

0071



United States Department of the Interior



BUREAU OF LAND MANAGEMENT

Utah State Office
P.O. Box 45155
Salt Lake City, UT 84145-0155
<http://www.blm.gov>

IN REPLY REFER TO:

3410
UTU-82202
(UT-923)

DEC 13 2005

CERTIFIED MAIL-Return Receipt Requested

Ms. Mary Ann Wright, Acting Director
Utah Division of Oil, Gas and Mining
P.O. Box 145801
Salt Lake City, Utah 84114-5801

Incoming OK
12/04/0002

Dear Ms. Wright:

An application for a coal exploration license, assigned serial number UTU-84198, was filed in this office on December 7, 2005, by Ark Land Company, for lands in Sevier County.

The lands being considered in coal exploration license application UTU-84198 are described as follows:

- T. 20 S., R. 5 E., SLM, Utah
Sec. 31, W2SW;
- T. 21 S., R. 4 E., SLM, Utah
Sec. 1, all;
Sec. 11, E2E2;
Sec. 12, N2, SW, W2SE;
Sec. 13, W2NE, NW;
Sec. 14, E2NE;
- T. 21 S., R. 5 E., SLM, Utah
Sec. 6, all.

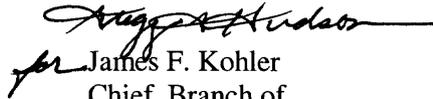
Containing 1,848.62 acres.

Mine # 12/04/0002
 File Incoming
 Record # 0071
 Doc. Date 12/13/05
 Recd. Date 12/15/05

RECEIVED
 DEC 15 2005
 DIV. OF OIL, GAS & MINING
12/19

Any comments or questions concerning the application should be addressed to Stan Perkes, of my staff, at 539-4036.

Sincerely,


for James F. Kohler
Chief, Branch of
Solid Minerals

Enclosure
Exploration License Application

BLH - UT - 950
2005 DEC -2 AM 9:31

UTAH STATE OFFICE
RECEIVED
ACCOUNTS UNIT
2005 DEC -2 PM 1:17
DEPT. OF INTERIOR
BUR OF LAND MGMT

EXPLORATION PLAN
TO ACCOMPANY AN
APPLICATION FOR A FEDERAL MINOR COAL
EXPLORATION LICENSE

Muddy Creek Area
Sevier County, Utah

November 2005

ARK LAND COMPANY
A Subsidiary of Arch Coal Inc.

Mine # C/041/0002
File Incoming
Record # 0071
Doc. Date 12.13.05
Recd. Date 12.15.05

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DEC 15 2005
DIV. OF OIL, GAS & MINING

Introduction

This exploration plan is part of an Application for a Federal Minor Coal Exploration License submitted by Ark Land Company (a subsidiary of Arch Coal Inc.) on behalf of Canyon Fuel Company, LLC, Sufco Mine to the US Department of the Interior Bureau of Land Management (BLM) as required in 43 CFR 3410. Approval is sought to conduct coal exploration and reclamation activities during the summer of 2006. The type of exploration proposed is wireline core drilling. Five drill holes are proposed in this application. All the drill sites and access routes will require surface disturbance. The BLM manages the coal resource. The surface resources in this exploration license area are managed by the U.S. Department of Agriculture Forest Service (USFS). This exploration plan is formatted to address the specific requirements of 43 CFR 3482.1 as required by 43 CFR 3410.2 and issues of concern by other agencies.

43 CFR 3482.1(a)(3)(i) - Applicant

Ark Land Company
c/o Sufco Mine
397 S 800 W
Salina, Utah 84654
Attn: Mark Bunnell (work) 435-448-2633

The applicant is the same as the operator of the proposed exploration license. Correspondence regarding this application for exploration license should be addressed to:

Mark Bunnell
Ark Land Company
c/o Skyline Mines
HC 35 Box 380
Helper, Utah 84526 (work) 435-448-2633

43 CFR 3482.1(a)(3)(ii) - Person Present During Exploration

Mark Bunnell
Ark Land Company
c/o Skyline Mines
HC 35 Box 380
Helper, Utah 84526 (work) 435-448-2633

At times a consulting geologist may act as a representative of the applicant. The BLM and USFS will be notified of the name, address, and phone number of the consulting geologist, if one is used.

43 CFR 3482.1(a)(3)(iii) - Description of the Proposed Exploration Area

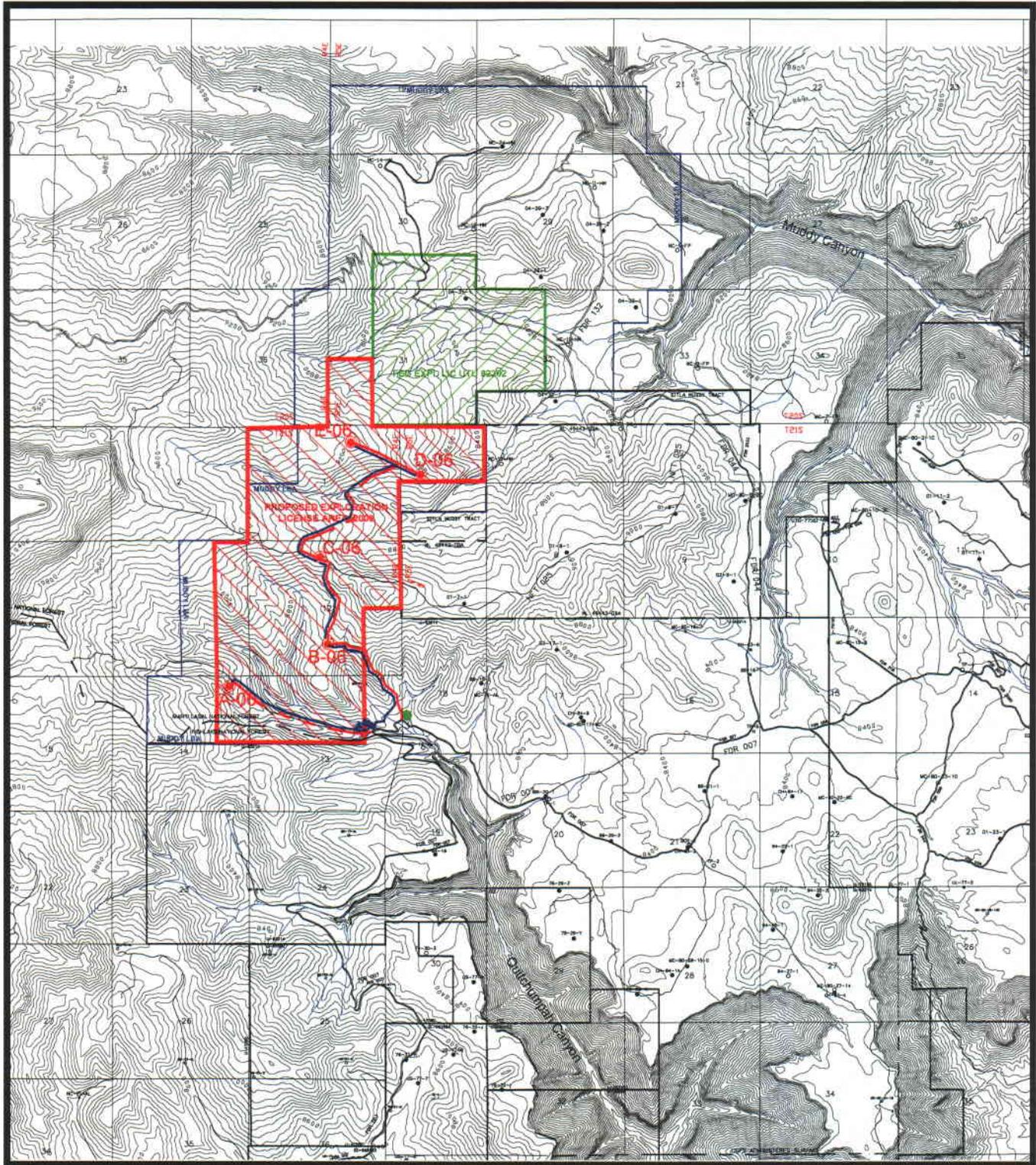
Legal Description

The proposed exploration license area is generally located in southeastern Sanpete County and northeastern Sevier Counties, Utah. This area involves Federal coal and surface rights in the Muddy Canyon area located approximately 12 mi. northwest of Emery, Utah and encompasses 1,848.62 acres, more or less. The coal resource is managed by the U.S. Department of the Interior, Bureau of Land Management and the surface resources are managed by the U.S. Department of Agriculture, Forest Service. Map 1 depicts the boundaries of the proposed exploration area. The area included within the license application is tabulated as follows:

T. 20 S., R. 5 E., Salt Lake Meridian	
Section 31: W1/2SW1/4	80.00 acres
T. 21 S., R. 4 E., Salt Lake Meridian	
Section 1: All	554.40 acres
Section 11: E $\frac{1}{2}$ E $\frac{1}{2}$	160.00 acres
Section 12: N $\frac{1}{2}$, SW $\frac{1}{4}$, W $\frac{1}{2}$ SE $\frac{1}{4}$	560.00 acres
Section 13: W $\frac{1}{2}$ NE $\frac{1}{4}$, NW $\frac{1}{4}$	240.00 acres
Section 14: E $\frac{1}{2}$ NE $\frac{1}{4}$	80.00 acres
T. 21 S., R. 5 E., Salt Lake Meridian	
Section 6: All	174.22 acres
Total 1,848.62 acres, more or less	

No Federal or other leases are included in the exploration license area. Canyon Fuel Company holds Federal and State coal leases to the south and east of the proposed exploration license area (Maps 1 and 2). The State coal lease is part of the SITLA Muddy Tract where Canyon Fuel has leased a portion of the tract for the Upper Hiawatha coal seam.

Ark Land Muddy Creek Area Exploration License Application



<ul style="list-style-type: none"> ● Proposed 2006 Drillsite ▲ Pump ■ Frac Tank — HDPE Waterline ● Staging Area 	<ul style="list-style-type: none"> — Temporary Road Construction 2006 - - - Improvement of existing wheeltrack 2006 · · · Temporary Widening of Forest ATV Trail 025 	<ul style="list-style-type: none"> Exploration License UTU 82202 Proposed Exloration License 2006 	<p>MAP 1</p> <p>SCALE 0' 5000' 10,000'</p>
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ARK LAND COMPANY

PROPOSED MUDDY TRACT EXPLORATION LICENSE 2006

DRILL HOLE AND ACCESS ROUTE LOCATIONS

DATE: _____	BY: _____	FILE NO. _____	SHEET NO. _____
APPROVED: _____	DATE: _____	1" = 5000'	

Geology and Topography

The proposed exploration license area is located south of Muddy Creek Canyon (Map 1). Muddy Creek drains southeastward into the south end of Castle Valley. The area lies within the Wasatch Plateau physiographic province. The surface elevation ranges from approximately 7,400 ft to 9,700 ft in the proposed license area.

The exploration area is underlain by sedimentary rocks of late Cretaceous age. Three formations crop out in the area including the coal-bearing Blackhawk Formation as well as the overlying Price River and North Horn Formations. At least three potentially mineable coal zones occur in the area, which are in descending order the Muddy, Upper Hiawatha, and Lower Hiawatha coal zones.

Strata in the area dip uniformly from 2 to 3 degrees northwest. No major faulting is known in the proposed exploration license area, though mining in the Quitchumpah and Pines areas to the south has encountered minor faulting and fracturing.

Ark Land plans to wireline core drill through all major coal seams including at least 10 feet of floor rock beneath the deepest coal seam. Up to two of the planned five drill holes will be completed as piezometers (water monitoring wells).

No valuable minerals other than coal are known to occur within the boundary of the proposed exploration license area.

Surface Water

The proposed exploration area is drained by Muddy Creek in the north and Quitchupah Creek in the south. Both creeks belong to the San Rafael sub-basin of the Upper Colorado River Basin.

Ground Water

Significant quantities of groundwater are not expected in the proposed exploration license area to the depths drilling is planned. Significant amounts of water have not been encountered during previous drilling in the Muddy Creek area. Also, only occasional minor inflows that drip from fractures and minor fault zones in the mine roof have been encountered in the Sufco Mine to the south.

Hydrologic studies and monitoring have shown that groundwater occurs in perched zones of limited areal extent within lenticular sandstones. None of the formations from the surface down through the Blackhawk Formation comprise a laterally continuous aquifer.

Soils

The soils in the proposed exploration area are generally sandy loams. Surface horizons are commonly dark and organic rich. Subsoils are mainly loam with a high rock content. Care will be taken in locating the drill sites to ensure soil conditions will not be a limiting factor in the successful reclamation of a site. Topsoil and subsoil will be separately removed, piled, and protected when constructing the drill sites.

Erosion and Sedimentation

The activities associated with this proposed program will not adversely affect erosion or sedimentation in the area. None of the proposed drill sites occur in slump areas.

Biology

Vegetation in the proposed exploration area is comprised mostly of the conifer and sagebrush communities. The streams are not capable of supporting game fish. The exploration area is important habitat for raptors, elk, mule deer, cougar, bobcat, black bear, and small mammals. The area is also habitat for a limited number of reptiles and amphibians.

Threatened and endangered species in the exploration area include the sage grouse, bald eagle, and peregrine falcon. Exploration and reclamation activities will not occur within one half mile of known breeding and nesting areas. Site-specific raptor surveys will be conducted in the late spring/early summer to verify site locations meet this criterion. A Mexican spotted owl survey will also be conducted beginning in late spring. Ark Land Company plans to contract any required site-specific biologic surveys such as raptor and/or threatened and endangered species prior to commencement of exploration activities. This work would be accomplished in late spring/early summer 2006 upon approval of the USFS.

Historic Places

There are no known districts, sites, buildings, structures, or objects listed on, or eligible for listing on, the National Register of Historic Places in the proposed exploration area.

Cultural and Archaeological Resources

There are archaeological resources in the proposed exploration license area and in the vicinity of the support areas but none are close to the proposed drill sites, access routes, or support areas. A good listing of cultural resource inventories conducted to the east of the proposed exploration area is included in the Pines Tract Project, Final Environmental Impact Statement, section 3.8, pg. 3-152. Ark Land Company conducted site-specific

archeological surveys relative to its 2004 Muddy drilling project, portions of which include the proposed exploration area. The results of these surveys are given in report U-04-EP-0650f which is on file with the BLM, USFS, and the Utah Division of Oil, Gas and Mining (UDOGM). A site-specific cultural resources survey for this proposed exploration license area and support areas was conducted in late Fall 2005. The results will be forwarded to the BLM upon completion.

43 CFR 3482.1(a)(3)(iv) - Description of the Methods to be Used

The general method to be followed during drill hole exploration, reclamation and abandonment is: 1) prepare access routes where needed, prepare the drill sites and support areas, transport equipment and supplies to the drill sites and support areas, and setup drill equipment, 2) drill, log and plug or complete the drill holes as needed, and 3) remove equipment and water lines and reclaim the access routes, drill sites, and support areas. Exploration activities are planned for the summer of 2006.

Proposed Access Routes, Drill Site Locations, and Support Areas

Access from state and county roads to the exploration license area will be via Forest Development Roads 007 and 044. Most travel and transport will be within and adjacent to the exploration license area on Forest Development Roads 007, 044, and newly constructed temporary access routes. Truck-mounted equipment, service vehicles, pick-up trucks, ATVs, and horses will use these access routes. The width of travel will be limited to 12 ft wide where upgraded trails, roads or newly constructed access routes are used. Proper permission will be obtained to use Forest development roads and trails and to upgrade or construct temporary access routes. The proposed access routes are shown on Map 2.

The five proposed drill sites are located at the head of the North Fork of Quitcupah Canyon, north of Big Ridge, and in the Greens Canyon area. The locations were chosen to minimize surface and other impacts. The locations of the five proposed drill sites are shown on Map 2. The legal description of the proposed drill sites and their projected depths are given in Table 1.

<u>Drill Hole</u>	<u>Location</u>	<u>Projected Total Depth</u>
A-06	T 21 S, R 4 E, sec. 14, NE $\frac{1}{4}$ NE $\frac{1}{4}$	1,910'
B-06	T 21 S, R 4 E, sec. 12, SW $\frac{1}{4}$ SE $\frac{1}{4}$	1,760'
C-06	T 21 S, R 4 E, sec. 12, NE $\frac{1}{4}$ NW $\frac{1}{4}$	2,155'
D-06	T 21 S, R 5 E, sec. 6, SW $\frac{1}{4}$ SW $\frac{1}{4}$	1,900'
E-06	T 21 S, R 5 E, sec. 1, NW $\frac{1}{4}$ NE $\frac{1}{4}$	2,360'

The locations of two types of support areas are proposed including a staging area and a water (frac) tank/pump site. The water storage/pump sites will have one or two frac tanks

to store water and a Triplex or equivalent pump. Drillsites not in use prior to reclamation may also be utilized as staging area/water-handling sites as well. The locations of the support areas were chosen to minimize surface and other impacts and are shown on Map 2.

Construction of Access Routes and Drill Sites

The planned method to prevent possible future soil erosion is to minimize disturbance of topsoil to an approximate 12 ft. width and allowing rapid re-establishment of vegetation by reclaiming the area as soon as possible after exploration activities are concluded. Access routes and drill sites will be located to minimize the amount of surface disturbance and the support areas will be located where surface disturbance is not needed. Access routes will be on Forest Development Roads, an existing Forest Development Trail (025), an existing non-system double-track road and newly constructed temporary access routes. Forest Development Roads will be repaired where necessary. This may include grading rutted areas with a grader and hauling gravel to fill rough areas on bedrock ledges and cover sandy areas. Forest Development Trail 025 will be reopened and new temporary access routes will be constructed with a D8 Cat or equivalent. No blasting will be done when upgrading or constructing access routes. In all cases, the maximum access route width will be approximately 12 ft and the least amount of disturbance will be made while upgrading and constructing access routes. No earth or debris from road repair or access route construction will be disposed of. Map 2 also shows an access route segment that is an existing non-system double-track road between sites C-06 and D-06/E-06. This access route will be completely reclaimed upon completion of drilling.

Drill sites will be approximately 100 ft x 100 ft in size. Vegetation will be grubbed followed by removal of the topsoil with a dozer. The minimum amount of subsoil will be removed with a dozer to make a level drill site. Mud pits measuring approximately 10 ft x 40 ft x 8 ft deep will then be excavated with a track hoe. No blasting will be done when constructing drill sites. The topsoil and subsoil will be separately stockpiled and protected from erosion by a silt fence. Brattice or a pit liner will be placed on the ground beneath the drilling rig and the edges elevated to protect the ground from leaks and spills. Small leaks will be cleaned-up with absorbent pads. Contaminated pads and rags will be hauled off the site and disposed of in an approved waste site. No hazardous material or trash will be disposed of at the drill sites. The disturbance involved in constructing access routes and drill sites is given in Table 2.

Exploration personnel will not be allowed to drive onto the area when roads or trails are excessively muddy, but may leave the area at the end of the workday or drill period. Any rutting caused by exploration personnel will be repaired when conditions permit.

Preparation of Support Areas

The support areas include the staging area and water storage/pump site. The staging area and water storage/pump locations will be prepared by minor hand leveling as needed.

Table 2 – Summary of Disturbed Areas

<u>Area</u>	<u>Surface Mgmt Agency</u>	<u>Type of Disturbance</u>	<u>Size (ft)</u>	<u>Area (acres)</u>
Drill Site A-06	USFS	Grub & excavate	100 x 100	0.23
Drill Site B-06	USFS	Grub & excavate	100 x 100	0.23
Drill Site C-06	USFS	Grub & excavate	100 x 100	0.23
Drill Site D-06	USFS	Grub & excavate	100 x 100	0.23
Drill Site E-06	USFS	Grub & excavate	100 x 100	0.23
Temp Access Route to A-06	USFS	Grub & excavate	12 x 6,022	1.66
Temp Access Route to B-06	USFS	Grub & excavate	12 x 4,665	1.29
Temp Access Route to C-06	USFS	Grub & excavate	12 x 3,422	0.94
FDT 025-west	USFS	Grub and level	12 x 1,234	0.34
Temp Access Route to D-06/E-06 (exist double track)	USFS	Grub & level	12 x 5,929	1.63
Route between D-06 & E-06	USFS	Grub & excavate	12 x 2,813	0.77
Staging Area	USFS	Compaction	100 x 150	0.34
Water Storage/Pump Site	USFS	Compaction	40 x 80	0.07
Total area disturbed				8.19

The ground below potential contaminants such as fuel and oil will be covered by brattice or a pitliner to contain any leaks or spills. Otherwise leaks will be cleaned-up with absorbent pads. Contaminated pads and rags will be hauled off the site and disposed of in an approved waste site. The staging areas will be approximately 100 ft x 150 ft in size.

The water storage/pump sites will be prepared and protected in a similar manner and will be approximately 40 ft x 80 ft in size. The pump sites will not be prepared but the pump will be underlain by a pit liner or brattice.

The HDPE water lines will be laid at approximately the same time as the staging area sites and water storage/pump sites are prepared. The spools of water line will be distributed along the water line routes with pickup trucks or ATV's. Any water line route that is located away from an access route will be distributed by hand or by horse. The water line will be unspooled then dragged in place by pickup, ATV, or horse. The waterlines will be laid along existing or newly constructed temporary access routes as much as possible (Map 2). Based on conditions encountered during setup, it may become necessary to place a waterline cross country away from an access route. In this case the line will be laid and recovered on foot or with horses.

Drilling

The planned drilling method is wireline core drilling and will be done on a 24 hour per day schedule. Truck-mounted drilling rigs will be used that are approximately 10 ft X 30 ft in size. Figure 1 shows a typical drill site layout for a truck-mounted rig. The total depth of each drill hole will depend on whether it is completed as a piezometer. For those that will not be piezometers, the entire borehole will be core drilled from the

surface through ten feet of the floor rock below the lowest coal seam horizon. Up to two drill holes will be completed as piezometers and so will be drilled deeper into the upper portion of the Star Point Sandstone beneath the Lower Hiawatha seam. The projected depths of the drill holes are given in Table 1. Conductor casing will be inserted and cemented to support the soil and alluvium. Surface casing will be set in each hole to below the Price River Formation and certain other intervals depending on hole conditions. Surface casing will be 4.5 inches in diameter and the finished size of drill holes will be a nominal 3.625 inches in diameter. Upon the completion of drilling, a suite of geophysical logs will be run including natural gamma, gamma-gamma density, and resistivity.

After geophysical logging, the drill holes that will not be completed as piezometers will be filled with cement in stages to the surface. Those that will be piezometers will be cased and a screen section of casing installed in the Star Point beneath the Lower Hiawatha seam (Fig. 2).

The equipment that will be used varies with the phase of the project. During the preparation phase a dozer and grader will be used to repair Forest Development roads, upgrade Forest Development trails, and construct new roads and pads. During the drilling phase, depending on hole conditions and the current drilling task, one or two truck-mounted drilling rigs, a boom truck, an auxiliary air compressor, covered trailers, drill rod trays, mud tanks, and a geophysical logging truck will be used. The drilling rigs will cut core, install casing, install cement plugs, and complete holes as piezometers. The auxiliary air compressor will be used to aid circulation when hole conditions warrant. A boom truck will be used for placing equipment on the drill site. The geophysical logging truck will be used to make geophysical logs of the hole. During the support phase an equipment transport, boom truck, trackhoe, backhoe, supply trailers, water tanks, and pumps will be used. A 1,500 gallon and a 3,000 gallon water truck will be used to haul water to the water storage/pump site or drill sites if necessary. The supply trailers will carry drill steels, coring equipment, drilling additives, cutting and welding equipment, a doghouse, and other supplies. Storage tanks will be used to hold fresh water for drilling and used drilling fluid for later removal from the site. Pumps will be used to move the water. Water will be obtained from Muddy Creek, South Fork of Quitchumpah Creek, or North Fork of Quitchumpah Creek. All necessary temporary water rights changes will be obtained from the Utah State Engineer's office prior to any water usage.

Ark Land Muddy Creek Area Exploration License Application

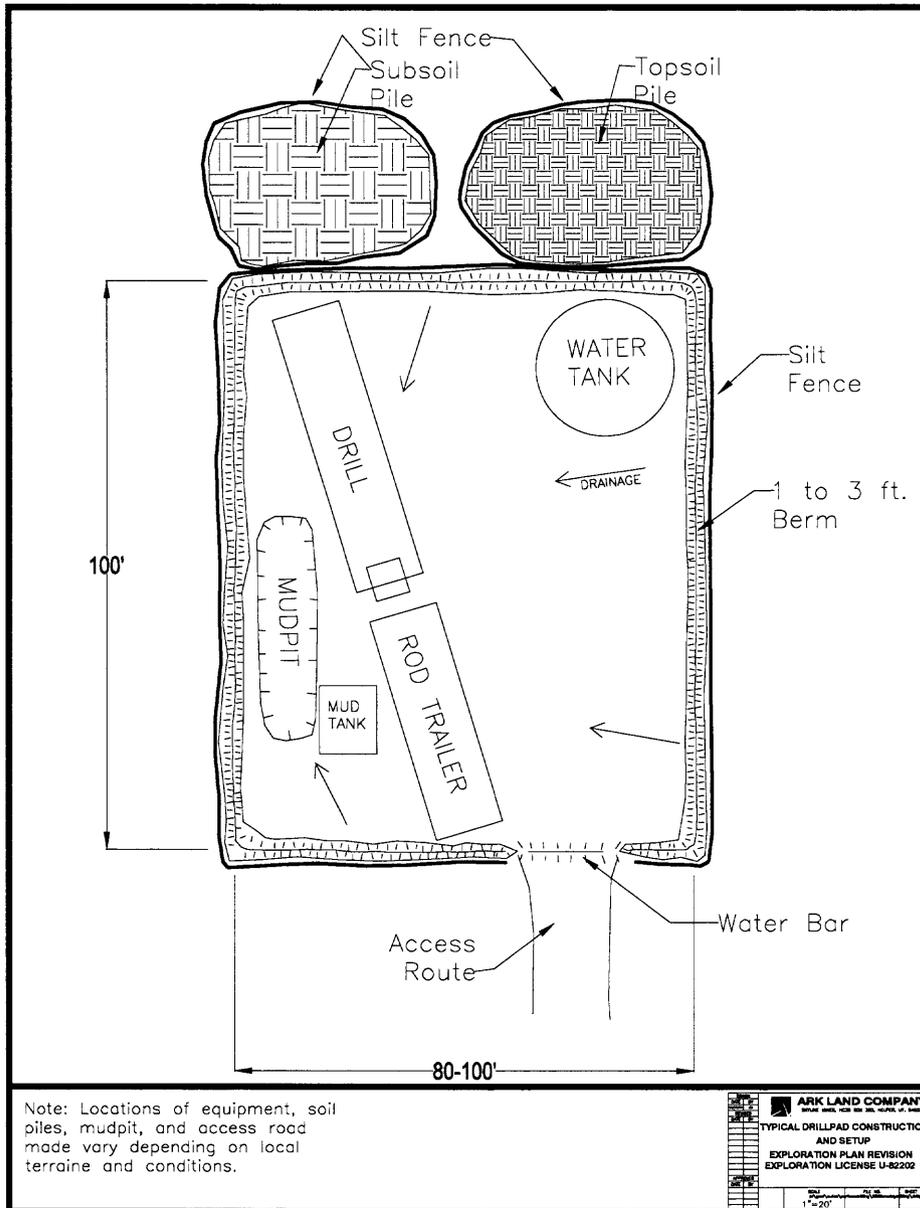


Figure 1: Typical truck-mounted drilling rig setup.

Backup and auxiliary equipment to be located at the staging area site will include, but not be limited to, drilling fluid containers, pallets of cement and drilling mud, two 4,000 gallon water trucks, a fuel truck or double lined fuel tank, four to six pickup trucks, a covered tool supply trailer, and a geophysical logging truck. One or two 18,000 gallon frac (fresh water) tank(s) and pump will be located at the water storage/pump site. The site will be approximately will be 40 ft x 80 ft in size. The pumps will be underlain by a pit liner, brattice, or drip pans.

Fresh water for drilling and road maintenance will be supplied by either hauling or pumping from the North Fork and/or South Forks of Quitchupah Creek or pumped and hauled from Muddy Creek. Water for road maintenance will either be pumped directly

from the North Fork and/or South Forks of Quitcupah Creek by the water truck or obtained from the frac tank at the frac tank/pump location.

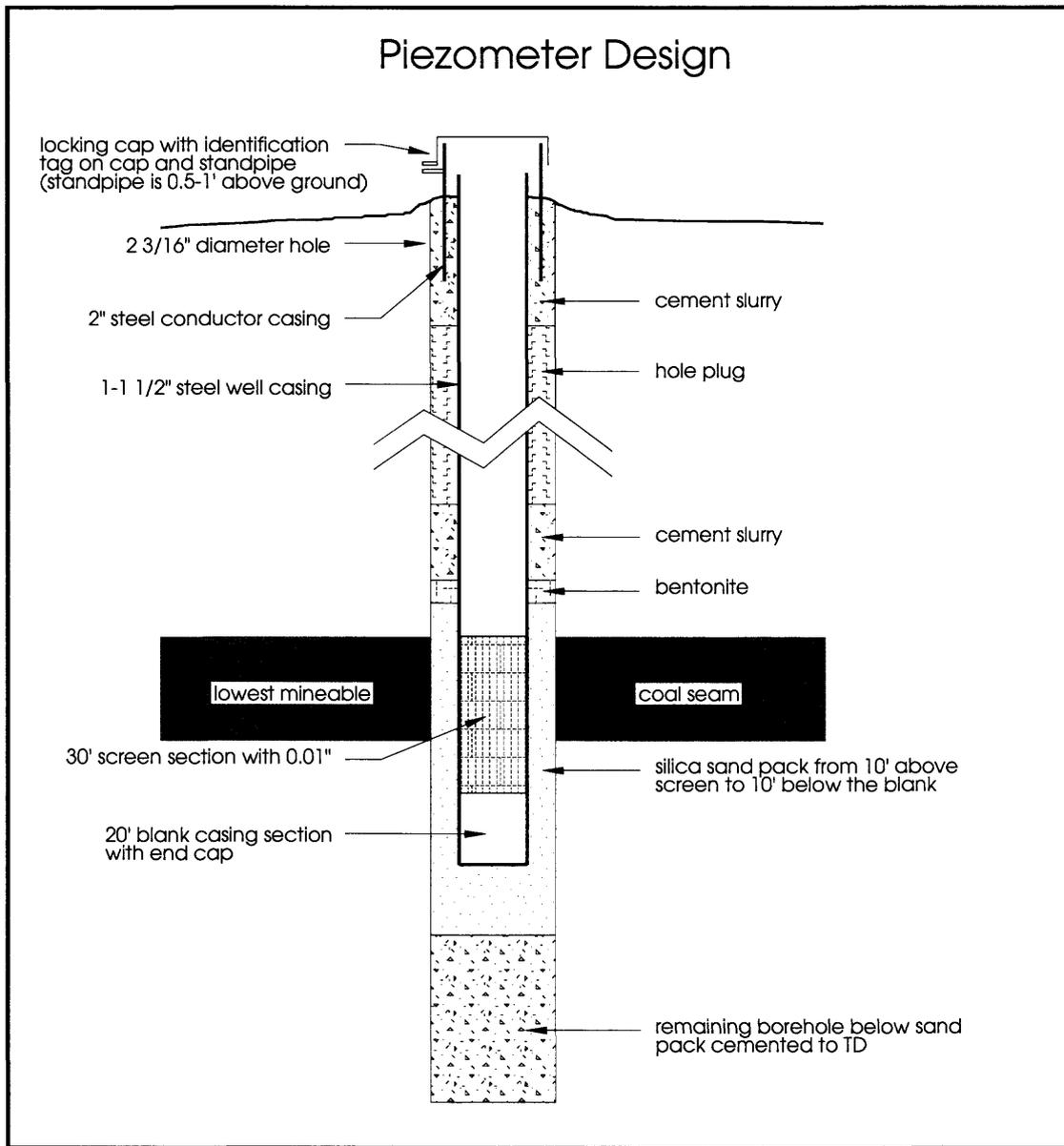


Figure 2: Piezometer design.

Geophysical Logging

Geophysical logs will be obtained in accordance with 10 CFR part 39. Data obtained during exploration will be furnished to the BLM as required in 43 CFR 3410.4. Ark Land Company requests that all data be kept confidential.

Equipment

A variety of equipment will be utilized during various phases of the exploration program. Some equipment will constantly be in the exploration license area while other equipment will only be in the area briefly. A description of the equipment by exploration phase is given in Table 3.

Travel and Transport of Equipment

The frequency equipment travels or is transported over U.S. Forest Service roads will vary. The estimated frequency and total number of trips during the project are given in Table 4. Some equipment will not travel or be transported on a regular basis because it will remain stationary once in the exploration license area or be used infrequently. The number of trips for this equipment is given on a project basis instead of on a weekly basis. Most of the equipment will not travel the full route from the Acord Lakes turn-off on a regular basis. Rather most equipment will only travel short distances within the exploration license area once transported to the area. A US Forest Service Road Use permit will be obtained before starting exploration activities.

Pickup/trailer combinations will be used for hauling supplies and small equipment, horses, or diesel fuel and each will average approximately 3 trips per week. An equipment transport (40,000 GVW) will be used to haul additional drilling equipment, such as water tanks (20,000 gallon frac tanks) and hole abandonment materials and will average approximately one trip per week.

Drill Hole Abandonment

The exploration drill holes will be abandoned by plugging with cement, cement/bentonite slurry, or Abandonite® from the bottom of the hole up to the surface. The abandonment method includes pulling surface casing when possible; but when not possible, cutting it flush with the ground, then pumping the plugging material through the drill pipe starting at the bottom of the hole. Plugging will then be done in stages by tripping-out of the hole 6-8 joints (60-80 ft) and pumping again. This process will be repeated to the surface. A brass identification tag will be placed in the concrete at the top of the drill hole stating the operator's name, drill hole number and legal description. The plugged hole will be flush with the ground surface.

Up to two drill holes will not be abandoned but rather be completed as piezometers. The completion method includes cleaning the hole of drill cuttings by circulating with air or water, inserting a 1 to 2 inch diameter steel casing with a 30 ft section of 0.01 in slot screen section with an end cap, filling the hole annulus in the screened section with washed sand or pea gravel, packing off the screened section or sealing it off with bentonite, then filling the remainder of the hole annulus to the surface with a cement or cement/bentonite slurry. A steel protective casing with locking cap will be placed 6 in to 1 ft above ground level. Figure 2 gives the design to be used in completing the

piezometer. Once the piezometers are no longer needed, they will be completely

Table 3 – Summary of Equipment Used in the Proposed Exploration License Area

<u>Phase</u>	<u>Equipment Type</u>	<u>Size or Capacity</u>	<u>Time in Area</u>	<u>Quantity</u>
Preparation	Equipment transport	20 ton	Brief	2
	Pickups, 4 wheel drive	½ to 1 ton	Constant	4
	Grader	D 14 Cat or similar	Brief	1
	Dozer	D 8 Cat or similar	Brief	1
Drilling	Wireline core rig	LS 244 or similar	Constant	3
	Water truck, small	1,500 gal	Constant	1
	Water truck, large	4,000 gal	Constant	2
	Pipe truck/transport	Semi, 40 ft flatbed	Constant	2
	Light plant, on trailer	5,000 watt	Constant	1
	Welder, on trailer	240 amp	Constant	1
	Tool trailer	2 ton	Constant	2
	Core trailer	2 ton	Constant	1
	Pickups, 4 wheel drive	½ to 1 ton	Constant	4
	ATV	1 person	Constant	3
Geophysical logging truck	1 ton	Brief	1	
Support	Pickups, 4 wheel drive	½ to 1 ton	Constant	4
	Track boom truck	D 8 Cat or similar	Constant	1
	Trackhoe	3 CY	Constant	1
	Backhoe	2 CY	Constant	1
	Frac tank with pump	18,000 gal	Constant	5
	Fuel truck/tank	2,000 gal	Constant	1
	Equipment transport	20 ton	Brief	2
	Triplex pump, skid mount	30 GPM	Constant	3
	Poly pipe winder, trailer	2,000 ft	Constant	1
	Boom truck, rear mount	3 ton	Constant	1
Reclamation	Equipment transport	20 ton	Brief	2
	Pickups, 4 wheel drive	½ to 1 ton	Constant	2
	Grader	D 14 Cat or similar	Brief	1
	Trackhoe	3 CY	Brief	1

plugged with a cement, cement/bentonite slurry, or Abandonite® to their full depth. The wellhead will be removed at the surface.

Table 4 – Estimated Frequency of Equipment Travel and Transport			
<u>Phase</u>	<u>Equipment Type</u>	<u>Quantity</u>	<u>Number of Trips</u>
			<u>Per Week</u>
Preparation	Equipment transport	2	1
	Pickup, 4 wheel drive	4	28
	Grader	1	1
Drilling	Wireline core rig	3	1
	Pipe rod truck	2	1
	Tool trailer	2	1
	Core trailer	1	1
	Water truck, small	1	1
	Water truck, large	2	21
	Pickup, 4 wheel drive	4	28
	ATV	3	28
Geophysical logging truck	1	1	
Support	Equipment transport	1	1
	Jet fuel trailer and tank	1	2
	Helicopter	1	2
	Pickup, 4 wheel drive	4	28
	Pickup and trailer combination	2	4
	Track boom truck	1	1
	Trackhoe	1	1
	Backhoe, rubber tired	1	1
	Frac tank with pump	5	1
	Fuel truck/tank	1	7
	Poly pipe winder	1	1
Boom truck	1	1	
Reclamation	Equipment transport	2	1
	Pickup, 4 wheel drive	2	14
	Grader	1	1
	Trackhoe	1	1

Reclamation

Reclamation work will begin as soon as possible after drilling activities are completed. Reclamation will not be needed for the Forest development roads. They will be bladed and returned to a condition equal to or better than their condition prior to the start of exploration. Reclamation of the reopened Forest development trail (025), reopened double-track road, newly constructed temporary access routes, and drill sites will be done with a dozer, grader, and trackhoe. The mud pits will be backfilled after cuttings have dried. The pit liner will be buried with the cuttings. The subsoil will then be replaced separately, followed by replacing the topsoil separately to bring the disturbed area back to

approximate original contour. The grubbed vegetation will then be scattered on the surface and the surface reseeded with the approved U.S. Forest Service seed mix. The reclaimed access routes will be barricaded and signed such that no other traffic will utilize the routes. The staging area and storage tank/pump location will be scarified then reseeded with the approved U.S. Forest Service seed mix. A summary of the disturbed areas is given in Table 2.

The seed mix to be used is the same mix used for the 2005 Muddy drilling project and is given below:

		<u>Pounds/Ac PLS</u>
Western Wheat grass	Elymus smithii	2.00
Basin Wild Rye	Elymus cinereus	1.00
Intermediate Wheat grass	Elymus hispidus	2.00
Yellow Sweet Clover	Melilotus officinalis	1.00
Rambler Alfalfa	Medicago sativa	1.00
Blue Leaf Aster	Aster glaucodes	0.25
Lewis Flax	Linum lewisii	0.50
Small Burnet	Sanguisorbia minor	1.00
Silvery Lupine	Lipinus argentis	1.00
True Mahogany	Cercocarpus argentius	1.00
Bitterbrush	Purshia tridentate	1.00
TOTAL		11.75 PLS

Prior to any seeding, the USFS will be consulted to ensure the proper seed mixture is used.

During all phases of exploration trash and debris will not be allowed to accumulate but rather will be removed from all drill sites, access routes, and roads on a regular basis and be disposed of in an approved sanitary landfill. Excess drill cuttings and drill core that is not buried in the mudpit will be transported by truck to Canyon Fuel Company's approved waste rock site along the Sufco mine haul road.

Water Rights

Water for drilling and road maintenance will be obtained from Muddy Creek and/or Quitchumpah Creek. All necessary arrangements including a Temporary Change Permit will be made with shareholders and the Utah Division of Water Rights.

Other Permits

Permits will be obtained from other agencies and parties as required.

Surveying

The drill holes will be surveyed to within 0.01 foot horizontal location and 0.1 ft. vertical elevation. Locations will be expressed in state plane coordinates adjusted to sea level in the NAD 83 datum.

Bonds

Bonds will be secured as required by the BLM and other agencies.

Transfer or Modification of Drill Holes

Ark Land Company does not intend to transfer any interest in any of the drill holes proposed in this exploration program. Up to two drill holes will be completed for use as piezometers as described previously and will remain under the control of Ark Land Company. No existing drill holes will be modified in this exploration program.

Safety

Drilling and construction contractors, Ark Land/Canyon Fuel employees and their representatives, and other contractors will be required to wear hard hats, steel toed boots, and safety glasses when working at the drillsites and the staging area.

Appropriate fire fighting equipment and an adequate water supply will be maintained at the drillsites and the staging area as well as any water pumping locations. USFS fire stipulations will be followed. Internal combustion engines will be equipped with appropriate mufflers and/or spark arrestors. All vehicles will carry a readily available and fully charged fire extinguisher and a first aid kit, as well as fire fighting tools. Large equipment will not be moved, supplies or materials transported, nor personnel allowed to drive onto or within the area when roads are excessively muddy.

43 CFR 3482.1(a)(3)(v) - Estimated Timetable

The proposed drilling project should require one year to complete. The general schedule will be to begin in early June and continue to late September. Table 5 shows the projected timetable for each phase of the program. The preparation phase includes tasks such as repair of Forest development roads and trails, preparation of drill sites, transporting and setting-up frac tanks and water pumps, laying water lines, and geological support. The combined drilling and support phases includes tasks such as transporting supplies, drilling equipment, and the drilling rig(s), hauling water, drilling, plugging or completing drill holes, geological support, and geophysical logging. The reclamation phase includes restoring and reseeding the reopened Forest Development Trail, reopened double track, newly constructed roads, and drill sites, scarifying and reseeding the staging area site, water storage/pump site, and removing equipment and water lines. Reclamation will be as concurrent with the other phases as possible.

Table 5. Projected timetable

TASK	JUNE	JULY	AUG	SEPT
Preparation				
Drilling and support				
Reclamation				

43 CFR 3482.1(a)(3)(vi) - Amount of Coal Removed

Ark land Company intends to cut 2.4 inch diameter (HQ) coal core from each mineable coal seam. The total amount of coal removed will be less than 300 lbs. This amount was estimated by calculating the volume of coal core cut and dividing this number by the density of the coal. The coal core will be used for chemical and physical analysis.

43 CFR 3482.1(a)(3)(vii) – Compliance with 43 CFR 3484.1(a) and 30 CFR 815.15

The requirements of 43 CFR 3484.1(a) will be complied with as follows:

43 CFR 3484.1(a)(1)-All applicable requirements of the surface management agency, 30 CFR 815.15, and the approved State program will be complied with.

43 CFR 3484.1(a)(2)-Ark Land Company will set and cement both a conductor and surface casing as described in the Drilling section. It is expected that the authorized officer will not require blow out prevention equipment because the drill holes will not reach depths where prospectively valuable oil, gas, or geothermal resources would be encountered.

43 CFR 3484.1(a)(3)-Drill holes will be capped and plugged as described previously which meets the requirements of this section.

43 CFR 3484.1(a)(4)-Ark Land Company will retain all drill and geophysical logs for at least one year and shall make them available for inspection, if requested by the authorized officer. At this time, the authorized officer has not requested that samples of drill core be retained. Ark Land Company requests that this information be held confidential pursuant to 43 CFR 3481.3.

43 CFR 3484.1(a)(5)-Ark Land Company intends to complete up to two exploration drill holes as piezometers (surveillance wells) pending the approval of the authorized officer.

Ark Land Company will comply with the requirements of 30 CFR 815.15 as follows:

30 CFR 815.15(a)-Habitats of unique or unusually high value for fish, wildlife, and other related environmental values and critical habitats of threatened or endangered species identified pursuant to the Endangered Species Act of 1973 (16 USC 1531 *et seq*) will not be disturbed during coal exploration. Ark Land will conduct the necessary

surveys to locate these habitats so that impacts to them may be avoided as described previously.

30 CFR 815.15(b)-Roads or other transportation facilities shall comply with 30 CFR 816.150(b) through (f). Sections 30 CFR 816.180 and 30 CFR 816.181 are not applicable because utility installations and support facilities will not be used.

30 CFR 815.15(c)-All excavations created during exploration shall be returned to the approximate original contour promptly after no longer needed as described in the Reclamation section.

30 CFR 815.15(d)-Topsoil shall be separately removed, stored, and redistributed on areas disturbed by coal exploration activities as described in the Reclamation section.

30 CFR 815.15(e)-All areas disturbed by coal exploration activities shall be revegetated in a manner that encourages prompt revegetation and recovery of a diverse, effective, and permanent vegetative cover. The vegetative cover will be capable of stabilizing the soil surface from erosion.

30 CFR 815.15(f)-This section is not applicable because no diversions will be made.

30 CFR 815.15(g)-All drill holes shall be reclaimed. Each drill hole will be cased, sealed, or otherwise managed per 30 CFR 816.13 and when no longer needed, shall be capped, sealed, backfilled, or otherwise properly managed per 30 CFR 816.15. 30 CFR 816.14 is not applicable because none of the drill holes will be used to return coal processing waste or water to underground workings.

30 CFR 815.15(h)-All equipment and facilities shall be promptly removed from the exploration area when they are no longer needed for exploration.

30 CFR 815.15(i)-Coal exploration shall be conducted in a manner which minimizes disturbance to the prevailing hydrologic balance in accordance with the applicable portions of sections 30 CFR 816.41 through 816-49.

30 CFR 815.15(j)-This section is not applicable because acid- and toxic-forming materials generally will not be encountered or, if encountered, will be in such small amounts as not to pose a threat.

43 CFR 3482.1(a)(3)(viii) – Map

Map 1 shows the general location of the proposed exploration license area, drill sites, and access routes and is included in the text of this exploration plan. Map 2 is a larger scale map of the same area that gives more detail on the areas to be affected by the proposed exploration and reclamation and is included with this exploration plan.

43 CFR 3482.1(a)(3)(ix) – Surface Owner Other Than the United States

There are no surface owners other than the United States in the exploration area. The surface ownership is administered by the US Department of Agriculture Forest Service.

43 CFR 3482.1(a)(3)(x) – Other Data

No other data has been requested by the BLM at this time.