during various phases of the exploration program.

LIST OF EQUIPMENT

Exploration Phase	Types of Equipment	Size or Capacity	Quantity	Comments
Drilling	Rotary Drill Rig	GD2000 or similar	2	All of this equipment will be used only for drilling activities.
	Water Truck	4,000 gal	4	
	Pipe Truck	Dual-axle flat-bed	2	
	Core Trailer	8' x 28'	2	
	Elect. Generator	50 kW	2	
	Travel Trailer	8' x 25'	3	
Support & Reclamation	Bulldozer	D8 Bulldozer or similar	1	All equipment will be rubber tired except the Bulldozer which is track mounted.
	Road Grader	D14 Caterpillar or similar	1	
	Backhoe	Rubber tire Tractor-type	1	
	Fuel Truck	2,000 gal.	1	

3482.1(a)(3)(iv)(B) Excavated earth or debris disposal activities;

All earth excavated in any phase of the proposed exploration activities will be treated the same. Where required, the topsoil will be removed and stockpiled for re-distribution during road and site reclamation. Drainage will be controlled to prevent concentrated runoff across exposed soils. Each site or disturbed area will be reshaped to approximately the original land contours, leaving a roughened surface. The areas will be scarified where compaction has occurred. The reclaimed sites will be prepared to be fertilized and seeded at the earliest suitable times.

All debris and trash will be disposed of properly and in a timely manner. Location of disposal will be completely off the exploration area.

3482.1(a)(3)(iv)(C) The proposed method for plugging drill holes;

Upon completion each hole will be grouted with portland cement from bottom to surface with a single strand of coaxial cable embedded within the grout to form a TDR (Time Domain Refractometry) monitor point. Completion of TDR monitor points are described below under 3482.1(a)(3)(iv)(E).

3482.1(a)(3)(iv)(D) Estimated size and depth of drill holes, trenches and test pits: and;

All of the proposed drill holes are estimated to be approximately 1500 feet deep. The diameter of drill holes will vary depending on hole conditions, the range will be 4-3/4 inches to 9-1/2 inches.

3482.1(a)(3)(iv)(E) Plans for transfer and modification of exploration drill holes to be used as surveillance, monitoring, or water wells.

Every drill hole will be converted to a TDR (Time Domain Refractometry) monitoring sites. Diagrams showing completion method are shown on Figures 2 and 3 respectively. TDR monitor sites are constructed by placing an approximately 1/2 inch diameter coaxial cable full length of the hole, then grouting the entire hole from top to bottom with portland cement. When the grout hardens, the cable and grout become part of the strata; and the cable breaks as caving occurs above longwall panels. This reference constitutes a written request for permission to utilize the drill holes as monitoring points pursuant to 43 CFR 3484.1(a)(5); and elicits a specific written approval of same.

3482.1(a)(3)(v) An estimated timetable for conducting and completing each phase of the exploration, drilling and reclamation.

PROPOSED MONITOR WELL LOCK SYSTEM

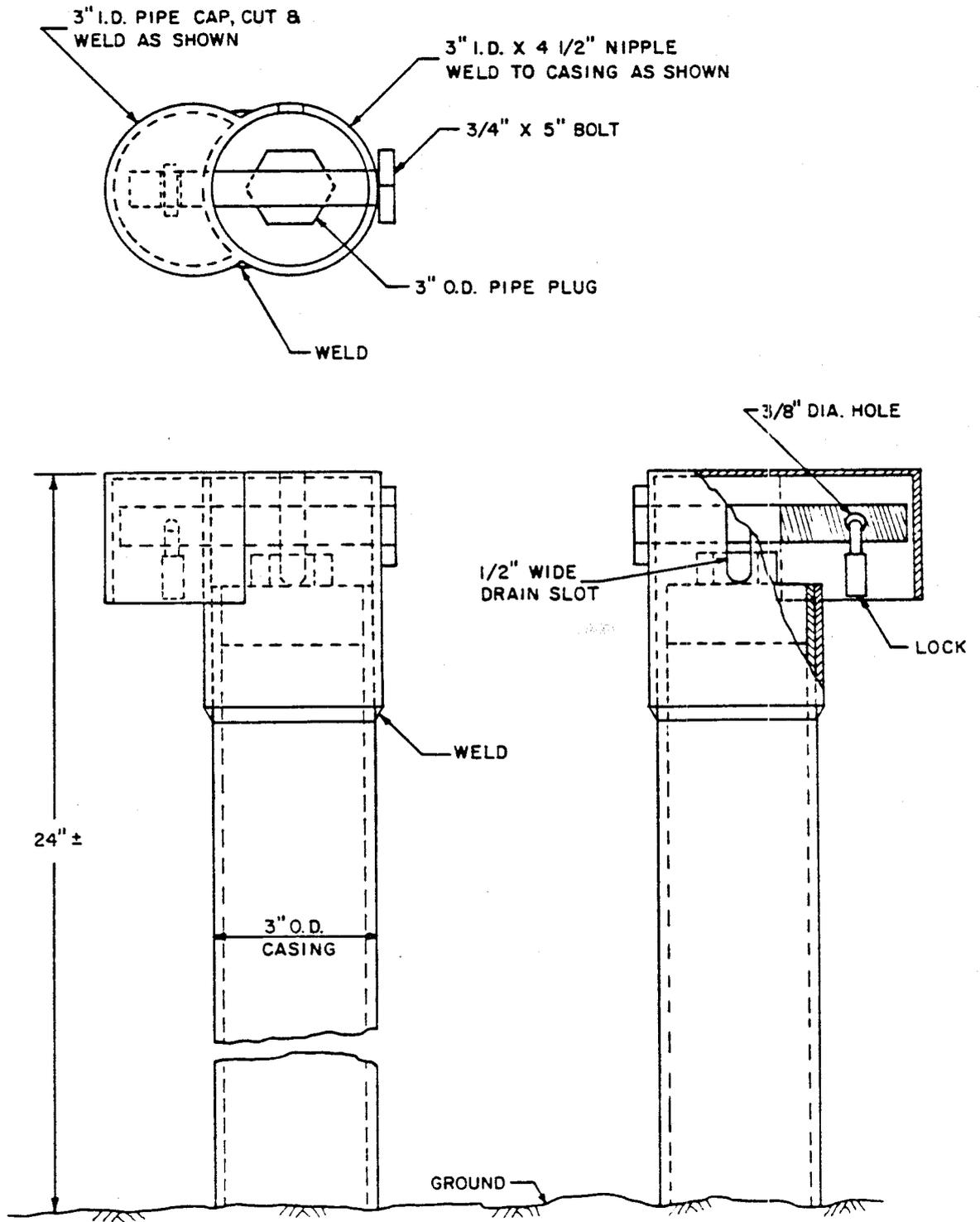


FIGURE 2

COMPLETION DIAGRAM

TDR MONITOR-WELL

MOHRLAND PROJECT

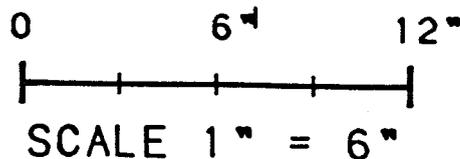
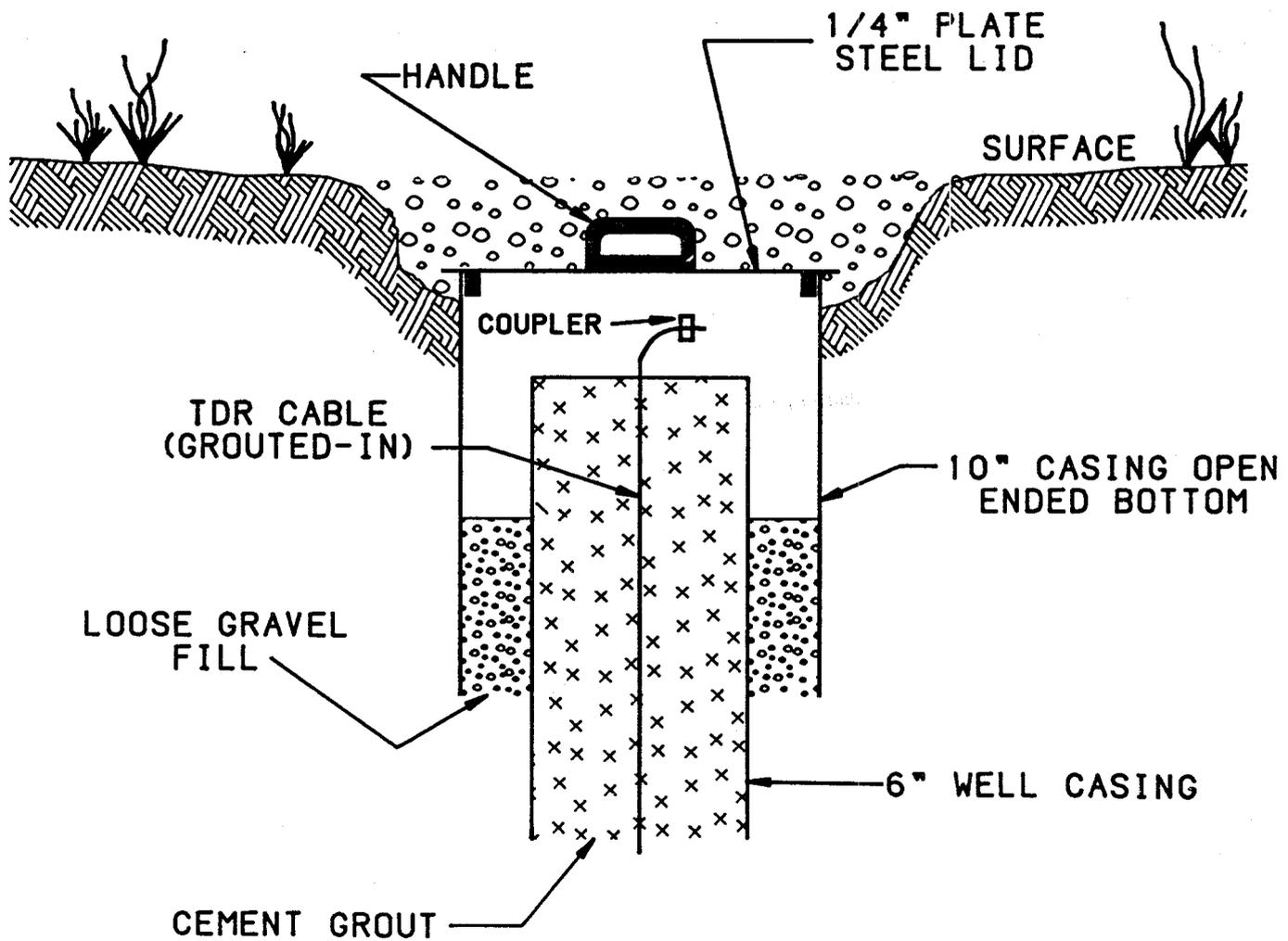


FIGURE 3

The proposed exploration program is scheduled to begin in July 1991. Current plans allow for both phases of the program to run concurrently. It is expected that the reclamation will require the longest amount of time to complete. The following bar graph demonstrates the estimated time schedule for each phase of the proposed program.

PHASE OF <u>EXPLORATION</u>	<u>JULY</u>				<u>AUGUST</u>				<u>SEPTEMBER</u>				<u>OCTOBER</u>			
	WEEK				WEEK				WEEK				WEEK			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Drilling	*****															
Reclamation	*****															

The total exploration plan, which includes re-seeding, can be completed in approximately 15 weeks, providing that there are no unforeseen delays.

3482.1(a)(3)(vi) The estimated amounts of coal to be removed during exploration, a description of the method to be used to determine those amounts, and the proposed use of the coal removed.

The proposed exploration plan calls for three (3) drill holes. Three inch diameter coal core will be removed from each of the two seams in each hole. It can be assumed that substantially less than a total of one ton of coal will be removed throughout the entire proposed program.

The coal that will be removed will be used for quality and geotechnical testing. The results of these tests will aid in property evaluation, underground mine design and future exploration planning.

3482.1(a)(3)(vii) A description of the measures to be used during exploration for federal coal to comply with the performance standards for exploration (3481.1(a) and

applicable requirements of 30 CFR 815.15 or an approved state program.

3484.1(a)(2)

The operator/lessee, if required by the authorized officer, shall set and cement casing in the hole and install suitable blowout prevention equipment when drilling on lands valuable or prospectively valuable for oil, gas, or geothermal resources.

If required by the authorized officer, casing will be set and cemented in the hole and suitable blowout prevention equipment will be installed. The area and depth of proposed exploration is such that the prospective value of oil, gas or geothermal resources is not anticipated.

3484.1(a)(3)

All exploration drill holes must be capped with at least 5 feet of cement and plugged with a permanent plugging material that is unaffected by water and hydrocarbon gases and will prevent the migration of gases and water in the drill hole under normal hole pressures. For exploration holes drilled deeper than stripping limits, the operator/lessee, using cement or other suitable plugging material approved by the authorized officer shall plug the hole through the thickness of the coal bed(s) or mineral deposits(s) and through aquifers for a distance of at least 50 feet above and below the coal bed(s) or mineral deposit(s) and aquifers, or to the bottom of the drill hole. A lesser cap or plug may be approved by the authorized officer. Exploration activities shall be managed to prevent water pollution and mixing of ground and surface waters and ensure the safety of people, livestock, and wildlife.

The possibility of contamination of surface waters by drilling materials is extremely low, adequate precautionary measures to prevent the escape of drilling materials into stream drainages can be incorporated into

individual site designs. The potential for contamination of surface waters can be minimized by constructing waste pits of sufficient size to contain all effluent drilling materials. To prevent overflow, the waste pits will be pumped out and waste fluids will be disposed of properly. Waste pits will be lined if percolation of fluids through the walls into stream drainages appears possible.

The potential of intermixing of groundwaters and raising or lowering of certain aquifers could possibly result in exploration utilizing deep drill holes. To minimize these effects, the drill hole plugging requirements of the BLM and 43 CFR 3484.1(a)(3) will be strictly adhered to.

3484.1(a)(4) The operator/lessee shall retain for one (1) year, unless a shorter time period is authorized by the authorized officer, all drill and geophysical logs and shall make such logs available for inspection or analysis by the authorized officer, if requested. The authorized officer, at his discretion, may require the operator/lessee to retain representative samples of drill cores for one (1) year. Confidentiality of such information will be accorded pursuant to the provisions of § 3481.3 of this title.

Drill and geophysical logs as well as representative core samples obtained from the proposed exploration program will be available for inspection or analysis by the authorized officer for one year.

3484.1(a)(5) The operator/lessee may utilize exploration drill holes as surveillance wells for the purpose of monitoring the effects of subsequent operations on the quantity, quality, or pressure of groundwater or mine gases only with the written approval of the authorized officer, in consultation with the regulatory authority. The operator/lessee may convert exploration drill holes to water wells only after approval of the operator/lessee's

written request by the authorized officer and the surface owner or authorized officer in consultation with the regulatory authority. All such approvals shall be accompanied by a corresponding transfer of responsibility for any liability including eventual plugging, reclamation, and abandonment. Nothing in this paragraph shall supersede or affect the applicability of any state law requirements for such a transfer, conversion, or utilization as a supply for domestic consumption.

3484.1(a)(5) Refer to response to 3482.1(a)(3)(iv)(E).

3482.1(a)(3)(viii) A map at a scale of 1:24,000 or larger showing the areas of land to be affected by the proposed exploration and reclamation. The map shall show existing roads, occupied dwellings and pipelines; proposed location of trenches, roads, and other access routes and structures to be constructed; applicable federal lease and license boundaries; the location of land excavating to be conducted; coal exploratory holes to be drilled or altered; earth or debris-disposal areas; exiting bodies of surface water; and topographic and drainage features.

Attached to this application is a map at a scale of 1:24,000 showing the requested information (proposed drill hole locations).

3482.1(a)(3)(ix) The name and address of the owner of record of the surface land, if other than the United States. If the surface is owned by a person other than the applicant or if the federal coal is leased to a person other than the applicant, a description of the basis upon which the applicant claims the right to enter that land for the purpose of conducting exploration and reclamation.

U. S. Department of Agriculture
Forest Service
Manti-LaSal National Forest
Price District Ranger
599 West Price River Drive
Price, UT 84501

3482.1(a)(3)(x) Such other data as may be required by the authorized officer.

Other data that may be required will be made available as soon as possible upon the request of the BLM.

Attachment A

CAPTIONS FOR COLOR PHOTOGRAPHS OF
PROPOSED DRILL HOLE LOCATIONS TAKEN
NOVEMBER 1990

PRP 1, VIEW N-NE; Approximately 600 ft. of access road will be required.

PRP 2, VIEW N; Some sage brush will need to be cleared. Note truck is parked in clearing apparently created by loggers; this could be a good site to park equipment.

PRP 3, VIEW N-NE; Site is adjacent to road.