Form DOGM - E (Last Revised 6/93)

EXPLORATION NOT INSIDE Permit Area

File Folder # 3

2 Holes

PERMIT CHANGE TRACKING FORM

DATE RECEIVED	6/14/94	PERMIT NUMBER	CEP/007/038
Title of Proposal:	Minor Coal Exploration	PERMIT CHANGE #	CEP/007/038-94B
Description:	Federal Coal Lease U-0146345 (DRY CANYON)	PERMITTEE	Cyprus Plateau Mining Corp
	& Federal Coal Lease SL-048442-050115 (Alfred Canyon Site)	MINE NAME	"Willow Creek"

BLM - lead, DIVISION makes recommendation

	DATE DUE	DATE DONE	RESULT	
☐ 15 DAY INITIAL RESPONSE TO PERMIT CHANGE APPLICATION	N/A		☐ ACCEPTED	☐ REJECTED
☐ Notice of Review Status of proposed permit change sent to the Permittee.			Permit Change Classification	
☐ Request additional review copies prior to Division/Other Agency review.			☐ Significant Permit Revision	
☐ Notice of Approval of Publication. (If change is a Significant Revision.)			☐ Permit Amendment	
☐ Notice of request to modify proposed permit change prior to approval.			☐ Incidental Boundary Change	

REVIEW TRACKING		INITIAL REVIEW		MODIFIED REVIEW		FINAL REVIEW AND FINDINGS	
DOGM REVIEWER		DUE	DONE	DUE	DONE	DUE	DONE
☑ Administrative	Paul	7/14					
☑ Biology	Paul	7/14					
☐ Engineering	____						
☐ Geology	____	check w/ Henry if needed					
☑ Soils	Paul	7/14					
☑ Hydrology	Jim	7/14					
☐ Bonding	____						
☐ AVS Check	____						

COORDINATED REVIEWS	DUE	DONE	DUE	DONE	DUE	DONE
☐ OSMRE						
☐ US Forest Service						
☑ Bureau of Land Management	Lead Agency					
☐ US Fish and Wildlife Service						
☐ US National Parks Service						
☐ UT Environmental Quality						
☐ UT Water Resources						
☑ UT Water Rights Sent 6/17						
☑ UT Wildlife Resources Sent 6/17						
☑ UT State History Sent 6/17						
☐ Other						

☐ Public Notice/Comment/Hearing Complete (If the permit change is a Significant Revision)		☐ Permit Change Approval Form signed and approved effective as of this date. ☐ Permit Change Denied.	
☐ Copies of permit change marked and ready for MRP.		☐ Notice of ☐ Approval ☐ Denial to Permittee.	
☐ Special Conditions/Stipulations written for approval.		☐ Copy of Approved Permit Change to File.	
☐ TA and CHIA modified as required.		☐ Copy of Approved Permit Change to Permittee.	
☐ Permit Change Approval Form ready for approval.		☐ Copies to Other Agencies and Price Field Office.	

State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt
Governor

Ted Stewart
Executive Director

James W. Carter
Division Director

355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
801-538-5340
801-359-3940 (Fax)
801-538-5319 (TDD)

Aug 4, 1994

TO: Daron Haddock, Permit Supervisor

FROM: James D. Smith, Reclamation Specialist JDS

RE: Willow Creek Mine Exploration, Cyprus Plateau Mining Corp., CEP/007/038-94A and -94B, Amendment File, Carbon County, Utah

SYNOPSIS

Cyprus Plateau Mining has submitted permit applications for coal exploration at three sites in Carbon County. Exploration is to be done by drilling. The bore holes are to be left open and used as piezometers. Drill sites in Dry and Alrad Canyons are on federal land administered by the BLM and the coal is federally owned. The site in Panther Canyon is located on fee land owned by Cyprus Western Coal Company, an affiliate of Cyprus Plateau Mining, but the coal is owned by Carbon County. DOGM is the lead agency for the site in Panther Canyon. The BLM is the lead agency in permitting the two sites on federal property, with DOGM providing comments.

Steve Johnson has reviewed these permit applications and has provided written comments concerning hydrology and related issues. I have also reviewed the applications and, at Paul Baker's suggestion, have added one comment on the Dry Canyon phase of the project.

ANALYSIS

Rule Citation

43CFR-3482.1(a)(3)(iv) **A narrative description of the methods to be used to conduct coal exploration, reclamation, and abandonment...**

Discussion

"Access to the Dry Canyon Site will be via an existing dirt road up Dry Canyon. The road will be rehabilitated and a new crossing of Willow Creek will be

permitted through the U. S. Corps of Engineers and the Utah State Engineer and constructed." (page 6 of Dry/Alrad Canyons Exploration Plan)

The narrative does not indicate if the new crossing is being designed, permitted, and built as a permanent structure or if the area will be reclaimed after the exploration work is completed. If it is to be reclaimed, there is no reclamation plan described.

FINDING/RECOMMENDATION

It is recommended that the BLM receive clarification from Cyprus Plateau Mining as to whether the Willow Creek crossing is to be permanent or to be reclaimed, and if it is to be reclaimed what reclamation plan will be followed.

cprsexpl.mjs

State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt
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801-538-5319 (TDD)

July 18, 1994

TO: Daron Haddock, Permit Supervisor

FROM: Steven M. Johnson, Reclamation Hydrologist SMJ

RE: Draft Review, Minor Coal Explorations, Proposed Willow Creek Mine, Cyprus Plateau Mining, CEP/007/038-94A and 94B, Working File, Carbon County, Utah

SYNOPSIS

Two minor coal exploration proposals were made by Cyprus Plateau Mining to establish three water monitoring wells. Two of the wells are to be drilled in an area of land controlled by the Bureau of Land Management (BLM), and one well will be drilled in the area of Fee coal. The activities necessary for the drilling of the single well are included in permit change number 94A, and the activities associated with the BLM coal are included in number 94B.

ANALYSIS

R645-301-731.100. Hydrologic-Balance Protection.

An open pit will be used to collect water and earth material from the drilling activities to allow evaporation and reduce infiltration. This will minimize the amount of acidic, toxic and other harmful substances from reaching the ground-water and surface-water systems.

R645-301-731.200. Water Monitoring.

The purpose of this exploration program is to construct ground-water monitoring equipment for the collection of baseline data for a mine permit application. The monitoring wells will be installed by a licensed Utah water well driller and in conformity with the State Engineer's guidelines.

R645-301-742.100. Appropriate sediment control measures will be designed, constructed and maintained using the best technology currently available.

Cyprus Plateau has not proposed to construct any siltation structures at any of the drilling sites. Both proposals say that alternate sediment control measures would be used,

consisting of straw bales and silt fences at the fee coal site, and straw bales, silt fences and berms at the BLM sites. Cyprus Plateau did not propose any typical or specific designs for these measures and did not describe where these measures would be used on the respective sites. The alternate sediment control measures are only to be used "if needed." Cyprus Plateau should explain what types of sediment control would be used other than the previously stated measures. If the operator intends to request small area exemptions for these areas, special considerations outlined in R645-301-742.240 and the Division directive on Alternate Sediment Controls and SAE's must be met.

FINDINGS/RECOMMENDATION

These proposals for minor coal explorations may be approved after sediment control measures are addressed satisfactorily with respect to R645-301-742.100. Cyprus Plateau has met other the other regulation requirements pertaining to this project. One recommendation for sediment control is to place the mud pits at the lowest possible point in the work site. The mud pits would then trap much of the runoff created on site.

EXPLORE.MEM

Michael O. Leavitt
Governor
Ted Stewart
Executive Director
James W. Carter
Division Director

State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
801-538-5340
801-359-3940 (Fax)
801-538-5319 (TDD)

August 1, 1994

TO: Daron Haddock, Permit Supervisor

FROM: Paul Baker, Reclamation Biologist

RE: Draft Review, Exploration in Dry and Alrad Canyons, Cyprus Plateau Mining Corporation, CEP/007/038, Working File, Carbon County, Utah

SYNOPSIS

Cyprus Plateau Mining Corporation is proposing to drill exploration holes in Dry and Alrad Canyons. The exploration would be on Bureau of Land Management land and accessed by roads on private and Bureau of Land Management lands. Less than 250 tons of coal would be removed.

The site in Alrad Canyon is within Andalex's permit area for the Centennial Mines. Cyprus plans to extrapolate data obtained from this site and apply it to their adjacent leases. However, since this is within an existing permit area, Andalex needs to amend its plan to identify this proposed activity.

The exploration regulations do not address identification and protection of cultural resources; however, other laws require that significant cultural resources be protected. Cyprus submitted a cultural resources survey of the area. It mentions one site in the area, the Milburn Mine, that is apparently in the general area and that has been recommended as eligible for the National Register of Historic Places. The report does not show where this site is, but it recommended a cultural resources clearance for the area. The State Historic Preservation Officer concurred in this determination.

ANALYSIS

R645-201-200 Minor Coal Exploration Permits

Cyprus Plateau Mining Corporation proposes to drill exploration holes in Dry and Alrad Canyons. Less than 250 tons of coal will be removed. The application shows Cyprus' address and telephone number and the name of a representative who will be present at and responsible for conducting the exploration operations.

The site in Alrad Canyon is within Andalex's permit area for the Centennial Mines. Cyprus plans to extrapolate data obtained from this site and apply it to their adjacent leases.

However, since this is within an existing permit area, Andalex needs to amend its plan to identify this proposed activity.

Access to the sites will be on existing dirt roads. However, the road in the Dry Canyon area will be rehabilitated and a new crossing of Willow Creek permitted through the U.S. Army Corps of Engineers and the Utah State Engineer.

Cyprus planned to begin exploration in late July. It would continue for about four weeks. Reclamation would continue through September.

R645-202-231 Habitats of Unusually High Value

Exploration will be completed within about four weeks after commencement. Commencement was anticipated to be near the end of July. The proposed period of exploration is within a time period that is not crucial for area wildlife. No adverse effects are anticipated by the Division of Wildlife Resources.

Any use of surface water from the Upper Colorado River drainage constitutes a "may affect" situation for threatened and endangered fish of the Colorado River Basin. Cyprus needs to identify whether it plans to use surface water in this operation. If so, they will need to mitigate for this action. The agency preparing NEPA documentation for the exploration should take care of this mitigation.

An ecological evaluation report of the proposed well sites by Steve Viert of Cedar Creek Associates says that no sensitive flora were observed on the well sites. The only sensitive, threatened or endangered plant species likely to be present is canyon sweetvetch (*Hedysarum occidentale* var. *canone*). Mr. Viert mentioned in a telephone conversation that he is familiar with this plant and its habitat requirements and that he did not see it. He felt that the drill site will be far enough away from drainages that it is probably not present.

R645-202-233 Topsoil

Unless otherwise required, the topsoil and native vegetation at the drill sites will be removed, if present, and stockpiled for redistribution during site reclamation. Topsoil will only be removed where required; generally where soils would be directly impacted at the drill site. A competent and responsible person, knowledgeable about soils, will be on the site during excavation and reclamation in order to minimize environmental impacts and assure proper soil extraction (depth, etc.) and replacement. This person will be on the drill site during any type of excavation, construction, or reclamation.

Stockpiled soil will be protected from erosional loss by containment berms. If the topsoil pile is dry and deflating, it will be wetted. Weathered rock and subsoils excavated from the mud pits will be stockpiled separately from the topsoil. Soil loss will be contained by the berms, straw bales, or silt fences.

The commitments in the exploration plan appear to satisfy the regulatory requirements. However, the plan includes the statement that topsoil will only be removed where required. This statement is unclear and should be modified to conform with the regulations. R645-202-233 requires that topsoil be separately removed, stored, and redistributed on areas disturbed by coal exploration activities as necessary to assure successful revegetation or as required by the Division.

R645-202-242 **Revegetation**

The [plan contains a revegetation seed mixture stipulated by the Bureau of Land Management. This seed mixture is comprised entirely of native species that are suitable for reclamation in this area.

The reestablished vegetation is required to be capable of stabilizing the soil surface from erosion. The application does not contain a standard by which erosion control could be judged.

FINDINGS

Andalex needs to amend its plan to identify the proposed exploration activity in Alrad Canyon since this site is within their permit area.

Cyprus needs to identify whether surface water that would normally flow to the Upper Colorado River will be used for the exploration. If so, it constitutes a "may affect" situation for threatened and endangered fish of the Upper Colorado River, and Cyprus will need to mitigate for the loss.

The statement that topsoil will only be removed where required needs to be modified to conform with regulatory requirements.

The application needs to contain a standard by which erosion control could be judged.

CC-P/007/038-~~94A~~ 94A #2

State of Utah

Department of Community & Economic Development
Division of State History
Utah State Historical Society

Michael O. Leavitt
Governor
Max J. Evans
Director

300 Rio Grande
Salt Lake City, Utah 84101-1182
(801) 533-3500
FAX: (801) 533-3503

July 8, 1994

RECEIVED
JUL 13 1994
DIV. OF OIL, GAS & MINING

Pamela Grubaugh-Littig
Permit Supervisor
Division of Oil, Gas and Mining
355 West North Temple
3 Triad Center, Sutie 350
Salt Lake City, Utah 84180-1203

RE: Minor Coal Exploration, Panther Canyon Site and Dry Canyon and Alrad Canyon Site, Cyprus Plateau Mining Corporation, SEP/007/038-94A, and CEP/007/038-94B, Folder #2, Carbon County, Utah

Copy PAM

In Reply Please Refer to Case No. 94-0836

Dear Ms. Grubaugh-Littig:

The Utah State Historical Preservation Office received the above referenced project. After review of the material provided, the Utah Preservation Office recommends that there would be **No Effect** upon cultural resources by the project.

This information is provided on request to assist the Division of Oil, Gas and Mining with its Section 106 responsibilities as specified in 36CFR800. If you have questions, please contact me at (801) 533-3555.

Sincerely,

Janice Reed Campbell

James L. Dykmann
for Compliance Archaeologist

JLD:94-0836 DOGM/NP/NE

Board of State History: Marilyn C. Barker • Dale L. Berge • Boyd A. Blackner • Peter L. Goss
David D. Hansen • Carol C. Madsen • Dean L. May • Christie Needham • Thomas E. Sawyer • Penny Sampinos • Jerry Wylie

CYPRUS
Plateau Mining

Cyprus Plateau Mining Corporation
P.O. Drawer PMC
Price, Utah 84501
(801) 637-2875
Fax: (801) 637-2247

June 27, 1994

Utah Coal Regulatory Program
Division of Oil, Gas and Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

RECEIVED
JUN 29 1994
DIV. OF OIL, GAS & MINING

Dear Ms. Littig,

For CEP/007/038-94A
CEP/007/038-94B
Copy PAM(2) (MM)

RE: WILLOW CREEK MINE COAL EXPLORATION/ GROUND WATER MONITORING WELL PERMIT APPLICATION - THREATENED AND ENDANGERED SPECIES INVESTIGATIONS

Enclosed please find the following:

Raptor survey report from DWR dated June 17, 1994.

Ecological Evaluation of Proposed Monitoring Well Sites from Cedar Creek Associates, Inc. dated June 14, 1994

A Cultural Resources Survey of Three Drill Sites and TWo Access Roads in Carbon County, Utah

These reports should be added as attachments to the exploration permit application sent to your office dated June 13, 1994.

If you have questions, please contact me at 636-2227.

Respectfully,

Ben Grimes
Project Manager

File: WCENV 2.5.2.9
Chron: BG940613

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Moab District
P.O. Box 970
Moab, Utah 84532

TAKE PRIDE IN AMERICA

IN REPLY REFER TO:

3482
U-0146345
SL-048442
(UT-065)

JUN 17 1994

Ms. Pamela Grubaugh-Littig
Permit Supervisor
Division of Oil, Gas and Mining
355 West North Temple
3 Triad Center, Suite 150
Salt Lake City, Utah 84180-1203

RECEIVED
JUN 20

Dear Ms. Grubaugh-Littig:

Cyprus Plateau Coal Company has proposed to drill two coal exploration holes on Federal coal leases, U-0146345 and SL-048442, outside of an existing mine permit area. Both of these drill holes will be completed as water monitoring wells.

Please review this exploration plan (two copies enclosed) and provide any recommended conditions of approval to this office by **July 15, 1994.**

If you have any questions regarding this matter, contact Tom Rasmussen at the Price River Resource Area (637-4584).

Sincerely,

Acting William Stringer
District Manager

Enclosure
Exploration Plan (22 pp), two copies

cc: UT-066, T. Rasmussen, Price River Resource Area (wo/Enclosure)
UT-921, Branch of Mining Law and Solid Minerals, Utah State Office (wo/Enclosures)

RECEIVED
JUN 20 1994
DIV. OF OIL, GAS & MINING

MINOR COAL EXPLORATION PLAN

FEDERAL COAL LEASE

U-0146345

(Dry Canyon Site)

FEDERAL COAL LEASE

SL-048442-050115

(Alrad Canyon Site)

CARBON COUNTY, UTAH

BLM Surface

Cyprus Plateau Mining Corporation

For

CYPRUS WESTERN COAL COMPANY

June 1994

List of Maps, Figures & Tables

Maps (1:24,000 Scale)		Following Page
1	Dry Canyon Site	3
2	Alrad Canyon Site	3

Figure		
1	Stratigraphic Column	4
2	Generalized Soils Map	5
3	Monitor Well Completion Detail	10
4	Monitor Well Locking Cap Detail	10

Table		On Page
1	Proposed Drill Site Locations	3
2	Seed Mix	8
3	Timetable of Activities	11

INTRODUCTION

This exploration Plan has been prepared by Cyprus Plateau Mining Corporation for Cyprus Western Coal Company ("Cyprus" - a Delaware corporation) acting as operator and owner for this exploration project. The focus of this exploration is to increase stratigraphic and structural control and gather baseline data in preparation for obtaining a mining permit. The area for which this plan has been prepared is within an authorized lease therefore the format utilized follows that of 43 CFR (12/31/92, edition) Sub-part 3482. The appropriate regulation is referenced and underlined followed by Cyprus' response.

Five copies of this plan are herewith submitted to the Price, 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) <u>Exploration plans shall contain all of the following:</u>

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

Applicant and Operator:
Cyprus Plateau Mining Corporation, for
Cyprus Western Coal Company
9100 East Mineral Circle
Post Office Box 3299
Englewood, Colorado 80155
Telephone: (303) 643-5100

Lessee of Record:
Blackhawk Coal Company
P.O. Box 700
Lancaster, Ohio 43130

Sub-Lessee of Record:
Cyprus Western Coal Company
P.O. Box 3299
9100 East Mineral Circle
Englewood, Colorado 80155
Telephone: (303) 643-5000

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

Gregory L. Hunt
449 Gordon Drive
Castle Rock, Colo. 80104
Telephone: (303) 660-9368

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.

Legal description of Entire Lease to be Explored:

Dry Canyon Hole

Serial Number: **U-0146345**

T. 12 S., R. 10 E., SLM, Utah
Sec. 33, N 1/2;
Sec. 34, NW 1/4 NE 1/4, S 1/2 NE 1/4, NW 1/4;
Sec. 35, NE 1/4, S 1/2 NW 1/4, S 1/2.

Containing 1,160 acres, more or less.

Alrad Canyon Site

Serial Number: **SL-048442-050115**

T. 13 S., R. 10 E., SLM, Utah
Sec 1, Sw 1/4;
Sec 3, S 1/2 N 1/2, S 1/2;
Sec 4, lots 1-4, S 1/2 N 1/2, N 1/2 S 1/2;
Sec 10, N 1/2, NW 1/4, SW 1/4;
Sec 11, E 1/2, NW 1/4;
Sec 12, NW 1/4 NE 1/4, S 1/2 NE 1/4, W 1/2, SE 1/4

Containing 2,562.88 acres, more or less.

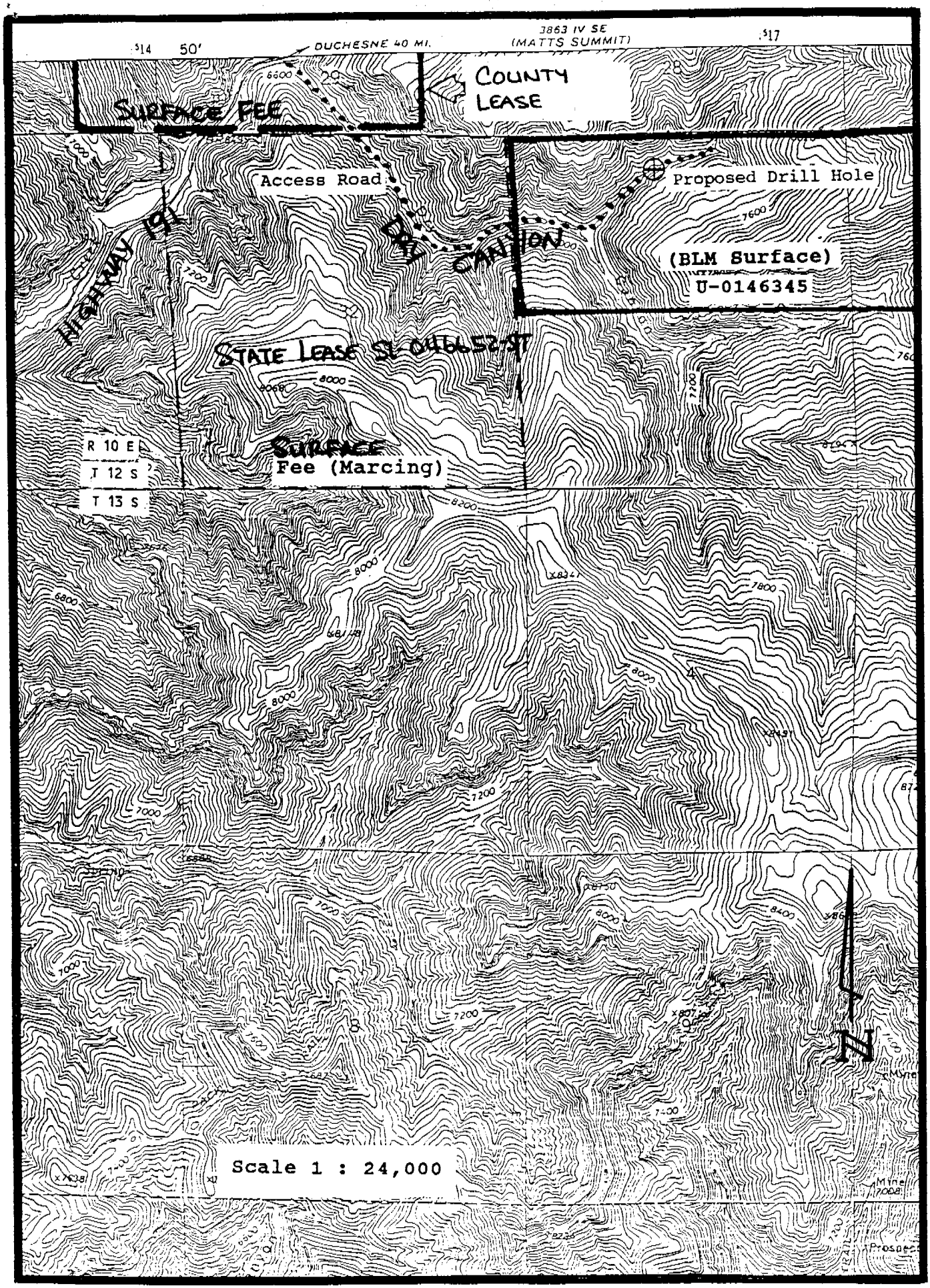
Proposed Site Locations
Site designation nomenclature is "PWC" for "Proposed Willow Creek " hole, "Number (ie. 33)" referring to the Section Number in which the site is located followed by the sequential drill hole number in that section. Locations are described on the following *Table 1* and are plotted on the attached maps *(map 1 and map 2)*.

TABLE 1

Proposed Drill Site Locations

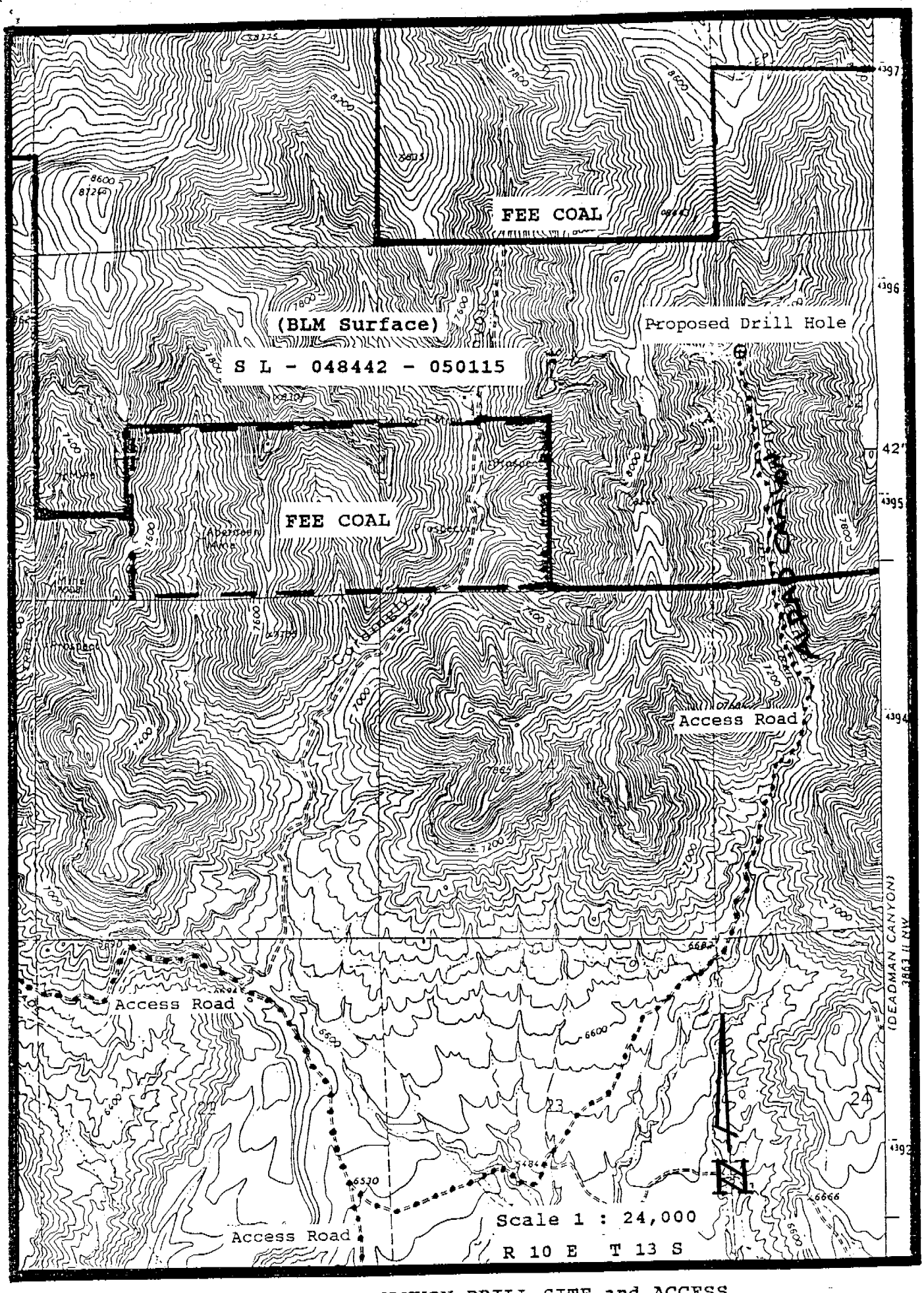
Site Designation	Legal Description
PWC 33-6 (Dry Canyon Site)	NE 1/4, NW 1/4 Sec 33, T12S, R10E
PWC 12-2 (Alrad Canyon Site)	SW 1/4, NW 1/4 Sec 12, T13S, R10E

Surface Topography Features
The area is characterized as a deeply incised "plateau" topography, existing as flat-topped ridges elevated above the adjacent desert lands. This topography is the result of advanced erosion carving up a flat top "plateau" forming steep-walled canyons cutting into the lease tracts from the west, north and south. Elevations range from over 8,000 feet above sea level on the tops of the flat topped ridges to 6,000 feet above sea level in the bottom of the deepest canyon.



PROPOSED DRY CANYON DRILL SITE and ACCESS MAP 1

USGS Helper, Utah Quadrangle, 1972



PROPOSED ALRAD CANYON DRILL SITE and ACCESS

MAP 2

USGS Helper, Utah Quadrangle, 1972

Geologic Features
The lease tracts lie within the Book Cliff Coal Field which contains minable coal only within the lower Cretaceous Age Blackhawk Formation (*figure 1, stratigraphic column*).

Stratigraphic units present are, in ascending order, Mancos Shale, overlain by the deltaic and coastal plain sediments of the, Blackhawk, Price River and North Horn Formations.

The Mancos Shale forms the valley floor and lower slopes of the south facing escarpment and is over 4,000 feet thick in the area and contains the interfingered, eastward thinning delta sandstones of the Lower Blackhawk Formation. Locally the Blackhawk Formation is comprised of five shoreline deltaic cliff forming sandstone members in ascending order, Panther, Storrs, Spring Canyon, Aberdeen, and Kenilworth and lower coastal plain coal seams.

The aggregate thickness of the Blackhawk formation in this area is 1,200 feet. The Blackhawk Formation is the primary coal-bearing formation within the area where thick and laterally extensive seams are closely associated with shoreline delta sandstone units. The two seams of major economic interest are the Aberdeen (also known as the Castlegate A) and Kenilworth Seams which directly overlay the Aberdeen and Kenilworth Sandstones respectively. The Castlegate B and C seams lie between the Aberdeen and Kenilworth Seams and in fact or splits of the Aberdeen seam.

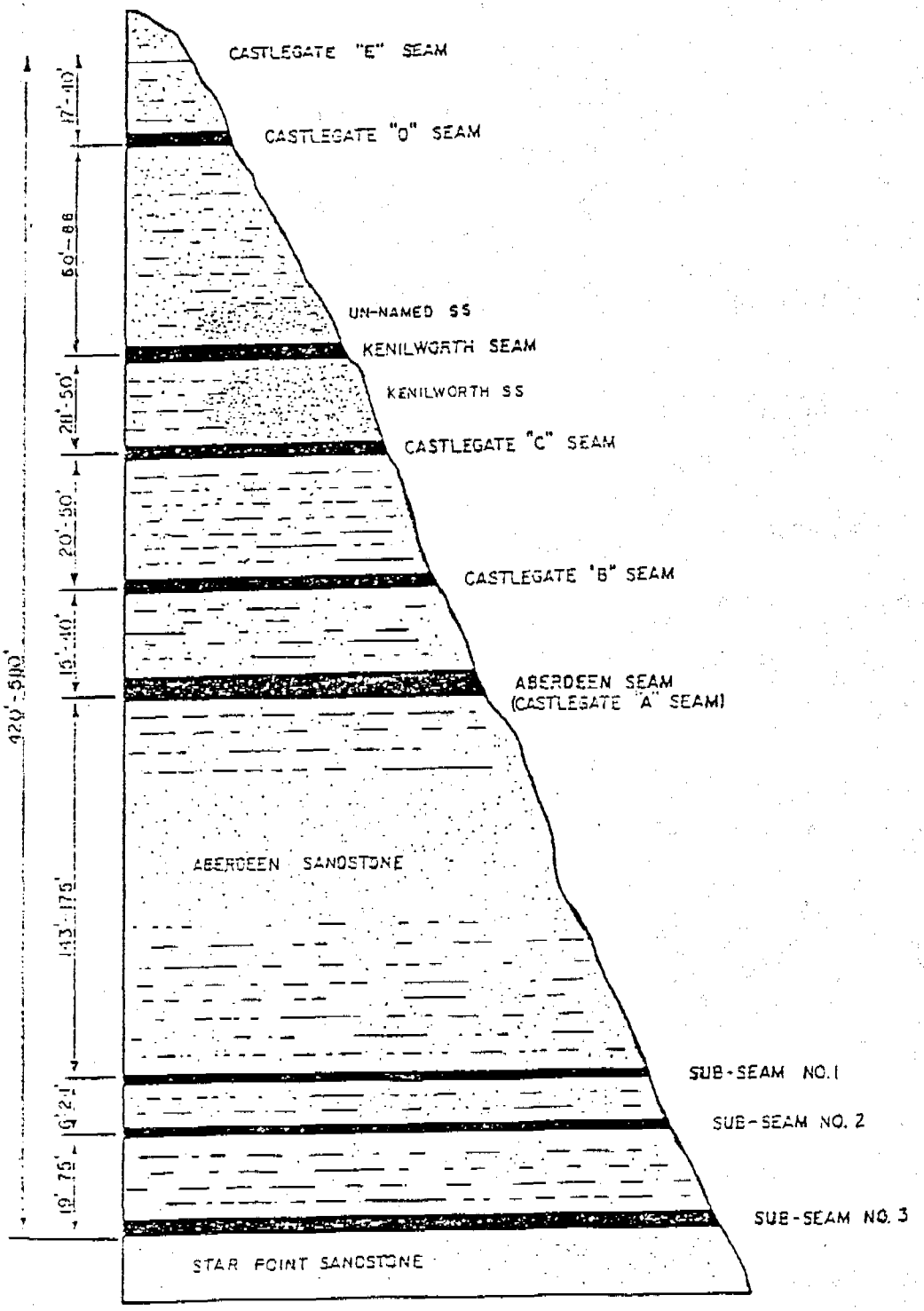
Overlying the Blackhawk Formation is the lower Castlegate Sandstone (massive cliff-forming sandstones 200-250 feet thick) overlain by lenticular sandstones and mudstones of the Upper Castlegate which grad upwards into the North Horn Formation.

The North Horn Formation composed of lenticular sandstones and clay-rich mudstones is the uppermost unit present in the lease tracts, and can only be seen on the extreme northeastern side of the tracts.

Stratigraphic units in this part of the Book Cliff Coal Field typically dip 8° North Northeast. Evidence of faults within the lease tracts is absent. There may be some minor faults but none large enough to seriously affect mine planning and presumably ground water hydrology.

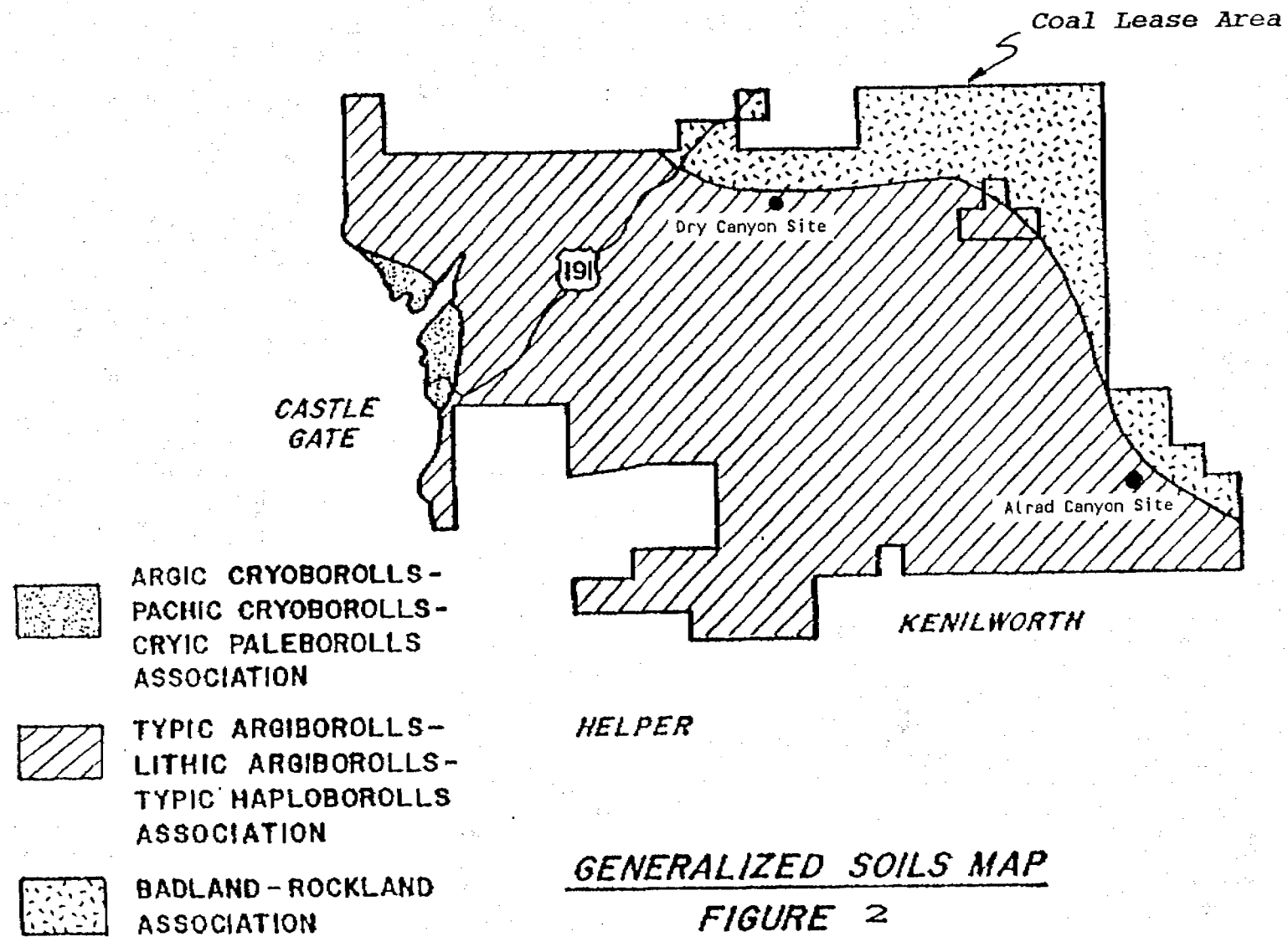
Surface Water
The Price River and Willow Creek are the only perennial streams in the area. The six smaller side canyons/drainages into Price River and Willow Creek are annual/ephemeral streams, only running in the Spring or in direct response to

GENERALIZED STRATIGRAPHIC SECTION



FIGURE

1



GENERALIZED SOILS MAP

FIGURE 2

rock-soil interfaces, or along fracture/joint zones. Several seeps and springs have been developed to handle seasonable livestock.

Vegetative Cover
The surface of this area is predominantly covered with sage brush, grasses and occasional conifers.

National Register of Historical Places Listings
No listed district, site, building, structure, or object is located within the proposed exploration area.

Archeological Resource Inventory
A cultural and archaeological resource inventory of the proposed drill sites is now being conducted and will be submitted as an addition to this application as soon as it is completed. Cursory observations at the sites revealed no evidence of archeological or cultural resources.

Other Physical Features
No significant physical features will be affected by the proposed drilling activities.

Soils
The exploration area contains a number of different soils derived from sandstone, and shale parent material. A generalized soils map of the Lease Area is shown on *figure 2 (Generalized Soils Map)*. Due to the rocky nature of the terrain, the soils are quite variable, with drainage, texture, reaction, and land-use generally site-specific as a result of weathering and the parent rock materials.

The Argic Cryoborolls-Pachic Cryoborolls-Cyric Paleborolls Association, is found mainly to the west of the Price River on the Wasatch Plateau. It is characteristic of the high mountain landform, with steep slopes, moderate to deep soil depths, and highly variable permeabilities. Only a small amount of this soil type is found within the exploration area to the east of the Price River. The association consists generally of 25 percent Argic Cryoborolls, 25 percent Pachic Cryoborolls, and 25 percent Cyric Palebrolls, with the remaining 25 percent consisting of varying amounts of Typic Cryoborolls, Cyric Pachic Paleborolls, Lithic Cryoborolls, Mollic Cryoborolls, and rock outcrop.

The Majority of the area is covered by the Typic Argiborolls-Lithic Argiborolls-Typic Haploborolls Association. This association is characterized by steep slopes, shallow to deep soil cover (10 inches to 36 inches), and reasonably well-drained soils. The association generally is composed of 35 percent Typic Argiborolls, 20 percent Lithic Argiborolls, and 20 percent Typic Haploborolls. The remaining 25 percent

20 percent Typic Haploborolls. The remaining 25 percent consists of Pachic Argiborolls, Argic Cryoborolls, and rock outcrop.

Threatened or Endangered Species
A Survey of the Threatened or Endangered species on the property is being conducted and will be submitted as an addition to this application as soon as it is completed.

Wildlife and Fish
Some of the predominate mammals which may occur in the general area include elk, deer, black bear, cougar, bobcat, coyote, badger, porcupine, snowshoe hare, golden mantled squirrel, Andy ground squirrel, red fox, gray fox, marmot, flying squirrel, and other species of small rodents.

A raptor survey is now being conducted and will be submitted as an amendment to this application as soon as it is completed.

Reptiles and amphibians of the area may include: boreal toad, leopard frog, northern sagebrush lizard, rocky mountain rubber boa, great basin gopher snake and great basin rattlesnake.

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

The proposed coal exploration program will utilize drilling and coring using conventional truck-mounted rigs. Core sampling and testing, and down-hole geophysical logging of the open holes will be the main methods of data collection. Both of the drill sites will be completed as water monitor wells, as described below in the response to 348.1(a)(3)(iv)(E).

Site Access
Access to the Dry Canyon Site will be via an existing dirt road up Dry Canyon. The road will be rehabilitated and a new crossing of Willow Creek will be permitted through the U.S. Corps of Engineers and the Utah State Engineer and constructed. The road up Dry Canyon is on lease, BLM dirt road and or on private or fee ground. Written permission to access the private ground will be submitted as a supplement to this application. A right-of-way application will be filed for access accross BLM land in Section 33 in Dry Canyon.

Access to the Alrad Canyon Site will be via BLM dirt road from the town of Price and alternatively from the town of Kenilworth and up Alrad Canyon on the existing dirt road. Application has previously been submitted to amend the road

use "right of way", currently in effect for Cyprus to access Cordingly Canyon, to also include access to Alrad Canyon.

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

Equipment
A variety of equipment is expected to be utilized during conventional drilling activities. A truck-mounted drill rig (PortaDrill TKT, Gardner-Denver 2000 or similar) will be used with accompanying pipe truck, casing trailer, water trucks (2), skid mounted compressors (2?), equipment/"dog house" trailer, rubber-tired backhoe, and small tracked dozer (D4). Several four wheel drive pickup trucks will be utilized to transport crews and incidental supplies to and from the drill sites. The dozer and backhoe will be used constructing the site, moving equipment as necessary, and excavating the mudpits.

A track mounted dozer, (D-7) Caterpillar, or similar will be used to rehabilitate the roads and construct the drill pads adjacent to the existing roads. A rubber tired motorgrader will likely be used to maintain the roads. Reclamation of the drill pads will be accomplished by a tracked excavator and other listed equipment.

Seed Mixtures
The proposed drill sites and access routes are located on BLM and private land. The seed mix listed below on *Table 2* was provided by the BLM specifically for these sites.

Table 2

Seed Mix

SHRUBS	**Pounds per Acre Pure Live Seed**
Symphoricarpus albus	1.0
Artemesia tridentata wyomingensis	0.5
Cercocarpus ledifolius	1.0
FORBS	
Achillea millefolium	0.5
Balsamorhiza saggitata	0.5
Penstemon strictus	0.5
GRASSES	
Poa secunda	1.5
Bromus carinatus	1.5
Agropyron spicatum	1.5
A. smithii	1.5
A. trachycaulum	1.5
Total	**11.5 Pure Live Seed**

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

All soils excavated in any phase of the proposed exploration activities will be treated the same. Unless otherwise required, the topsoil and native vegetation at the drill sites will be removed, if present, and stockpiled for re-distribution during site reclamation. Topsoil will only be removed where required; generally where soils would be directly impacted at the drill site.
A competent and responsible person, knowledgeable about soils, will be on the site during excavation and reclamation in order to minimize environmental impacts and assure proper soil extraction (depth, etc.) and replacement. This person will be on the drill site during any type of excavation, construction, or reclamation. Methods used to extract topsoil from drill pad locations will be mechanical equipment such as a front-end loader, backhoe, medium to small dozer, or other method.

Stockpiled soil will be protected from erosional loss by containment berms. Wind erosion should not be a problem. If the topsoil pile is dry and deflating, it will be wet down. Weathered rock and/or subsoils excavated from the mud pits will be stockpiled separately from the top soil and will be used to backfill the mudpits after coring and plugging activities are complete. Drill cuttings will be contained and buried in the mud pit. Mudpits will not be backfilled until drilling fluids are pumped out or evaporated.

Soil loss off the drill site will be controlled by berms, sterile straw bales, or silt fences.

The drill pad sites and roads will be graded/reclaimed to approximate original contour and recovered with top soil in a roughened and scarified state. Existing roads will be left in the preexisting condition except at Dry Canyon where the road on BLM land will be ripped and seeded at the time of reclamation. Drainage will be controlled to prevent runoff across exposed soils.

All debris and trash will be disposed of properly and in a timely manner. Location of disposal will be completely off the exploration area. Areas on the drill site which might be contaminated by fuels or oils will be protected by ground tarps or other means. Contaminated soils will be removed from the sites and transported to a registered disposal facility.

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

Both drill holes will be completed as monitor wells, as described below in the response to 3482.1(a)(3)iv)(E). Completion details will be in compliance with the State of Utah ADMINISTRATIVE RULES FOR WATER WELL DRILLERS, July 15, 1987, Part II, Section 8 for drilled wells. The annular space between the casing and/or drill hole wall and the well casing above the well screen completions will be completely sealed with cement, bentonite or a mixture of cement and bentonite up to within 20 feet of the ground surface. A cement surface seal will be placed from the surface to a depth of 20 feet.

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

The size of the core holes will range from ten inches in diameter for surface casing to about 4-3/4 inches for the cored intervals. The holes should not exceed about 1900 feet in depth.

No trenches or test pits are planned.

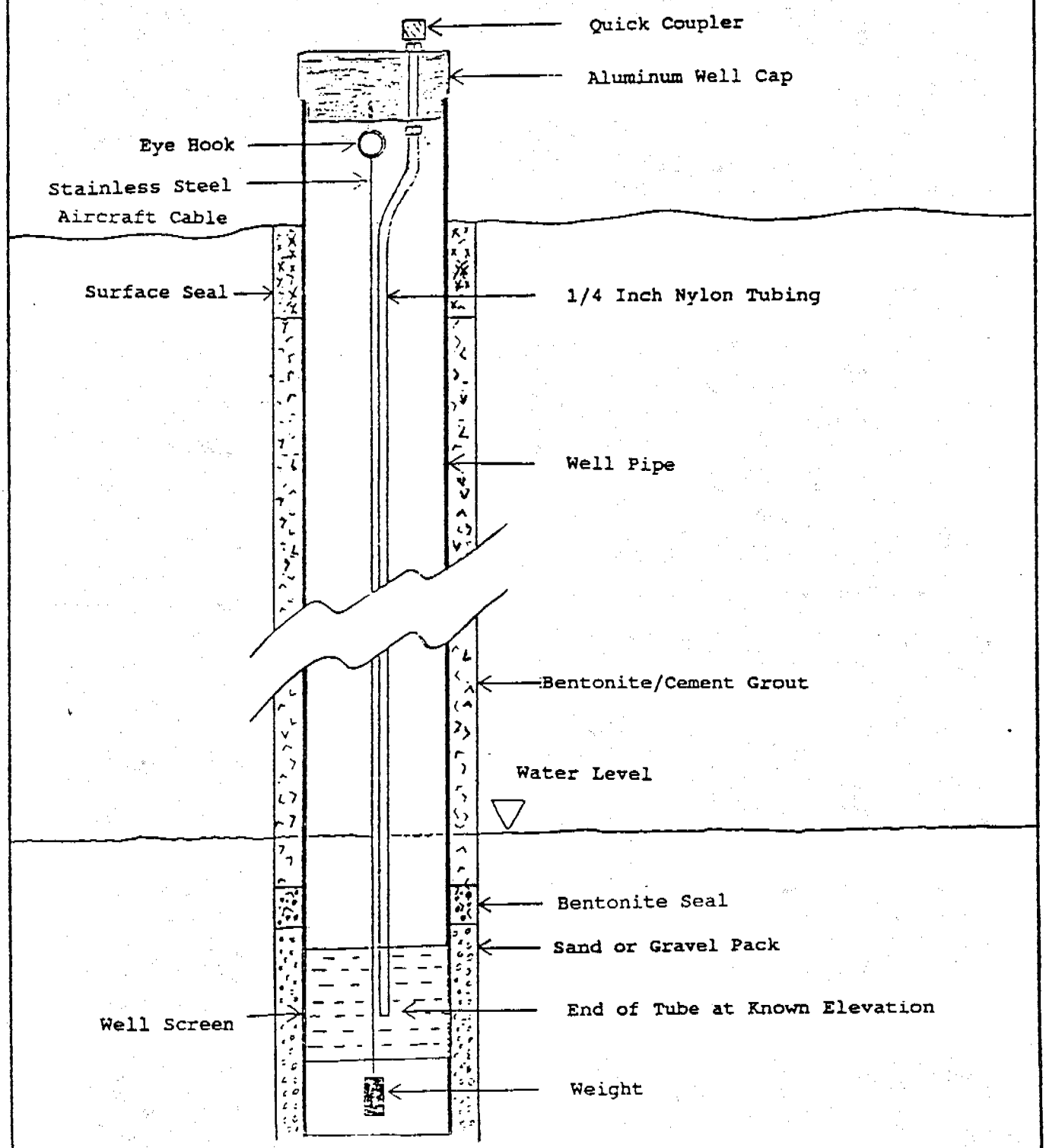
3482.1(a)(3)(iv)(E) Plans for transfer and modification of exploration drill holes to be used as surveillance, monitoring, or water wells.

Monitor well installations will be performed by a currently licensed Utah Water Well Driller. Completion details will be in compliance with the State of Utah Administrative Rules for Water Well Drillers, July 15, 1987, Part II, Section 8 for drilled wells.

Each monitor well will be completed as shown on *figures 3 and 4 (ground-monitor well detail, & locking cap detail)* with two inch steel well pipe and a ten foot section of approved two inch well screen, near but not at the bottom of the hole. It is anticipated that the screen will be placed near the base of the Aberdeen Sandstone which immediately underlies the lowest minable coal seam.

The hole will be fitted with 1/4 inch nylon tubing as a permanent water level monitoring device. Sand or gravel will be used as filter pack and emplaced in the annular space between the borehole and well screen, extending at least two feet above the top on the well screen. A bentonite seal at, least two feet thick, will be emplaced on top of the filter pack. The annular space between the well pipe and bore hole will be grouted with cement.

Ground Water Monitor Well Detail



Not To Scale

FIGURE 3

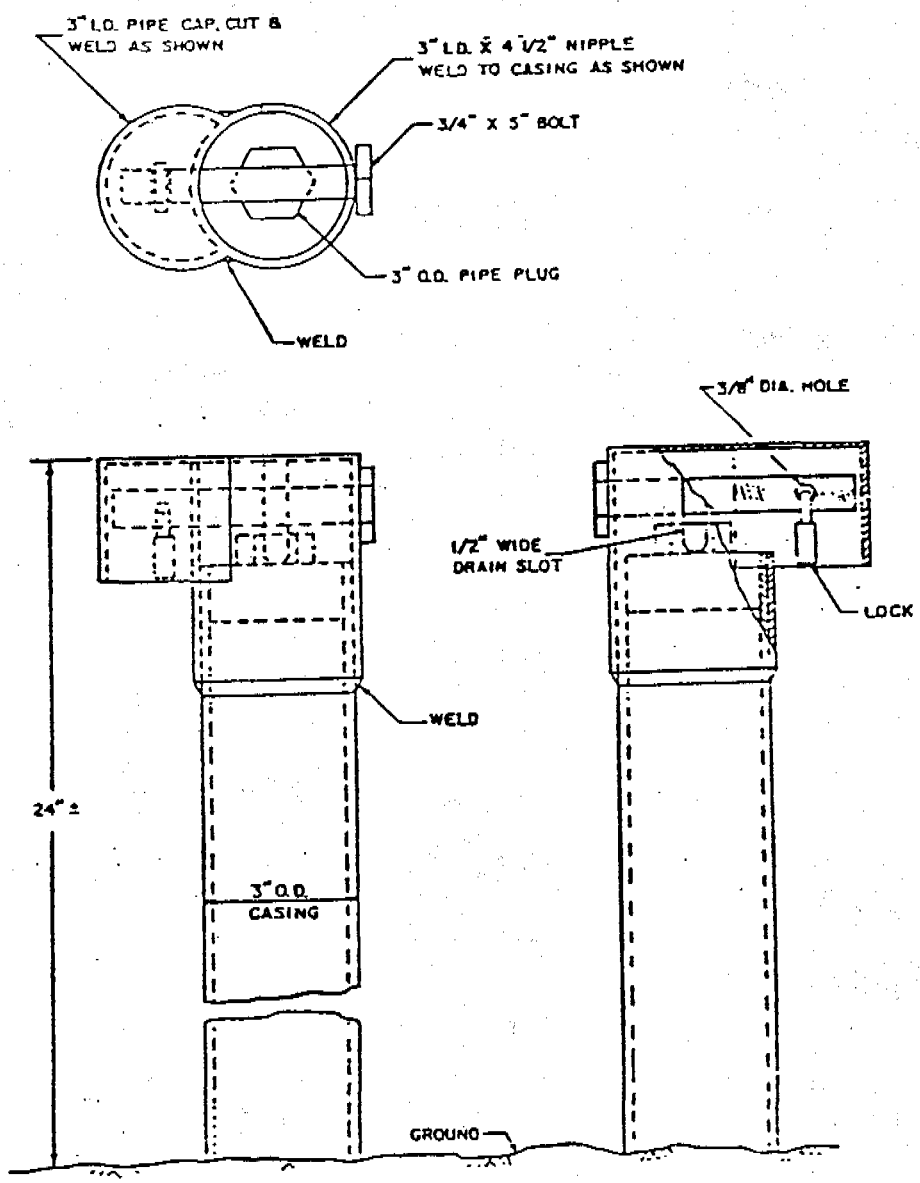


Figure 4
Suggested Locking Cap Detail For Monitoring Wells

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

The timetable for the proposed 1994 drilling is shown on the following *Table 3*:

TABLE 3

TIMETABLE FOR PROPOSED ACTIVITIES

PHASE OF EXPLORATION	*July*	*August*	*September*
week	1 2 3 4	1 2 3 4	1 2 3 4
Drilling		********	
Reclamation		**********	**********

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 two drill holes. Three-inch diameter coal core with length equal to the seam thickness will be removed from each of the anticipated three seams of minable thickness . It is calculated that less than 200 lbs. of coal removed.
Calculations for lbs. of coal per hole:

1.5^2(core radius) X 3.14/144 X 20' (est. coal/hole) X 85lbs./cu.ft. = 84 lbs./hole X 2(holes) = **168 lbs of coal removed.**

The core sampled will be used for quality and geotechnical testing. The results of these tests will aid in thickness, seam geometry, and coal quality determinations, 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.

As noted above in 3482.1(a)(3)(iv)(C), this stipulation will be complied with if the drill hole is not to be completed as a water monitoring well site. The possibility of contamination of surface waters by drilling materials is low because of location. Adequate precautionary measures (such as berms, bales, and/or silt fences) to prevent the escape of drilling materials into stream drainages will be incorporated into individual site designs. The potential for contamination of surface waters will 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.

In accordance the revised stipulations of 43 CFR 3482.2(b), all coal exploration drill holes will be: 1.)"cemented from the

total depth of the hole to the surface and, 2.) the surface and the intermediate casing(if used) will be fully pressure grouted in the annulus from the bottom of the string to the surface". These measures will be taken to prevent intermixing of ground water. Detail on encountered groundwater flow will be noted on appropriate form for the BLM records.
When Ground Water Monitoring Wells are no longer needed, they will be plugged with Portland Cement and sealed.

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. An exception to the above will be those cores samples consumed during quality testing. Splits of the samples will be maintained by the testing labs. Typically in past years, all collected data including seam depth, thickness, quality, geophysical logs, structure, geotechnical, drilling logs, etc. have been copied and transferred to the appropriate personnel at the B.L.M. offices for review and confidential storage, pursuant to 43 CFR 3485.1.

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 and liability including eventual

plugging, reclamation, and abandonment. nothing in this paragraph shall supersede or affect the applicability of any state low requirements for such a transfer, conversion,k or utilizations a supply for domestic consumption.

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 are two maps *(map 1 & map 2)* at a scale of 1:24,000 showing the requested information (proposed drill hole locations, access routes, and lease boundaries).

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 Interior
Bureau of Land Management
Price River Resource Area
900 N. 700 E.
Price, Utah 84501

8432.1(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.

007/038 #2

United States Department of the Interior

TAKE PRIDE IN AMERICA

BUREAU OF LAND MANAGEMENT
Moab District
Price River Resource Area
900 North 700 East
Price, Utah 84501

IN REPLY REFER TO:

cc: Pam, Daron, Joe
PFO, Paul

3482
UT-69600
U-0146345
(UT-066)

Put 1

RECEIVED
AUG 22
DIV. OF OIL, GAS & MINING

AUG 18 1994

007/038 945

Mr. J. Mark Cook
Senior Vice-President
Cyprus Western Coal Company
9100 East Mineral Circle
P. O. Box 3299
Englewood, Colorado 80155

Dear Mr. Cook:

Cyprus Western Coal Company's exploration plan on Federal coal leases UT-69600 (drill hole ACH) and U-0146345 (drill hole DCH) is approved as submitted, subject to the following conditions:

1. All the enclosed Bureau of Land Management (BLM) drilling stipulations will be followed.

2. Drill hole ACH is on Federal coal lease UT-69600, with AMCA Coal Leasing, Inc. (AMCA) as the lessee of record. Therefore, legal agreement should be reached between AMCA and Cyprus Western Coal Company regarding permission to drill and the long-term bonding requirements associated with water monitoring wells.

3. We will require that the present lease bond on Federal coal lease UT-69600 be increased by $12,000 and the lease bond on U-0146345 be increased by $12,000 to cover plugging procedures and final abandonment. No work on the exploration plan is to commence until a bond is in place.

4. To comply with Section 7 consultation under the Endangered Species Act, a one-time payment of $12.34 per acre foot of water used must be made to the National Fish and Wildlife Foundation prior to the implementation of any work on the project.

Additionally, the Utah Division of Oil, Gas and Mining (UDOGM) is requiring the following conditions of approval:

1. The drilling activity in Alrad Canyon is within Andalex Resources Inc.'s permit area for the Centennial Mines. Andalex needs to amend its Mining and Reclamation Plan to identify this activity.

2. UDOGM must be notified in writing as to whether the Willow Creek crossing for the Dry Canyon drill hole is to be permanent or to be reclaimed.

3. Topsoil will be separately removed, stored, and redistributed on areas disturbed by coal exploration activities, as necessary, to assure successful revegetation.

4. If needed, alternate sediment control measures will be used on all the drill sites.

Tom Rasmussen of my staff will be the point of contact for any questions and notifications; please call at work 637-4584 or home 637-8247.

Sincerely,

MARK E. BAILEY

Area Manager

Enclosure
BLM Drilling Stipulations (5 pp)

cc: UT-065, B. Northrup, Division of Mineral Resources(wo/Enclosures)
UT-920, D. Willis, Minerals Adjudication (wo/Enclosures)
UT-921, A. Rabinoff, Branch of Mining Law and Solid Minerals (wo/Enclosures)
Mr. Daron Haddock (wo/Enclosures)
Permit Supervisor
Division of Oil, Gas and Mining
355 West North Temple
3 Triad Center, Suite 150
Salt Lake City, Utah 84180-1203
Mr. Ben Grimes (w/Enclosures)
Cyprus Plateau Mining Corporation
P.O. Drawer PMC
Price, Utah 84501

CYPRUS
Plateau Mining

Cyprus Plateau Mining Corporation
P.O. Drawer PMC
Price, Utah 84501
(801) 637-2875
Fax: (801) 637-2247

August 14, 1994

RECEIVED
AUG 15
DIV. OF OIL, G

Mr. Tom Rasmussen
U.S. D.I. Bureau of Land Management
900 North 700 East
Price, Utah 84501

Dear Mr. Rasmussen,

RE: DOGM COMMENTS ON EXPLORATION PERMIT APPLICATION - DATED AUG. 7, 1994

As you requested, I called Pam Littig at the UDOGM and clarified what the Division wants in regards to their comments dated August 7, 1994. I will address their comments as agreed with you and as agreed with Pam.

Their first comment on the Willow Creek crossing asks for clarification as to whether the crossing will be permanent or temporary. The crossing of necessity must be permanent to allow continued monitoring of the ground water monitoring well. The existing crossing is not satisfactory for long term use, to cross the stream using the existing crossing you must traverse up the stream channel in the water for approximately 150 feet. The channel is very rough and is not safe in higher flows. The disturbed area created by the new crossing will be seeded to stabilize the soils.

Items 2 and 3 of the UDOGM comments address what kinds of sediment control measures will be used at the drill sites, and removal of topsoil & a standard for erosion control. The UDOGM had the same comments on the exploration hole/ground water monitoring well we are doing in Panther Canyon under their jurisdiction. We will use the same plans for the exploration holes/ground water monitoring wells on BLM ground.

Sediment Control

Sediment control measures will be taken which include temporary siltation structures constructed of silt fences. Silt fences will be placed on the downgradient sides of the drill pad area and the topsoil pile to control erosion. If

possible, the mud pits will be placed at the lowest end of the pad where they will catch runoff from the pad.

Topsoil & erosion

Topsoil will be separately removed and stored then redistributed for reclamation. The topsoil stockpile will be protected with a silt fence on the downhill side. A qualified person will be on site during topsoil removal to insure all available material is removed for reclamation.

Erosion will be evaluated by taking photographs of the downgradient side of the site just below the silt fencing and comparing potential erosion with the pre-existing erosion. A map will be made of existing erosion at the site to be disturbed documenting erosion rills. Measurements will be made of the depths of the rills. Any rills below the pad site deeper than 4 inches will have a wooden stake driven in the flowline at the beginning of the project; a mark will be placed on the stake/s and a measurement will be made to the flowline of the rill which can be measured periodically for additional erosion. Documentation of the measurements will be maintained on file at the CPMC for reference. Vegetation success on the reclaimed area will be judged as it relates to erosion based on the above erosion documentation.

I will discuss these items face-to-face with Pam on Monday, August 14, any changes will be documented.

Respectfully,

Ben Grimes
Project Manager

c: Pam Littig - UDOGM

File: WCENV 2.5.2.9
Chron: BG940805

CYPRUS
Plateau Mining

Cyprus Plateau Mining Corporation
P.O. Drawer PMC
Price, Utah 84501
(801) 637-2875
Fax: (801) 637-2247

June 27, 1994

Utah Coal Regulatory Program
Division of Oil, Gas and Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

RECEIVED
JUN 29 1994
DIV. OF OIL, GAS & MINING

Daron -
These are for the exploration sites.
For CEP/007/038-94A
CEP/007/038-94B
(MM)
Copy PAM(2)

Dear Ms. Littig,

RE: WILLOW CREEK MINE COAL EXPLORATION/ GROUND WATER MONITORING WELL PERMIT APPLICATION - THREATENED AND ENDANGERED SPECIES INVESTIGATIONS

Enclosed please find the following:

Raptor survey report from DWR dated June 17, 1994.

Ecological Evaluation of Proposed Monitoring Well Sites from Cedar Creek Associates, Inc. dated June 14, 1994

A Cultural Resources Survey of Three Drill Sites and TWo Access Roads in Carbon County, Utah

These reports should be added as attachments to the exploration permit application sent to your office dated June 13, 1994.

If you have questions, please contact me at 636-2227.

Respectfully,

Ben Grimes
Project Manager

File: WCENV 2.5.2.9
Chron: BG940613

State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WILDLIFE RESOURCES

Michael O. Leavitt
Governor
Ted Stewart
Executive Director
Robert G. Valentine
Division Director

Southeastern Region
455 West Railroad Avenue
Price, Utah 84501-2829
801-637-3310
801-637-7361 (Fax)

June 17, 1994

Keith H. Sieber
Vice President and General Manager
Cyprus Plateau Mining Corporation
P.O. Box PMC
Price, Utah 84501

Attn: Ben Grimes

Dear Mr. Sieber,

The following are the results of the annual raptor survey conducted on lands operated by Cyprus Plateau. The survey was conducted on June 6, 1994, by Bill Bates, Habitat Manager, and Ben Grimes, and included the mining property at Wattis and areas within a half-mile radius of proposed well monitoring sites in Dry Canyon, Panther Canyon, and Allrad Canyon.

Two active golden eagle nests were found near the Wattis mine. One was in Mudwater Canyon, and had a single nestling. The other active nest was on the cliff wall at Star Point. This was a new nest built underneath one of the fenced nests on the cliff face impacted by subsidence. As you recall, the fencing was removed from the two existing nests in September, 1992. This is the first successful nest on this wall since 1986. This pair did successfully fledge young from alternate nests in the area in 1987, 1990 and 1992.

No active nests were found within a half-mile of any of the proposed monitoring wells. One inactive golden eagle nest and an inactive raven nest was found near the proposed well site in Allrad Canyon. No nests were found in the half-mile radius of the well sites at the other locations during the survey. However, survey conditions were hampered by strong winds that may have resulted in observers missing one old golden eagle nest mapped in 1991. The location of this nest is included on the attached map. Although the status of this nest was not determined this year, it should not be impacted by drilling activities as it is shielded by a cliff wall. If a helicopter is used to access the site the status of the nest could be determined, or the flight path of the helicopter could avoid the area near the nest. Please inform us if it is found to be active.

The opportunity to cooperate with Cyprus Plateau on this project, and the information obtained has been valuable in evaluating the impact of longwall mining on raptors. As in the past, we appreciate the support and cooperation of your personnel.

Sincerely,

Miles Moretti
Regional Supervisor

copy: Robert Williams, U.S. Fish and Wildlife Service
John Kimball, DWR
Jim Karpowitz, DWR

ANNUAL RAPTOR SURVEY

Territory	Species	Number of Nests	Status	Number of Young
Serviceberry Canyon	Sharp-shinned hawk	Observed		
Serviceberry Canyon	Golden Eagle	7	Tended	
North Spring Canyon	Prairie Falcon	White Washed	Occupied	
Canyon East of Mud-Water	Golden Eagle	3	Inactive	
Mudwater Canyon	Golden Eagle	6	Active	1
Mudwater Canyon	Buteo	1	Inactive	
Los Angeles Canyon	Raven	1	Inactive	
Seeley Canyon	Golden Eagle	3	Tended	
Star Point	Golden Eagle	5	Active	1
Dry Canyon		No Nests Found		
Panther Canyon		No Nests Found, but 1 golden eagle nest mapped in 1991		
Allrad Canyon	Golden Eagle	1	Inactive	
Allrad Canyon	Raven	1	Inactive	

CEDAR CREEK ASSOCIATES, INC.

916 Willshire Ave. • Fort Collins, Colorado 80521 • (303) 493-4394

June 14, 1994

Mr. Jerry Nettleton
TerraMatrix, Inc.
1475 Pine Grove Rd.
PO Box 774018
Steamboat Springs, Colorado 80477

Dear Jerry:

Enclosed with this letter are two principal items: 1) a compendium of my notes and thoughts taken in the field June 6 and 7; and 2) the raptor / sensitive species report for the three proposed well sites. The first item is included within the body of this letter.

Field Notes

The main facilities area is comprised of 8 vegetation communities / wildlife habitat types as follows:

1) Rimrock cliffs and rock outcrop
2) Riparian bottom (along Willow Creek)
3) Aquatic (within Willow Creek)
4) Pinyon / Juniper Woodland
5) Mixed Brush
6) Grassland (steep slope)
7) Revegetated Disturbance
8) Non-revegetated Disturbance

Wildlife and/or sign observed in the main facilities area include :

Mule Deer	Raven	Red-tailed Hawk
Violet Green Swallows	White-throated Swifts	Rock Wrens
Sagebrush Lizard	Least Chipmunk	Sage Thrashers
Bats (species unknown)	Rainbow Trout (Willow Creek)	Coyote
Turkey Vulture	Golden Eagle	

Dominant plant species observed in the main facilities area include :

Jusc	Pied	Quga
Artrva	Agsp	Amut
Chna	Epne	Ac negundo
Po sargentii	Stco	Kosc
Ar campestris	Rhtr	Brte
Elju	Agcr	Agsm
Atca	Orhy	Saka
Sisymbrium	Gusa	Chvi
Several standard reclamation species		Cele
Arno	Yugl	(Many others on list)

Perusal of the vegetation map indicates that it could use some revision and increased precision in the delineation of floral communities. Color IR imagery would aid greatly in this effort. Non-floral wildlife habitat features such as rock outcrop have not been delineated and probably should be. In addition, the wildlife habitat map (which in fact is simply a range distribution map) is probably in need of updating. We'll need to check with UDWR on this.

The canyon in the West side of Section 31 T12S, R10E contains two Golden Eagle Nests, at least one of which is not active but looks to have been active about 1992. Bill Bates also indicates this nest was active about then. Apparently Ben Grimes has mapping to show all raptor nests within the project area known to date. We should get a copy of this mapping for the permit application.

The dominant understory grass in the undisturbed main facilities area appears to be *Agropyron spicatum* (bluebunch wheatgrass), which is a very good species ecologically. This would also be a very good reclamation species if it can be confirmed later in the season. Mention this to Kent to see if he can confirm that the dominant grass is in fact bluebunch wheatgrass.

Existing wildlife discussions should probably suffice for development of baseline sections with possible exception of aquatic resources. However, there may be a specific area requiring study which may be discovered at a later date. Hopefully, discussion with UDWR will shed any light in this regard.

With regard to aquatic resources, Bill Bates indicated he mentioned the need for a study of the aquatic resources within Willow Creek to somebody a while back. He is definitely of the opinion that aquatic data are needed. The extent of this need is undetermined at present, however, UDOGM guidelines indicate this need as well. If Ben Grimes will give us the go ahead, Cedar Creek will have Rollin Daggett contact Ken Phippen of the UDWR office in Price (801) 637-3310 to discuss availability of current data and need for additional information to facilitate development of a scope of studies and associated costing. It is anticipated that survey needs will include: a habitat survey, evaluation of physical parameters, and possibly macroinvertebrate and fish studies to quantify the existing resource. These studies necessarily should occur at low flow (August), but the guidelines also indicate a Spring requirement. Hopefully we can negotiate this away as we have already lost the spring sampling period for 1994. We would recommend that such evaluations take place both within the proposed facilities area and immediately upstream owing to the previous disturbance which has already occurred. In this manner, we may be able to buy ourselves some flexibility during reclamation.

Sincerely,
CEDAR CREEK ASSOCIATES, INC.

Steven R. Viert
Principal

ECOLOGICAL EVALUATION OF PROPOSED MONITORING WELL SITES

Alrad Canyon Proposed Monitoring Well Site

The Alrad Canyon monitoring well site is proposed within a previously unaltered location within the NW $^1/_4$ of Section 12, T13S, R10E at an elevation of approximately 7,300 feet. Associated with the proposed site will be an approximate 100 foot spur access road from an existing "2-track" road which extends up the canyon bottom. This portion of the canyon is dominated by a mountain brush community with a scattered intermix of pinyon / juniper woodland. Occasional patches of grassland are observable on slope faces exhibiting deeper soils. The immediate vicinity of the proposed drill site and access road can be characterized as an oakbrush vegetation community with intermittent patches of sagebrush / snowberry. Cattle were directly observed in this immediate area, and evidence of significant past use (paucity of decreaser species) was readily evident.

Rimrock typical of the Bookcliffs is well expressed in Alrad Canyon, however, use of these rock faces by cliff nesting raptors appears to be limited by prey availability or some other factor as opposed to nesting opportunities. Evidence of this phenomenon is expressed by the availability of a multitude of ledges, shallow caves, and/or wind blown pockets of which only a very few of such opportunities exhibit indications of nesting. In this regard, only two raptor nests were found within one-half mile of the proposed drill sites during helicopter surveys conducted on June 6, 1994*; however, two additional nests were located just outside the one-half mile radius search area the following morning. As observable on Exhibit ____, the closest nest to the proposed monitoring well site is located approximately 600 feet ESE and 300 feet above. This nest is located in a large vertical crack in south-facing rimrock with no direct "line-of-sight" to the proposed well location. The nest is of stick construction; apparently inactive during 1994 as evidenced by the lack of whitewash, fresh sticks, or recent feathers; and large enough to be that of a Golden Eagle.

The second nest is located about 1000 feet NNE and 300 feet above the proposed monitoring well site. This nest is located on a ledge in south-facing rimrock with a direct "line-of-sight" to the proposed well location. The nest is of stick construction; apparently inactive during 1994 as evidenced by the lack of whitewash, fresh sticks, or recent feathers; and small enough to likely be that of a raven, however, occupancy by red-tailed hawks would be possible.

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* Helicopter surveys of the three proposed monitoring well sites and a one-half mile buffer zone were implemented the morning of June 6, 1994 with Mr. Bill Bates of the UDWR as primary observer and Mr. Ben Grimes of Cyprus as the additional observer. Only two nests were observed as discussed in text. The following morning, a second, less intensive survey was implemented with Mr. Steven Viert of Cedar Creek Associates, Inc. as primary observer. Two additional nests were located immediately outside the one-half mile buffer during the second survey. In addition, to the helicopter surveys, follow-up ground surveys were implemented on June 7, to verify previous observations and to visually evaluate any evidence of tree nesting by raptors.

The third and fourth nests are located over 3000 feet distant within Cordingly Canyon west of the proposed well site. These two nests appear to be alternates as they are located on rimrock along a rock ledge with approximately 80 feet of separation. Both nests are of stick construction; apparently inactive during 1994 (although one nest looked to have a small amount of material which might have been fresh in 1993); and were of a size sufficient to support a buteo such as a red-tailed hawk.

With regard to sensitive flora on the well site and access road proper, none were observed. Furthermore, no unique habitats were identified which might predispose the existence of sensitive plants. The area is dominated by Gambel's oak (*Quercus gambelii*), Mountain big sagebrush (*Artemisia tridentata* ssp *vaseyana*), and Western snowberry (*Symphoricarpos occidentalis*). Subdominant species include: Utah serviceberry (*Amelanchier utahensis*), rubber rabbitbrush (*Chrysothamnus nauseosus*), and Douglas rabbitbrush (*Chrysothamnus viscidiflorus*). Remaining species observed in the area of the proposed well site are as follows:

Achillea millefollium	Western yarrow
Agropyron smithii	Western wheatgrass
Antennaria parvifolia	Littleleaf pussytoes
Artemisia ludoviciana	Louisiana sagewort
Carex sp.	Sedge
Crepis acuminata	Western hawksbeard
Elymus salina	Salina wildrye
Erigeron eatonii	Eaton fleabane
Eriogonum microthecum	Wild buckwheat
Festuca sp. *(ovina ?)*	Sheep fescue
Juniperus scopulorum	Rocky Mountain juniper
Lupinus argenteus	Silvery lupine
Mertensia viridis	Greenleaf bluebells
Penstemon watsonii	Watson penstemon
Phlox longifolia	Longleaf phlox
Pinus edulis	Pinyon pine
Senecio pauperculus	Balsam groundsel

From an ecological perspective, the brief and limited activity of establishing a monitoring well at this location will have at most a negligible measurable impact on the local flora and fauna.

Panther Canyon Proposed Monitoring Well Site

The Panther Canyon monitoring well site is proposed within a previously disturbed location (old road bed constructed in the early 70's) within the SW $^1/_4$ of Section 5, T13S, R10E at an elevation of approximately 6,920 feet. This portion of the canyon is dominated by pinyon / juniper woodland and mountain brush communities with an occasional patch of grassland on slope faces exhibiting deeper soils. The immediate vicinity of the proposed drill site can be characterized as a blend of mixed brush and pinyon / juniper communities. Significant past use by livestock was readily evident given the paucity of decreaser species.

Rimrock typical of the Bookcliffs is also well expressed in Panther Canyon, and like Alrad Canyon, use of these rock faces by cliff nesting raptors appears to be limited by prey availability or some other factor as opposed to nesting opportunities. Following the helicopter surveys and ground verification, no raptor nests were discovered within one-half mile of the proposed monitoring well location.

With regard to sensitive flora on the well site proper, none were observed. Furthermore, no unique habitats were identified which might predispose the existence of sensitive plants. The area is dominated by Mountain big sagebrush (*Artemisia tridentata* ssp *vaseyana*) and rubber rabbitbrush (*Chrysothamnus nauseosus*) with subdominance by Western snowberry (*Symphoricarpos occidentalis*). Remaining species observed in the area of the proposed well site are as follows:

Acer glabrum	Rocky Mountain Maple
Achillea millefollium	Western yarrow
Agropyron cristata	Crested wheatgrass
Agropyron smithii	Western wheatgrass
Antennaria parvifolia	Littleleaf pussytoes
Artemisia ludoviciana	Louisiana sagewort
Astragalus diversifolius	Meadow milkvetch
Bromus tectorum	Cheatgrass
Carex sp.	Sedge
Chrysothamnus viscidiflorus	Douglas rabbitbrush
Crepis acuminata	Western hawksbeard
Cryptantha humilis	Cryptantha
Elymus salina	Salina wildrye
Grindelia squarrosa	Curlycup gumweed
Juniperus scopulorum	Rocky Mountain juniper
Lepidium perfoliatum	Clasping pepperweed
Opuntia polyacantha	Plains prickly pear
Oryzopsis hymenoides	Indian ricegrass
Pinus edulis	Pinyon pine
Poa pratensis	Kentucky bluegrass
Quercus gambelii	Gambel's oak
Ribes cereum	Wax currant
Senecio pauperculus	Balsam groundsel

From an ecological perspective, the brief and limited activity of establishing a monitoring well at this location will have at most a negligible measurable impact on the local flora and fauna.

Dry Canyon Proposed Monitoring Well Site

The Dry Canyon monitoring well site is proposed within a previously disturbed location (old road bed constructed in the early 70's) within the NW $^1/_4$ of Section 33, T12S, R10E at an elevation of approximately 7,020 feet. This portion of the canyon is dominated by pinyon / juniper woodland and mountain brush communities on the south-facing slopes and Douglas-fir woodland and oakbrush along the bottoms and on north-facing slopes . The immediate vicinity of the proposed drill site can be characterized as a mix of early successional and Douglas-fir woodland communities. During the course of

surveys for raptors and sensitive flora, definitive sign of several large and mobile wildlife species was noted along the access road, including: elk, mule deer, coyote, and black bear.

Rimrock typical of the Bookcliffs is also well expressed in Dry Canyon, and like Panther and Alrad Canyons, use of these rock faces by cliff nesting raptors appears to be limited by prey availability or some other factor as opposed to nesting opportunities. Following the helicopter surveys and ground verification, no raptor nests were discovered within one-half mile of the proposed monitoring well location. However, during ground surveys, both red-tailed hawks and turkey vultures were observed hunting over the canyon.

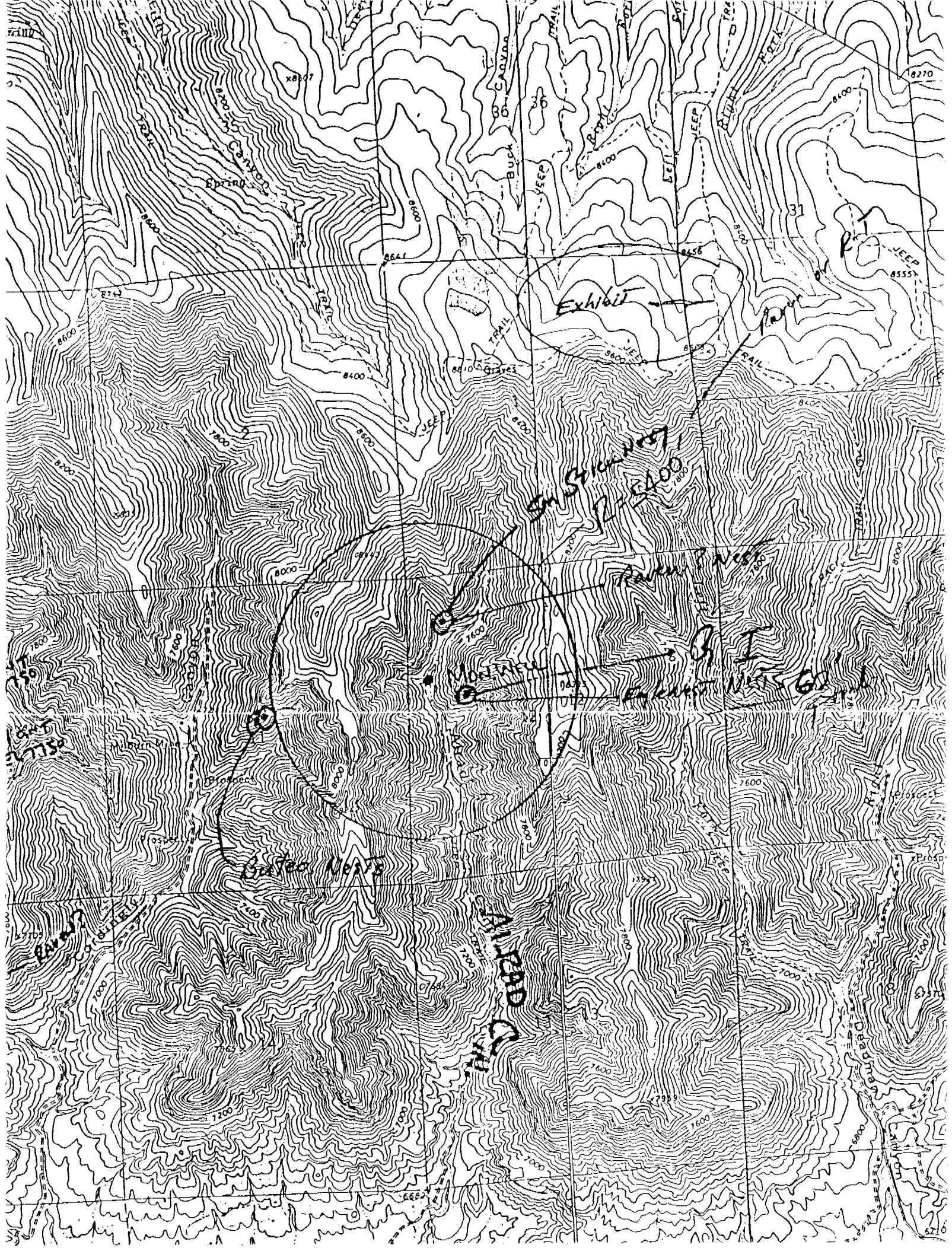
Furthermore, because of identified concern for potential nesting within Dry Canyon by goshawks (a protected tree-nesting species), an eliciting protocol was implemented on June 7, 1994. This protocol followed Kennedy and Stahlecker (1991), whereby an alarm call is broadcast during the nestling period (June through mid-July) in the effort to detect territorial defense activity on the part of goshawks. Implementation in Dry Canyon consisted of establishing a call station every 500 feet along the access road and at the proposed monitoring well location. At each station, an alarm call in excess of 100 decibels was broadcast for approximately 30 seconds in all directions followed by a 30 second rest period. Following the initial call, subsequent calling occurred for 10 second intervals in the direction of each major compass point with 30 seconds of rest between. Based on past experience with this protocol, any goshawks nesting within the canyon would have easily been summoned by this level of effort. However, no responses to the alarm call were elicited. This lack of observation is not unexpected given the marginal quality of habitat exhibited by the relatively sparse and submature nature of the Douglas-fir woodland presently existing within Dry Canyon.

With regard to sensitive flora on the well site proper, none were observed. Furthermore, no unique habitats were identified which might predispose the existence of sensitive plants. The area is dominated by young Douglas-fir (*Pseudotsuga menziesii*), Gambel's oak (*Quercus gambelii*), and rubber rabbitbrush (*Chrysothamnus nauseosus*) with subdominance by Western snowberry (*Symphoricarpos occidentalis*), Kentucky bluegrass (*Poa pratensis*), and goldenrod (*Solidago* sp.- likely *canadensis*). Remaining species observed in the area of the proposed well site are as follows:

Achillea millefollium	Western yarrow
Agropyron cristata	Crested wheatgrass
Amelanchier utahensis	Utah serviceberry
Antennaria parvifolia	Littleleaf pussytoes
Artemisia ludoviciana	Louisiana sagewort
Astragalus diversifolius	Meadow milkvetch
Carex sp.	Sedge
Chrysothamnus viscidiflorus	Douglas rabbitbrush
Cirsium pulchellum	Thistle
Crepis acuminata	Western hawksbeard
Cryptantha humilis	Cryptantha

Cynoglossum officinale	Houndstongue
Erysimum inconspicuum	Smallflower erysimum
Grindelia squarrosa	Curlycup gumweed
Ipomopsis aggregata	Skyrocket gilia
Juniperus scopulorum	Rocky Mountain juniper
Melilotus officinalis	Yellow sweetclover
Oryzopsis hymenoides	Indian ricegrass
Penstemon eatonii	Firecracker penstemon
Phlox longifolia	Longleaf phlox
Pinus edulis	Pinyon pine
Plantago major	Common plantain
Ribes cereum	Wax currant
Rosa woodsii	Wood's rose
Sambucus cerulea	Elderberry
Senecio pauperculus	Balsam groundsel
Stipa viridula	Green needlegrass
Taraxacum officinale	Common dandelion
Tradescantia bracteata	Bracted spiderwort
Verbascum thapsus	Flannel mullein
Vicia americana	American vetch

From an ecological perspective, the brief and limited activity of establishing a monitoring well at this location will have at most a negligible measurable impact on the local flora and fauna.



Exhibit
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Sm Stick Nest
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Raven ? Nest
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Mon Well
Eyelet Nests
Buteo Nests
Raven ?
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Buck
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Graves
Milburn Mine
Prospect
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Deadman
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6716

A CULTURAL RESOURCES SURVEY OF THREE DRILL SITES AND TWO ACCESS ROADS IN CARBON COUNTY, UTAH

by

Heather M. Weymouth
Archaeologist

Prepared for:

TerraMatrix/ACZ Inc.
Engineering and Environmental Services
1475 Pine Grove Road, Suite 109
Steamboat Springs, Colorado 80477

Prepared by:

Sagebrush Archaeological Consultants
3670 Quincy Avenue, Suite 203
Ogden, Utah 84403

Under Authority of Cultural Resources Use Permit No. 93-UT-54630
and
Utah State Antiquities Permit No. U-94-SJ-303b,p

Archaeological Report No. 670

June 9, 1994

INTRODUCTION

In April 1994, TerraMatrix/ACZ Inc. of Steamboat Springs, Colorado requested that Sagebrush Archaeological Consultants (Sagebrush) of Ogden, Utah conduct a cultural resource inventory of three drill site locations and two access roads for the Cyprus Plateau Mining Corporations Willow Creek Project in Carbon County, Utah. The project area is located on the western Colorado Plateau, in the northern Book Cliffs region of Carbon County near Castle Gate in T. 12S., R. 10E., S. 33; T. 13S., R. 10E., S. 5 and S. 12. The project area lies on the USGS 7.5' Helper, Utah Quadrangle (1972)(Figures 1 and 2).

The project area consists of three separate proposed drill sites and two access roads located on lands controlled by the Bureau of Land Management (BLM) and private land holders in Dry, Panther and Alrad Canyons. A total of 25.3 acres were surveyed during this project. Of the total acreage surveyed 9.35 acres lie on BLM land associated with the Alrad Canyon drill site and the Dry Canyon drill site and access road. The remaining 15.95 acres are located on private lands associated with the Panther and Dry Canyon drill sites and access roads. Fieldwork for this project was conducted by the author on June 6 and 7, 1994. This project was conducted under authority of Cultural Resources Use Permit No. 93-UT-54630 and Utah Antiquities Permit No. U-94-SJ-303b,p.

Prior to conducting the field inventory the author carried out a file search at the Division of State History, Utah State Historical Society, Salt Lake City on June 3, 1994. In addition, Archaeologist Blaine Miller of the Price River Resource Area, BLM, was consulted with regard to cultural resources which have been previously recorded on BLM lands in the vicinity of the current project area. The National Register of Historic Places (NRHP) was also consulted prior to the commencement of fieldwork for the present project. No Register sites were located in the vicinity of the current project area.

A total of four cultural resources projects have been previously undertaken in the area. In 1984, Richard Talbot of Cultural Resource Management Services, Brigham Young University, conducted a linear survey of three seismic lines (Talbot 1985a) in the area of the current project. No cultural resource sites nor paleontological localities were located in the vicinity of the current project area during this survey. In 1985, Talbot surveyed six additional seismic lines in the area (Talbot 1985b). One site, 42Cb520, was located during this survey. Site 42CB520, the historic Milburn Mine, is a historic coal mining site consisting of one standing building, the remnants of 10 additional buildings and two mine portals. This site was recommended eligible to the NRHP.

In 1986, Senco-Phenix conducted a cultural resources inventory for the Dead Man Canyon Coal Mine (Senulis 1986). No cultural resource sites and no paleontological localities were located in the vicinity of the current project area during this survey.

In 1987, Nielson Consulting conducted an archaeological inventory of the Utah Power and Light Fly Ash Disposal Area (Nielson and Southworth 1987). No cultural resource sites and no paleontological localities were located in near the current project area during this survey.

In addition, a total of 10 individual cultural resource sites have been previously recorded in the vicinity of the current project area. Four of these sites (42Cb580-42Cb582) are located within the boundaries of the current project. At least seven of these sites were recorded under the Utah Abandoned Mine Reclamation Program (AMR). Because the AMR does not maintain personnel qualified to conduct NRHP evaluations, these sites were not evaluated for eligibility to the NRHP at the time of recordation. Site forms are not available for three of these sites. The remaining seven sites are related to coal mining facilities in the vicinity of the Castle Gate Mines. They include five coal refuse piles, a fan house facility and mine portal and the Panther Canyon Mine site.

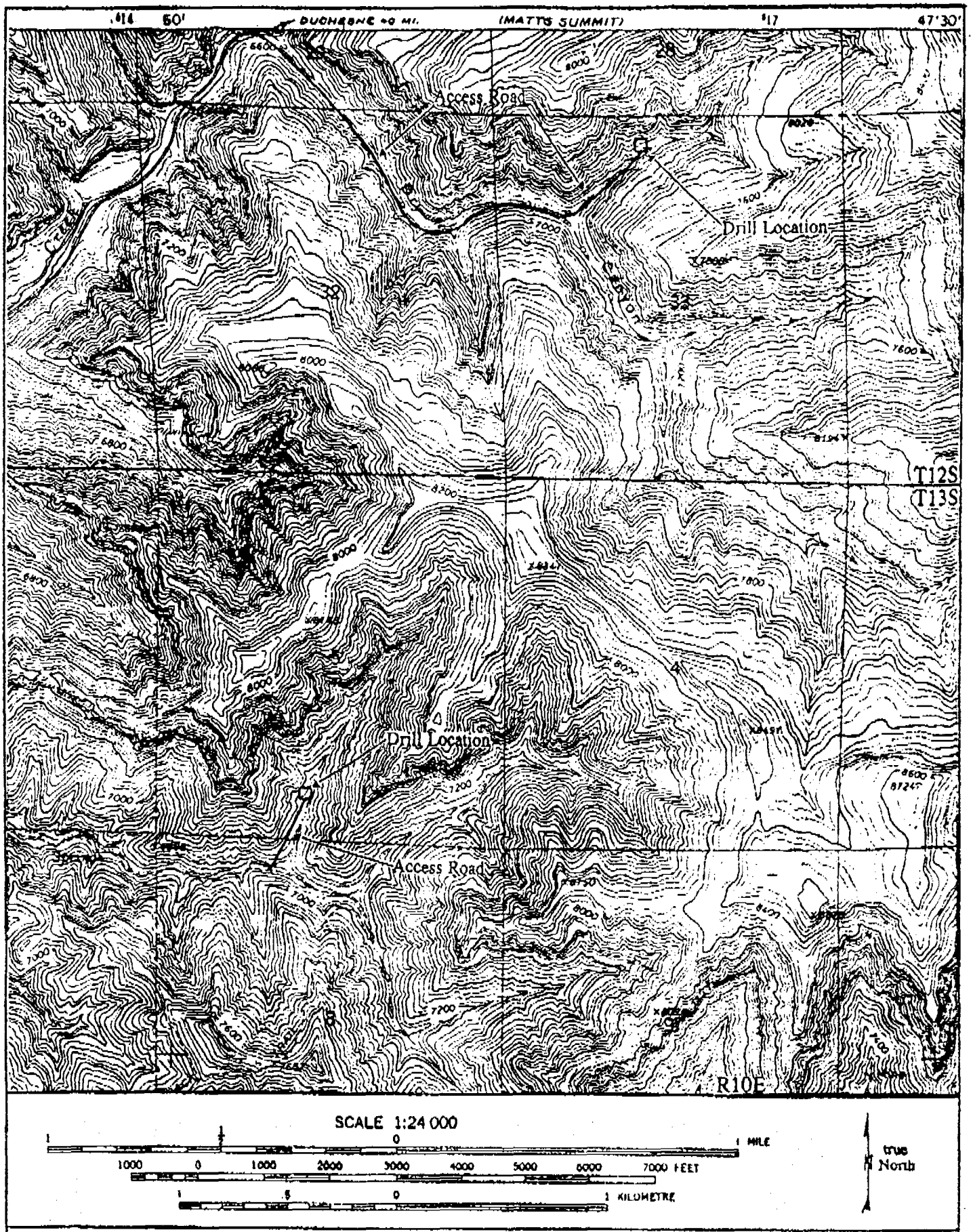

Figure 1. Location of areas surveyed for two Cyprus Plateau drill sites in Dry and Panther Canyons. Taken from: USGS Helper, Utah 7.5' Quadrangle (1972).

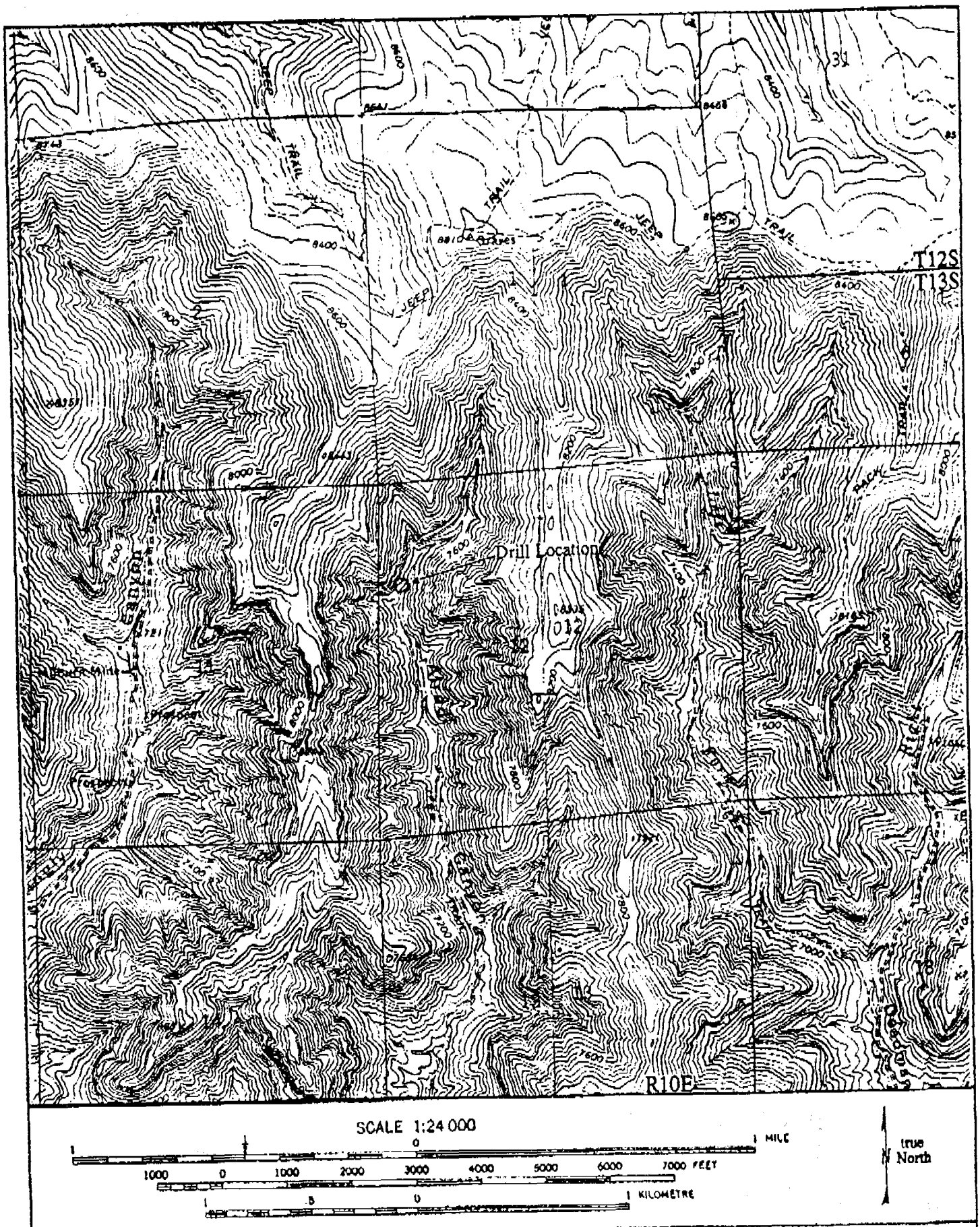

Figure 2. Location of area surveyed for one Cyprus Plateau drill site in Alrad Canyon. Taken from: USGS Helper and Deadman Canyon, Utah 7.5' Quadrangles (1972).

ENVIRONMENT

The project area is located on the western Colorado Plateau, in the northern Book Cliffs region of Carbon County near Castle Gate in Willow Creek Canyon. The elevation of the areas surveyed ranges between 6920 feet a.s.l. and 7320 feet a.s.l. Topographically, the areas surveyed lie in three relatively narrow canyon bottoms with steeply sloping to vertical canyon walls on either side. In many areas seasonal drainages have carved through the steep rocky ridges of the main canyon walls creating small side canyons or draws. Soils in these areas are poorly developed, sandy residual sediments and colluvial deposits are prevalent throughout the area. Vegetation in the area is dominated by pinyon-juniper montane species including juniper, pinyon pine, penstemon, Oregon grape, wild rose, buckwheat, sagebrush, Gambel oak and snowberry. The vegetation density in the areas surveyed is approximately 40 to 50 percent cover. There are no permanent water sources in or near the immediate survey area, though there are a few intermittent drainages and springs nearby. Natural disturbance in the area is dominated by mechanical weathering processes including colluvial movement and frost wedging of rock on the steep canyon slopes. Cultural disturbance in the area consists of dirt roads in the bottoms of each of the three canyons and use of the area as summer range for livestock.

METHODOLOGY

The areas surveyed for the proposed drill sites included three separate drill locations located in Dry, Panther and Alrad Canyons, and two access roads. The areas surveyed for the three drill locations consisted of small block areas of approximately one acre which were centered on proposed center stakes at each location. The area surveyed for each of these block areas measured 200 feet (65.6 meters) long by 200 feet (65.6 meters) wide. The corridor surveyed for the Dry Canyon drill site access road measured 1.6 miles (2.57 kilometers) long by 100 feet (32.8 meters) wide. The corridor surveyed for the Panther Canyon drill site access road measured 0.25 miles (0.4 kilometers) long by 100 feet (32.8 meters) wide. Cyprus Plateau has applied for a BLM right-of-way permit for access to the Alrad Canyon drill location using existing roads, therefore no cultural resource survey was conducted with regard to proposed access for that location. The drill sites were located and surveyed using prominent topographic features and center stakes as points of reference. These areas were surveyed walking parallel transects spaced no more than 15 meters apart. The proposed access roads were surveyed by walking parallel transects along the existing two-track road surfaces to be affected. A total of 25.3 acres were surveyed during this project.

RESULTS

No cultural resource sites and no paleontological localities were found during the survey of the three proposed drill site locations and the Dry and Panther Canyon access roads. These areas, having no outlet, would not be considered likely corridors for use in travel or trade by either historic or prehistoric peoples. The absence of a permanent water source in these high mountain canyon locations and the general lack of other resources favored by prehistoric peoples would suggest that significant sites of this nature would not be found in the project area.

RECOMMENDATIONS

There were no cultural resources sites nor paleontological localities found during the field inventory, therefore cultural resources clearance is recommended for these areas.

This investigation was conducted with techniques which are considered to be adequate for evaluating cultural resources which could be adversely affected by the project. However, should cultural resources be discovered during construction on private lands a report should be made immediately to the State Archaeologist, Utah Historical Society, Salt Lake City. If such resources are found on BLM lands, a report should be made to the Price River Resource Area Archaeologist in Price, Utah.

REFERENCES CITED

Talbot, Richard K.
1985a *A Cultural Resource Survey of Three Seismic Lines in the Book Cliffs Area Near Price, Carbon County, Utah.* Cultural Resource Management Services, Brigham Young University, Technical Series No. 85-78. Provo, Utah.

1985b *A Cultural Resource Inventory of Six Seismic Lines in Southeastern Utah and Western Carbon Counties.* Cultural Resource Management Services, Brigham Young University, Technical Series No. 85-81. Provo, Utah.

Nielson, Asa S. and Don Southworth
1987 *An Archaeological Inventory of the Proposed Utah Power and Light Fly Ash Disposal*

State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt
Governor

Ted Stewart
Executive Director

James W. Carter
Division Director

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Salt Lake City, Utah 84180-1203
801-538-5340
801-359-3940 (Fax)
801-538-5319 (TDD)

August 7, 1994

Mr. Mark Bailey, Area Manager
Price River Resource Area
Bureau of Land Management
900 North 700 East
P.O. Box AB
Price, UT 84501

Re: Comments on Exploration Proposal, Dry and Alrad Canyon Exploration, Cyprus Plateau Mining Corporation, CEP/007/038-94B, Folder #2, Carbon County, Utah

Dear Mr. Bailey:

Enclosed please find Division comments relative to the proposed exploration for Dry and Alrad Canyon. If you have any questions, please call me or Daron Haddock.

Sincerely,

Pamela Grubaugh-Littig
Permit Supervisor

Enclosure
cc: Daron Haddock
Ben Grimes

EXPLORATION COMMENTS

Cyprus Plateau Mining Corporation
Dry and Alrad Canyon Exploration
CEP/007/038-94B

August 3, 1994

SYNOPSIS

Cyprus Plateau Mining Corporation is proposing to drill exploration holes in Dry and Alrad Canyon both of which are on lands under BLM jurisdiction. They have also proposed to drill one hole in Panther Canyon which being on privately owned ground will fall under the jurisdiction of the Division of Oil, Gas and Mining ("Division"). The Division has reviewed both projects and offers the following comments to aid the BLM in rendering a decision on the proposed exploration under BLM jurisdiction.

COMMENTS

The application narrative does not indicate if the new Willow Creek crossing is being designed, permitted, and built as a permanent structure or if the area will be reclaimed after the exploration work is completed. It is recommended that the BLM receive clarification from Cyprus Plateau Mining as to whether the Willow Creek crossing is to be permanent or to be reclaimed, and if it is to be reclaimed what reclamation plan will be followed.

Cyprus Plateau did not propose any typical or specific designs for Alternate Sediment Control ("ASC") measures and did not describe where these measures would be used on the respective sites. The ASC are only to be used "if needed." Cyprus Plateau should explain what types of sediment control would be used and provide typical designs and locations for the sediment control. One recommendation for sediment control is to place the mud pits at the lowest possible point in the work site. The mud pits would then trap much of the runoff created on site.

The statement that topsoil will only be removed where required needs to be modified to indicate that topsoil will be separately removed, stored, and redistributed on areas disturbed by coal exploration activities as necessary to assure successful revegetation. The application should also contain a standard by which erosion control could be judged.

The Alrad Canyon site is within Andalex Resources Inc.'s permit area for the Centennial Mines. Although this is a project being done by Cyprus, it is activity within an existing permit area. Andalex needs to amend its Mining and Reclamation Plan to identify this proposed activity.

RECOMMENDATION

It is recommended that the proposed exploration project be approved with the condition that the above items be adequately addressed.

BLMRECOM.WIL

Form DOGM - E (Last Revised 6/93)

EXPLORATION NOT INSIDE Permit Area

File Folder # 3

2 Holes

PERMIT CHANGE TRACKING FORM

DATE RECEIVED	6/14/94	PERMIT NUMBER	CEP/007/038
Title of Proposal:	Minor Coal Exploration	PERMIT CHANGE #	CEP/007/038-94B
Description:	Federal Coal Lease U-0146345 (DRY CANYON)	PERMITTEE	Cyprus Plateau Mining Corp
	Federal Coal Lease SL-048442-050115	MINE NAME	"Willow Creek"

	DATE DUE	DATE DONE	RESULT	
BLM - lead, DIVISION makes recommendation (Alfred Canyon site) ☐ 15 DAY INITIAL RESPONSE TO PERMIT CHANGE APPLICATION	N/A		☐ ACCEPTED	☐ REJECTED
☐ Notice of Review Status of proposed permit change sent to the Permittee.			Permit Change Classification	
☐ Request additional review copies prior to Division/Other Agency review.			☐ Significant Permit Revision	
☐ Notice of Approval of Publication. (If change is a Significant Revision.)			☐ Permit Amendment	
☐ Notice of request to modify proposed permit change prior to approval.			☐ Incidental Boundary Change	

REVIEW TRACKING		INITIAL REVIEW		MODIFIED REVIEW		FINAL REVIEW AND FINDINGS	
DOGM REVIEWER		DUE	DONE	DUE	DONE	DUE	DONE
☑ Administrative	Paul	7/14	8/1				
☑ Biology	Paul	7/14	8/1				
☐ Engineering							
☐ Geology		check w/ Henry Aneeded					
☑ Soils	Paul	7/14	8/1				
☑ Hydrology	Jim	7/14					
☐ Bonding							
☐ AVS Check							

COORDINATED REVIEWS	DUE	DONE	DUE	DONE	DUE	DONE
☐ OSMRE						
☐ US Forest Service						
☐ Bureau of Land Management						
☐ US Fish and Wildlife Service						
☐ US National Parks Service						
☐ UT Environmental Quality						
☐ UT Water Resources						
☐ UT Water Rights						
☐ UT Wildlife Resources						
☐ UT State History						
☐ Other						

☐ Public Notice/Comment/Hearing Complete (If the permit change is a Significant Revision)		☐ Permit Change Approval Form signed and approved effective as of this date. ☐ Permit Change Denied.	
☐ Copies of permit change marked and ready for MRP.		☐ Notice of ☐ Approval ☐ Denial to Permittee.	
☐ Special Conditions/Stipulations written for approval.		☐ Copy of Approved Permit Change to File.	
☐ TA and CHIA modified as required.		☐ Copy of Approved Permit Change to Permittee.	
☐ Permit Change Approval Form ready for approval.		☐ Copies to Other Agencies and Price Field Office.	

MINOR COAL EXPLORATION PLAN

FEDERAL COAL LEASE

U-0146345

(Dry Canyon Site)

FEDERAL COAL LEASE

SL-048442-050115

(Alrad Canyon Site)

CARBON COUNTY, UTAH

BLM Surface

SEP/007/038-94B

Cyprus Plateau Mining Corporation

For

CYPRUS WESTERN COAL COMPANY

June 1994

List of Maps, Figures & Tables

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INTRODUCTION

This exploration Plan has been prepared by Cyprus Plateau Mining Corporation for Cyprus Western Coal Company ("Cyprus" - a Delaware corporation) acting as operator and owner for this exploration project. The focus of this exploration is to increase stratigraphic and structural control and gather baseline data in preparation for obtaining a mining permit. The area for which this plan has been prepared is within an authorized lease therefore the format utilized follows that of 43 CFR (12/31/92, edition) Sub-part 3482. The appropriate regulation is referenced and underlined followed by Cyprus' response.

Five copies of this plan are herewith submitted to the Price, 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) <u>Exploration plans shall contain all of the following:</u>

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

Applicant and Operator:
Cyprus Plateau Mining Corporation, for
Cyprus Western Coal Company
9100 East Mineral Circle
Post Office Box 3299
Englewood, Colorado 80155
Telephone: (303) 643-5100

Lessee of Record:
Blackhawk Coal Company
P.O. Box 700
Lancaster, Ohio 43130

Sub-Lessee of Record:
Cyprus Western Coal Company
P.O. Box 3299
9100 East Mineral Circle
Englewood, Colorado 80155
Telephone: (303) 643-5000

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

Gregory L. Hunt
449 Gordon Drive
Castle Rock, Colo. 80104
Telephone: (303) 660-9368

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.

Legal description of Entire Lease to be Explored:

Dry Canyon Hole

Serial Number: **U-0146345**

T. 12 S., R. 10 E., SLM, Utah
Sec. 33, N 1/2;
Sec. 34, NW 1/4 NE 1/4, S 1/2 NE 1/4, NW 1/4;
Sec. 35, NE 1/4, S 1/2 NW 1/4, S 1/2.

Containing 1,160 acres, more or less.

Alrad Canyon Site

Serial Number: **SL-048442-050115**

T. 13 S., R. 10 E., SLM, Utah
Sec 1, Sw 1/4;
Sec 3, S 1/2 N 1/2, S 1/2;
Sec 4, lots 1-4, S 1/2 N 1/2, N 1/2 S 1/2;
Sec 10, N 1/2, NW 1/4, SW 1/4;
Sec 11, E 1/2, NW 1/4;
Sec 12, NW 1/4 NE 1/4, S 1/2 NE 1/4, W 1/2, SE 1/4

Containing 2,562.88 acres, more or less.

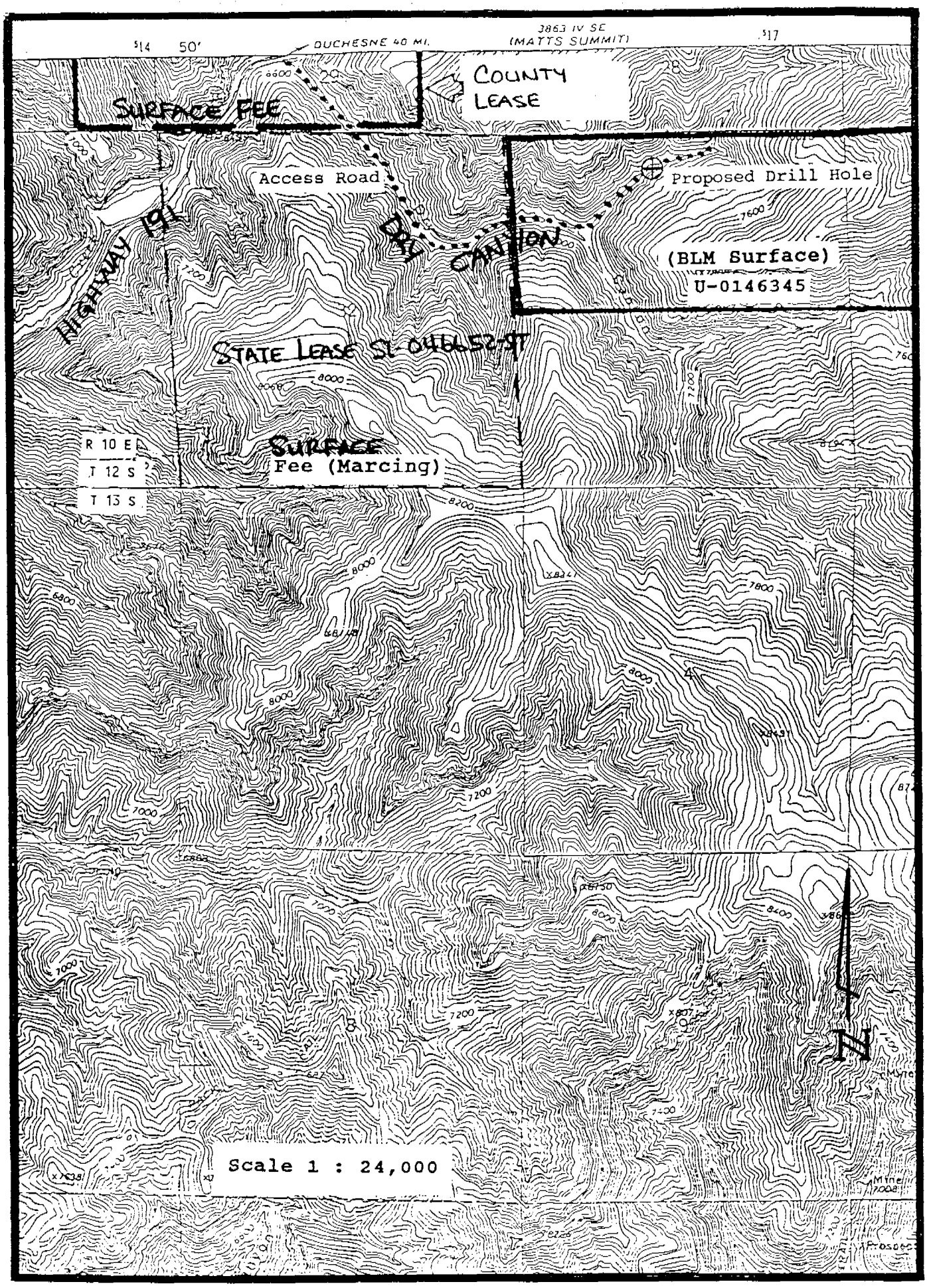
Proposed Site Locations
Site designation nomenclature is "PWC" for "Proposed Willow Creek " hole, "Number (ie. 33)" referring to the Section Number in which the site is located followed by the sequential drill hole number in that section. Locations are described on the following *Table 1* and are plotted on the attached maps *(map 1 and map 2)*.

TABLE 1

Proposed Drill Site Locations

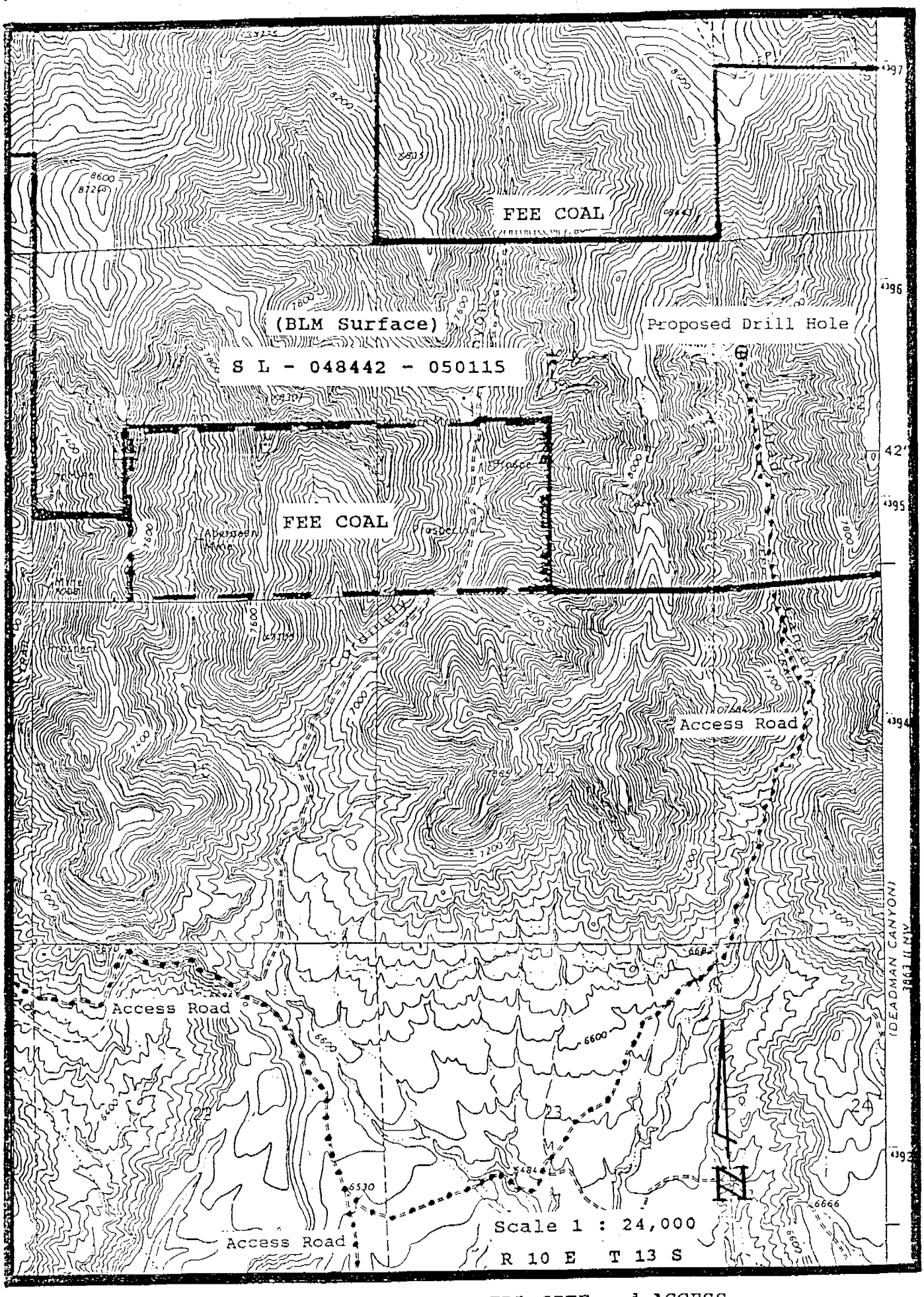
Site Designation	Legal Description
PWC 33-6 (Dry Canyon Site)	NE 1/4, NW 1/4 Sec 33, T12S, R10E
PWC 12-2 (Alrad Canyon Site)	SW 1/4, NW 1/4 Sec 12, T13S, R10E

Surface Topography Features
The area is characterized as a deeply incised "plateau" topography, existing as flat-topped ridges elevated above the adjacent desert lands. This topography is the result of advanced erosion carving up a flat top "plateau" forming steep-walled canyons cutting into the lease tracts from the west, north and south. Elevations range from over 8,000 feet above sea level on the tops of the flat topped ridges to 6,000 feet above sea level in the bottom of the deepest canyon.



PROPOSED DRY CANYON DRILL SITE and ACCESS MAP 1

USGS Helper, Utah Quadrangle, 1972



PROPOSED ALRAD CANYON DRILL SITE and ACCESS

MAP 2

USGS Helper, Utah Quadrangle, 1972

Geologic Features
The lease tracts lie within the Book Cliff Coal Field which contains minable coal only within the lower Cretaceous Age Blackhawk Formation (*figure 1, stratigraphic column*).

Stratigraphic units present are, in ascending order, Mancos Shale, overlain by the deltaic and coastal plain sediments of the, Blackhawk, Price River and North Horn Formations.

The Mancos Shale forms the valley floor and lower slopes of the south facing escarpment and is over 4,000 feet thick in the area and contains the interfingered, eastward thinning delta sandstones of the Lower Blackhawk Formation. Locally the Blackhawk Formation is comprised of five shoreline deltaic cliff forming sandstone members in ascending order, Panther, Storrs, Spring Canyon, Aberdeen, and Kenilworth and lower coastal plain coal seams.

The aggregate thickness of the Blackhawk formation in this area is 1,200 feet. The Blackhawk Formation is the primary coal-bearing formation within the area where thick and laterally extensive seams are closely associated with shoreline delta sandstone units. The two seams of major economic interest are the Aberdeen (also known as the Castlegate A) and Kenilworth Seams which directly overlay the Aberdeen and Kenilworth Sandstones respectively. The Castlegate B and C seams lie between the Aberdeen and Kenilworth Seams and in fact or splits of the Aberdeen seam.

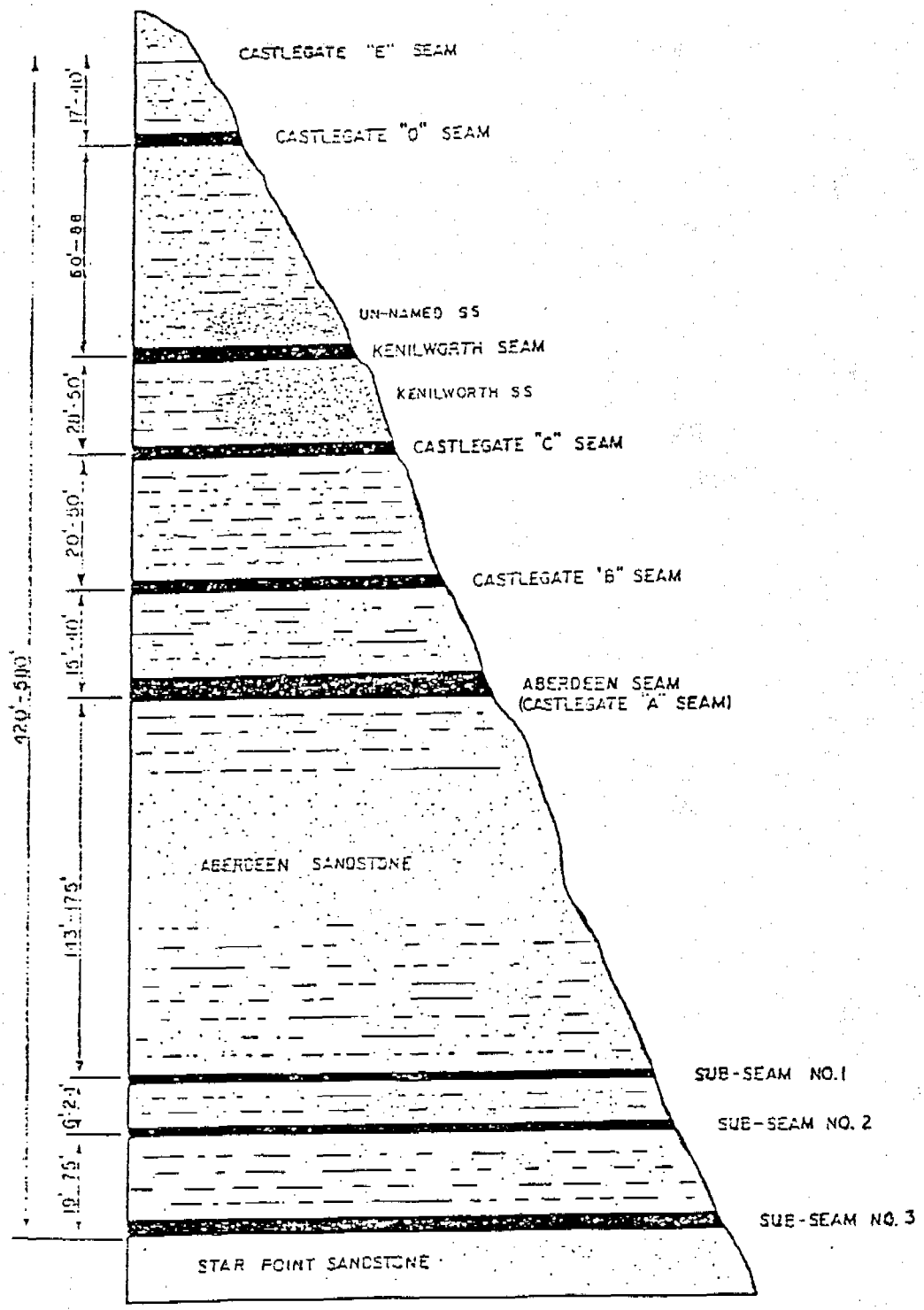
Overlying the Blackhawk Formation is the lower Castlegate Sandstone (massive cliff-forming sandstones 200-250 feet thick) overlain by lenticular sandstones and mudstones of the Upper Castlegate which grad upwards into the North Horn Formation.

The North Horn Formation composed of lenticular sandstones and clay-rich mudstones is the uppermost unit present in the lease tracts, and can only be seen on the extreme northeastern side of the tracts.

Stratigraphic units in this part of the Book Cliff Coal Field typically dip 8° North Northeast. Evidence of faults within the lease tracts is absent. There may be some minor faults but none large enough to seriously affect mine planning and presumably ground water hydrology.

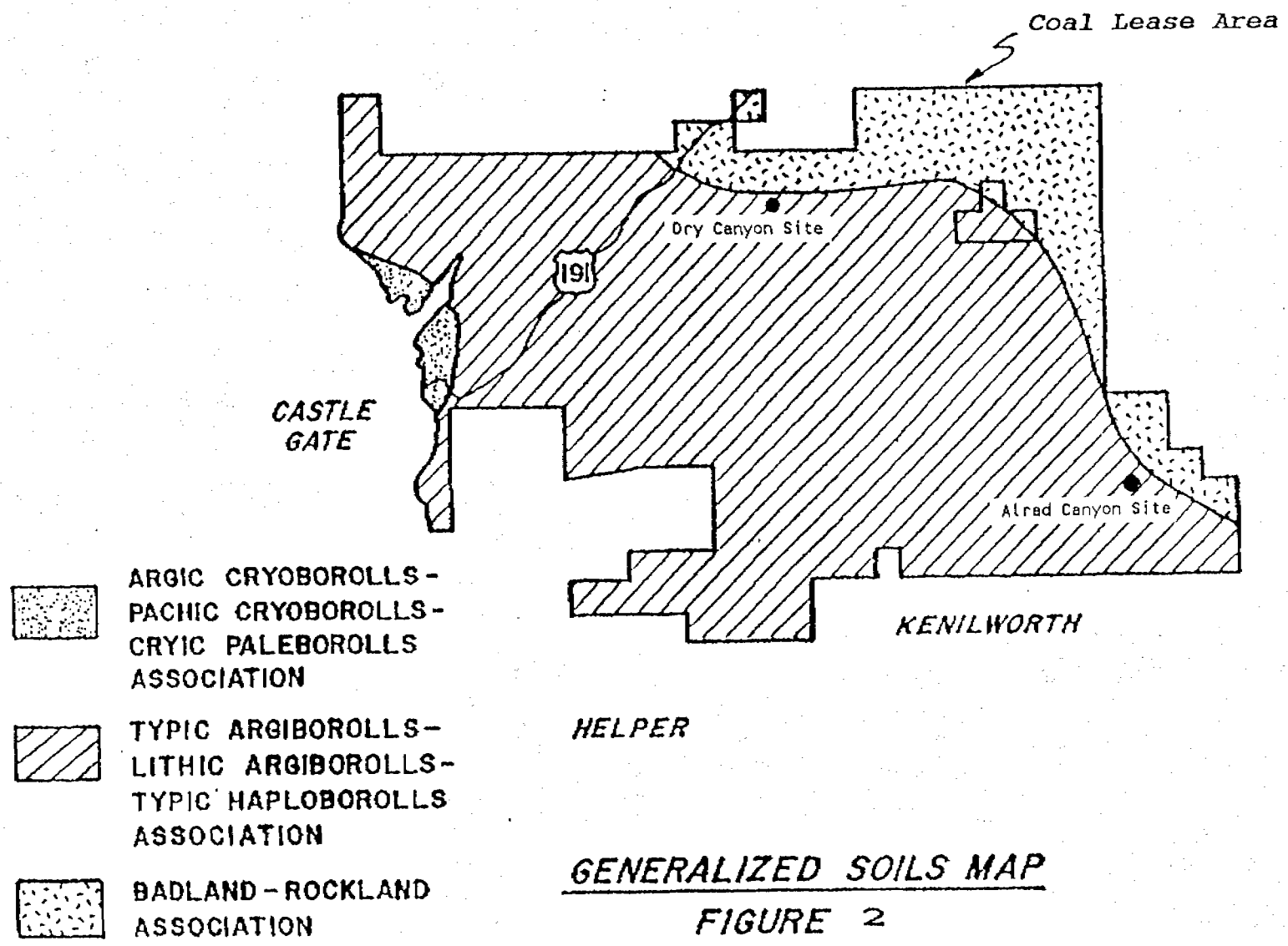
Surface Water
The Price River and Willow Creek are the only perennial streams in the area. The six smaller side canyons/drainages into Price River and Willow Creek are annual/ephemeral streams, only running in the Spring or in direct response to

GENERALIZED STRATIGRAPHIC SECTION



FIGURE

1



GENERALIZED SOILS MAP

FIGURE 2

precipitation. A number of seeps and springs also occur along rock-soil interfaces, or along fracture/joint zones. Several seeps and springs have been developed to handle seasonable livestock.

Vegetative Cover
The surface of this area is predominantly covered with sage brush, grasses and occasional conifers.

National Register of Historical Places Listings
No listed district, site, building, structure, or object is located within the proposed exploration area.

Archeological Resource Inventory
A cultural and archaeological resource inventory of the proposed drill sites is now being conducted and will be submitted as an addition to this application as soon as it is completed. Cursory observations at the sites revealed no evidence of archeological or cultural resources.

Other Physical Features
No significant physical features will be affected by the proposed drilling activities.

Soils
The exploration area contains a number of different soils derived from sandstone, and shale parent material. A generalized soils map of the Lease Area is shown on *figure 2 (Generalized Soils Map)*. Due to the rocky nature of the terrain, the soils are quite variable, with drainage, texture, reaction, and land-use generally site-specific as a result of weathering and the parent rock materials.

The Argic Cryoborolls-Pachic Cryoborolls-Cyric Paleborolls Association, is found mainly to the west of the Price River on the Wasatch Plateau. It is characteristic of the high mountain landform, with steep slopes, moderate to deep soil depths, and highly variable permeabilities. Only a small amount of this soil type is found within the exploration area to the east of the Price River. The association consists generally of 25 percent Argic Cryoborolls, 25 percent Pachic Cryoborolls, and 25 percent Cyric Palebrolls, with the remaining 25 percent consisting of varying amounts of Typic Cryoborolls, Cyric Pachic Paleborolls, Lithic Cryoborolls, Mollic Cryoborolls, and rock outcrop.

The Majority of the area is covered by the Typic Argiborolls-Lithic Argiborolls-Typic Haploborolls Association. This association is characterized by steep slopes, shallow to deep soil cover (10 inches to 36 inches), and reasonably well-drained soils. The association generally is composed of 35 percent Typic Argiborolls, 20 percent Lithic Argiborolls, and

20 percent Typic Haploborolls. The remaining 25 percent consists of Pachic Argiborolls, Argic Cryoborolls, and rock outcrop.

Threatened or Endangered Species
A Survey of the Threatened or Endangered species on the property is being conducted and will be submitted as an addition to this application as soon as it is completed.

Wildlife and Fish
Some of the predominate mammals which may occur in the general area include elk, deer, black bear, cougar, bobcat, coyote, badger, porcupine, snowshoe hare, golden mantled squirrel, Andy ground squirrel, red fox, gray fox, marmot, flying squirrel, and other species of small rodents.

A raptor survey is now being conducted and will be submitted as an amendment to this application as soon as it is completed.

Reptiles and amphibians of the area may include: boreal toad, leopard frog, northern sagebrush lizard, rocky mountain rubber boa, great basin gopher snake and great basin rattlesnake.

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

The proposed coal exploration program will utilize drilling and coring using conventional truck-mounted rigs. Core sampling and testing, and down-hole geophysical logging of the open holes will be the main methods of data collection. Both of the drill sites will be completed as water monitor wells, as described below in the response to 348.1(a)(3)(iv)(E).

Site Access
Access to the Dry Canyon Site will be via an existing dirt road up Dry Canyon. The road will be rehabilitated and a new crossing of Willow Creek will be permitted through the U.S. Corps of Engineers and the Utah State Engineer and constructed. The road up Dry Canyon is on lease, BLM dirt road and or on private or fee ground. Written permission to access the private ground will be submitted as a supplement to this application. A right-of-way application will be filed for access accross BLM land in Section 33 in Dry Canyon.

Access to the Alrad Canyon Site will be via BLM dirt road from the town of Price and alternatively from the town of Kenilworth and up Alrad Canyon on the existing dirt road. Application has previously been submitted to amend the road

use "right of way", currently in effect for Cyprus to access Cordingly Canyon, to also include access to Alrad Canyon.

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

Equipment
A variety of equipment is expected to be utilized during conventional drilling activities. A truck-mounted drill rig (PortaDrill TKT, Gardner-Denver 2000 or similar) will be used with accompanying pipe truck, casing trailer, water trucks (2), skid mounted compressors (2?), equipment/"dog house" trailer, rubber-tired backhoe, and small tracked dozer (D4). Several four wheel drive pickup trucks will be utilized to transport crews and incidental supplies to and from the drill sites. The dozer and backhoe will be used constructing the site, moving equipment as necessary, and excavating the mudpits.

A track mounted dozer, (D-7) Caterpillar, or similar will be used to rehabilitate the roads and construct the drill pads adjacent to the existing roads. A rubber tired motorgrader will likely be used to maintain the roads. Reclamation of the drill pads will be accomplished by a tracked excavator and other listed equipment.

Seed Mixtures
The proposed drill sites and access routes are located on BLM and private land. The seed mix listed below on *Table 2* was provided by the BLM specifically for these sites.

Table 2

Seed Mix

SHRUBS	**Pounds per Acre Pure Live Seed**
Symphoricarpus albus	1.0
Artemesia tridentata wyomingensis	0.5
Cercocarpus ledifolius	1.0
FORBS	
Achillea millefolium	0.5
Balsamorhiza saggitata	0.5
Penstemon strictus	0.5
GRASSES	
Poa secunda	1.5
Bromus carinatus	1.5
Agropyron spicatum	1.5
A. smithii	1.5
A. trachycaulum	1.5
Total	**11.5 Pure Live Seed**

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

All soils excavated in any phase of the proposed exploration activities will be treated the same. Unless otherwise required, the topsoil and native vegetation at the drill sites will be removed, if present, and stockpiled for re-distribution during site reclamation. Topsoil will only be removed where required; generally where soils would be directly impacted at the drill site.
A competent and responsible person, knowledgeable about soils, will be on the site during excavation and reclamation in order to minimize environmental impacts and assure proper soil extraction (depth, etc.) and replacement. This person will be on the drill site during any type of excavation, construction, or reclamation. Methods used to extract topsoil from drill pad locations will be mechanical equipment such as a front-end loader, backhoe, medium to small dozer, or other method.

Stockpiled soil will be protected from erosional loss by containment berms. Wind erosion should not be a problem. If the topsoil pile is dry and deflating, it will be wet down. Weathered rock and/or subsoils excavated from the mud pits will be stockpiled separately from the top soil and will be used to backfill the mudpits after coring and plugging activities are complete. Drill cuttings will be contained and buried in the mud pit. Mudpits will not be backfilled until drilling fluids are pumped out or evaporated.

Soil loss off the drill site will be controlled by berms, sterile straw bales, or silt fences.

The drill pad sites and roads will be graded/reclaimed to approximate original contour and recovered with top soil in a roughened and scarified state. Existing roads will be left in the preexisting condition except at Dry Canyon where the road on BLM land will be ripped and seeded at the time of reclamation. Drainage will be controlled to prevent runoff across exposed soils.

All debris and trash will be disposed of properly and in a timely manner. Location of disposal will be completely off the exploration area. Areas on the drill site which might be contaminated by fuels or oils will be protected by ground tarps or other means. Contaminated soils will be removed from the sites and transported to a registered disposal facility.

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

Both drill holes will be completed as monitor wells, as described below in the response to 3482.1(a)(3)iv)(E). Completion details will be in compliance with the State of Utah ADMINISTRATIVE RULES FOR WATER WELL DRILLERS, July 15, 1987, Part II, Section 8 for drilled wells. The annular space between the casing and/or drill hole wall and the well casing above the well screen completions will be completely sealed with cement, bentonite or a mixture of cement and bentonite up to within 20 feet of the ground surface. A cement surface seal will be placed from the surface to a depth of 20 feet.

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

The size of the core holes will range from ten inches in diameter for surface casing to about 4-3/4 inches for the cored intervals. The holes should not exceed about 1900 feet in depth.

No trenches or test pits are planned.

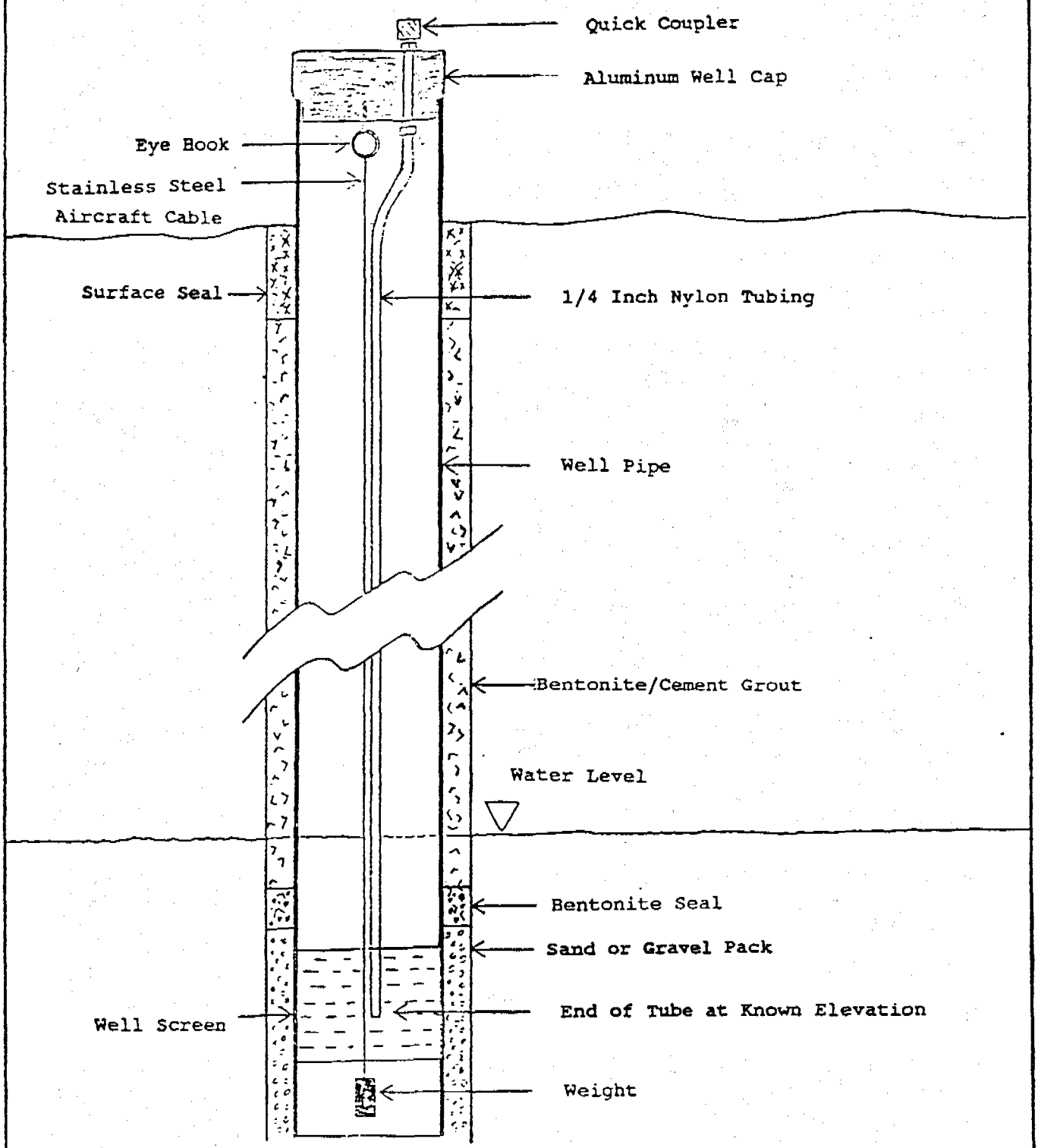
3482.1(a)(3)(iv)(E) Plans for transfer and modification of exploration drill holes to be used as surveillance, monitoring, or water wells.

Monitor well installations will be performed by a currently licensed Utah Water Well Driller. Completion details will be in compliance with the State of Utah Administrative Rules for Water Well Drillers, July 15, 1987, Part II, Section 8 for drilled wells.

Each monitor well will be completed as shown on *figures 3 and 4 (ground-monitor well detail, & locking cap detail)* with two inch steel well pipe and a ten foot section of approved two inch well screen, near but not at the bottom of the hole. It is anticipated that the screen will be placed near the base of the Aberdeen Sandstone which immediately underlies the lowest minable coal seam.

The hole will be fitted with 1/4 inch nylon tubing as a permanent water level monitoring device. Sand or gravel will be used as filter pack and emplaced in the annular space between the borehole and well screen, extending at least two feet above the top on the well screen. A bentonite seal at, least two feet thick, will be emplaced on top of the filter pack. The annular space between the well pipe and bore hole will be grouted with cement.

Ground Water Monitor Well Detail



Not To Scale

FIGURE 3

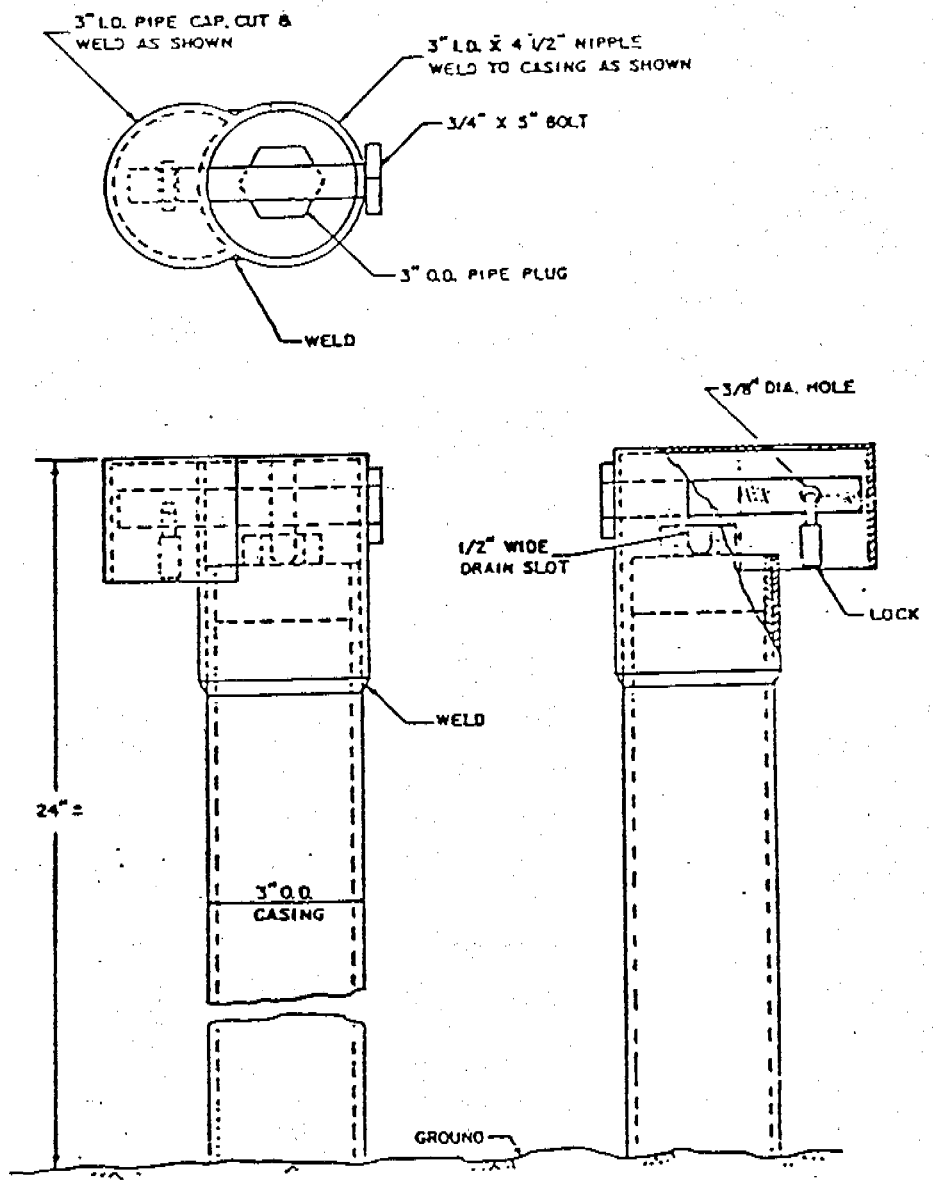


Figure 4
Suggested Locking Cap Detail For Monitoring Wells

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

The timetable for the proposed 1994 drilling is shown on the following *Table 3*:

TABLE 3

TIMETABLE FOR PROPOSED ACTIVITIES

PHASE OF EXPLORATION	*July*	*August*	*September*
week -	1 2 3 4	1 2 3 4	1 2 3 4
Drilling		********	
Reclamation		**********	**********

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 two drill holes. Three-inch diameter coal core with length equal to the seam thickness will be removed from each of the anticipated three seams of minable thickness . It is calculated that less than 200 lbs. of coal removed.
Calculations for lbs. of coal per hole:

1.5^2(core radius) X 3.14/144 X 20' (est. coal/hole) X 85lbs./cu.ft. = 84 lbs./hole X 2(holes) = **168 lbs of coal removed.**

The core sampled will be used for quality and geotechnical testing. The results of these tests will aid in thickness, seam geometry, and coal quality determinations, 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.

As noted above in 3482.1(a)(3)(iv)(C), this stipulation will be complied with if the drill hole is not to be completed as a water monitoring well site. The possibility of contamination of surface waters by drilling materials is low because of location. Adequate precautionary measures (such as berms, bales, and/or silt fences) to prevent the escape of drilling materials into stream drainages will be incorporated into individual site designs. The potential for contamination of surface waters will 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.

In accordance the revised stipulations of 43 CFR 3482.2(b), all coal exploration drill holes will be: 1.)"cemented from the

total depth of the hole to the surface and, 2.) the surface and the intermediate casing(if used) will be fully pressure grouted in the annulus from the bottom of the string to the surface". These measures will be taken to prevent intermixing of ground water. Detail on encountered groundwater flow will be noted on appropriate form for the BLM records.
When Ground Water Monitoring Wells are no longer needed, they will be plugged with Portland Cement and sealed.

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. An exception to the above will be those cores samples consumed during quality testing. Splits of the samples will be maintained by the testing labs. Typically in past years, all collected data including seam depth, thickness, quality, geophysical logs, structure, geotechnical, drilling logs, etc. have been copied and transferred to the appropriate personnel at the B.L.M. offices for review and confidential storage, pursuant to 43 CFR 3485.1.

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 and liability including eventual

plugging, reclamation, and abandonment. nothing in this paragraph shall supersede or affect the applicability of any state low requirements for such a transfer, conversion,k or utilizations a supply for domestic consumption.

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 are two maps *(map 1 & map 2)* at a scale of 1:24,000 showing the requested information (proposed drill hole locations, access routes, and lease boundaries).

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 Interior
Bureau of Land Management
Price River Resource Area
900 N. 700 E.
Price, Utah 84501

8432.1(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.

RECEIVED
JUN 14 1994
DIV. OF OIL, GAS & MINING

MINOR COAL EXPLORATION PLAN

Panther Canyon Site

Carbon County Coal Lease CEP/007/038-94-19

FEE Surface

CARBON COUNTY, UTAH

Cyprus Plateau Mining Corporation

For

CYPRUS WESTERN COAL COMPANY

JUNE 1994

This exploration plan has been prepared by Cyprus Plateau Mining Corporation for Cyprus Western Coal Company (a Delaware corporation) and submitted to gain approval of a Minor Coal Exploration Permit to explore for Fee Coal on Fee Surface Land and to install a ground-water monitoring well.

Format of this application is:

Each regulation for which there is a response has been underlined.

Each regulation which apparently does not apply to coal exploration is presented in smaller type, is not followed by a response and is not underlined.

Each referenced regulation brought into the stream of R645-200-203 is identified by an arrow (→).

Each response is left justified.

R645-200. Coal Exploration: Introduction.

R645-200-100. Scope.

122. <u>Minor Coal Exploration. Coal exploration that occurs outside an approved permit area during which 250 tons or less of coal will be removed will require Division approval and issuance of a Minor Coal Exploration Permit under the requirements of R645-201-200.</u>

This application qualifies as minor coal exploration because less than 250 tons of coal will be removed and it is occurring outside of a permit area. A permit will be applied for following baseline data gathering.

R645-200-200. Responsibilities.

210. <u>This is the responsibility of any person seeking to conduct coal exploration under the State Program to comply with the requirements of R645-200 through R645-203</u>.

Cyprus Plateau Mining Corporation herein demonstrates willingness to comply with the requirements of R645-200 through R645-203.

R645-201-200. Minor Coal Exploration Permits.

R645-201-210. Applications for Minor Coal Exploration Permits when 250 tons or less of coal will be removed will require written Division approval prior to conducting exploration.

Cyprus Plateau Mining Corp. and it's agents will not proceed without receiving written approval of this permit application.

R645-201-220 Applications for Minor Coal Exploration Permits will include:

221. The name, address and telephone number of the applicant seeking to explore;

Cyprus Plateau Mining Corporation
P.O. Drawer PMC
Price, Utah 84501
(801)637-2875

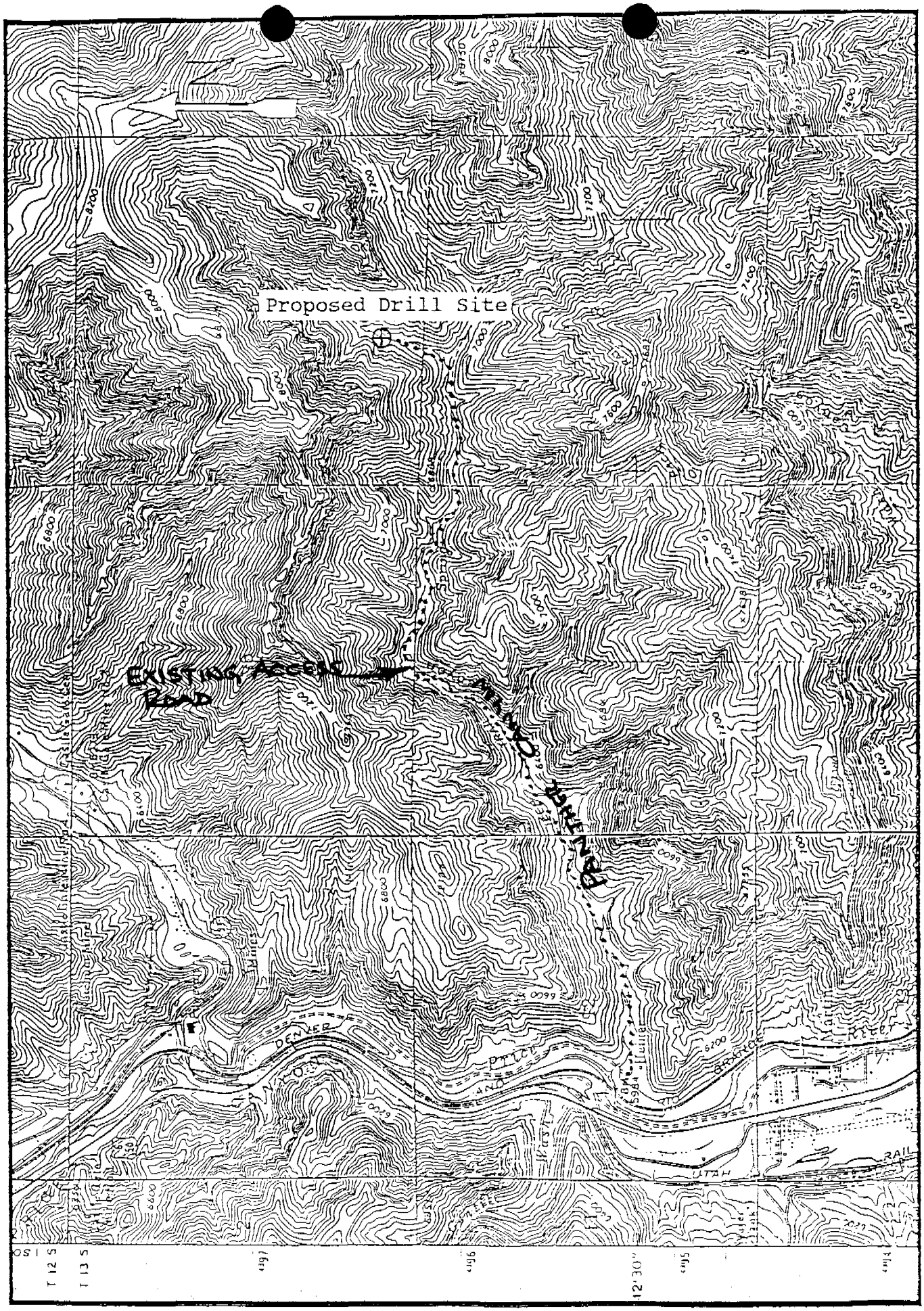
222. The name, address and telephone number of the applicant's representative who will be present at, and responsible for conducting the exploration operations;

Gregory L. Hunt
449 Gordon Drive
CastleRock, Colo. 80104
(303) 660-9368

John Mercier & Ben Grimes
Cyprus Plateau Mining Corp.
P.O. Drawer PMC
Price, Utah 84501 (801) 637-2875

223. A narrative and map describing the exploration area and indicating where exploration will occur in relation to an approved permit area;

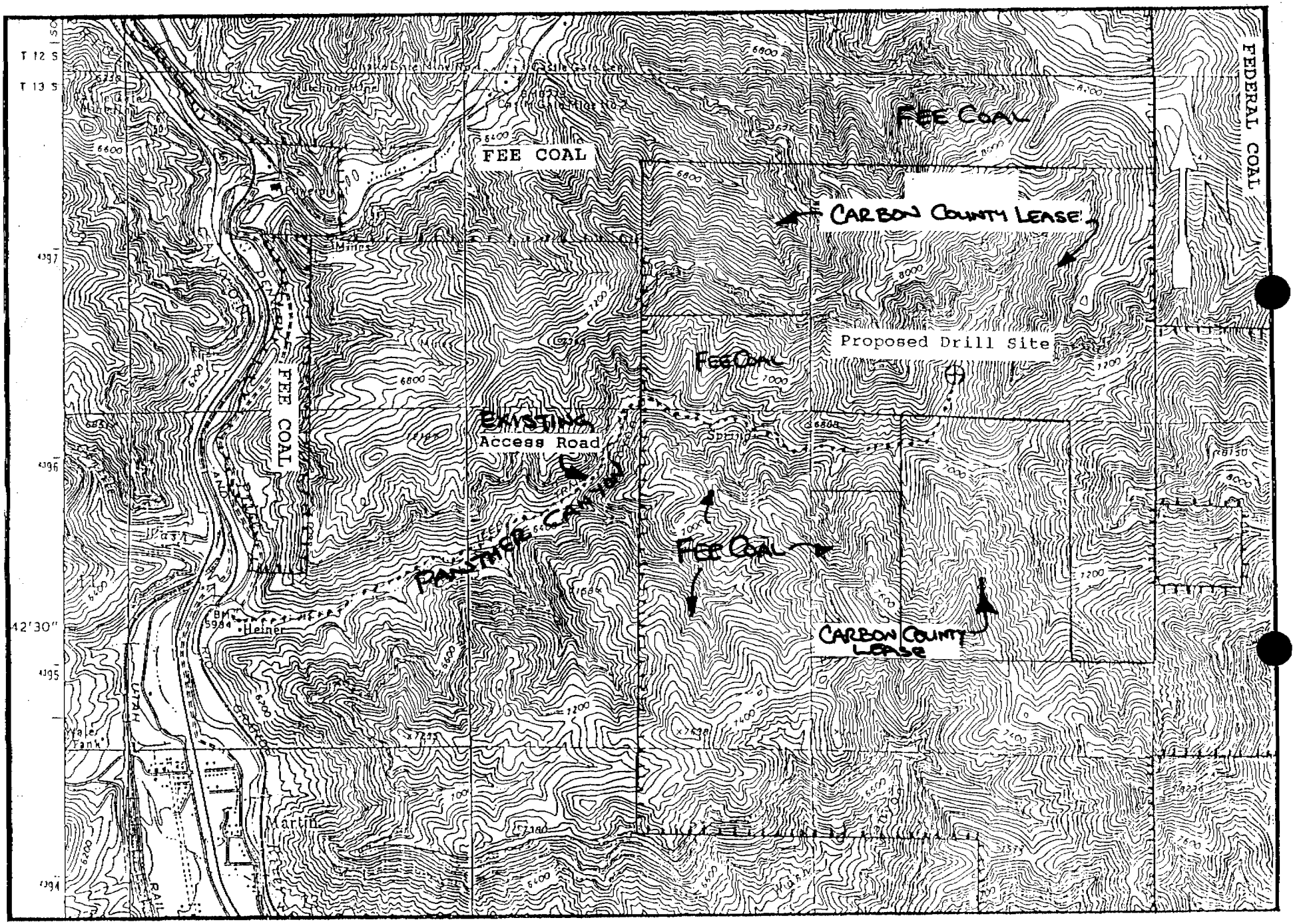
The Panther Canyon Drill Site is located in the SE1/4 SW1/4 of Sec. 5, T 13S, R 10E SLM which is accessed via private and fee property through Panther Canyon. The site is not located near a current permit area as shown on Figure 1 (Proposed Panther Canyon Drill Site & Access), and Maps 1 & 2 (Coal Ownership Map & Surface Control Map).



PROPOSED PANTHER CANYON DRILL SITE and ACCESS

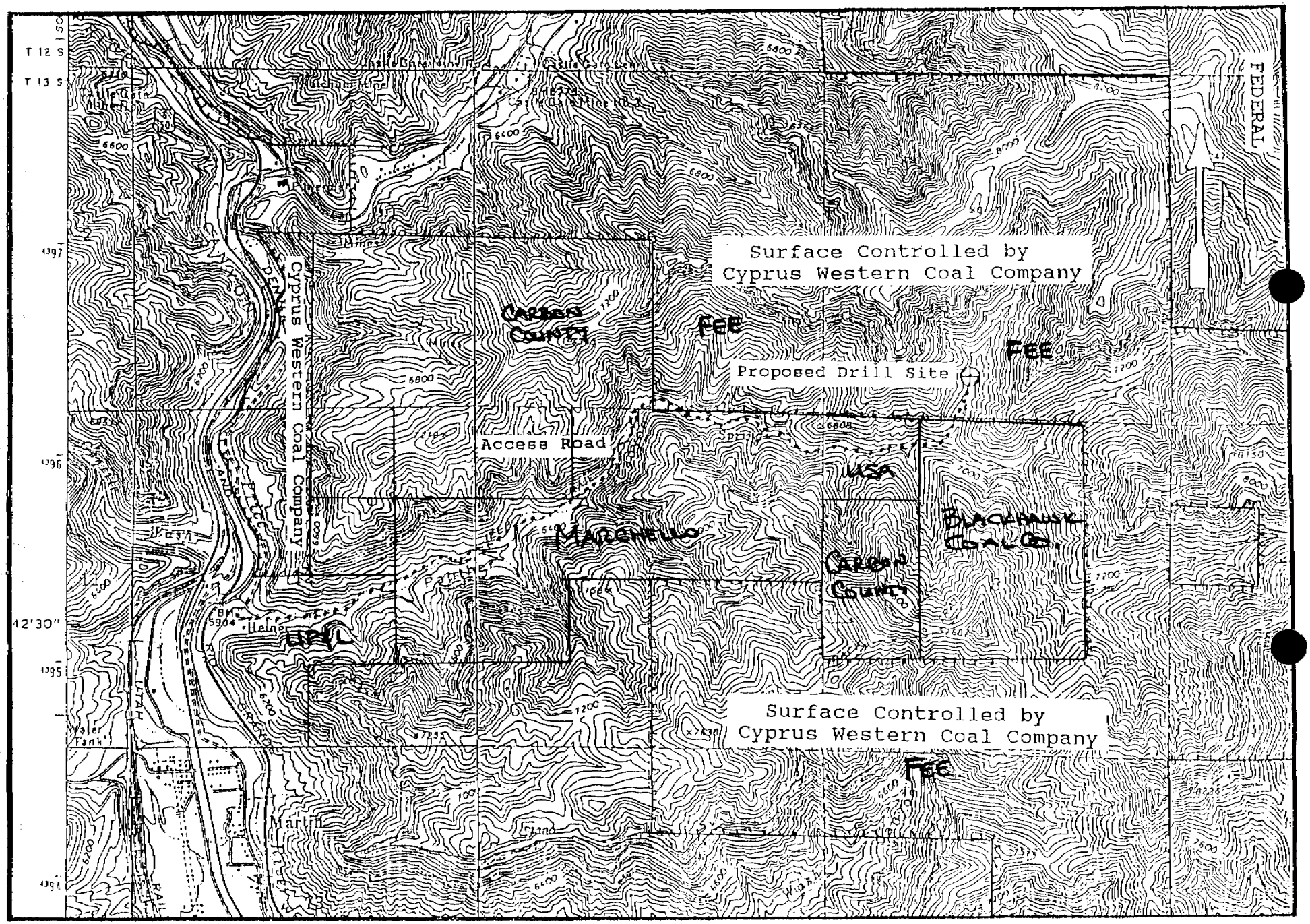
USGS Helper, Utah Quadrangle, 1972

Figure 1



COAL OWNERSHIP MAP
Proposed Panther Canyon Drill Site & Access
USGS Helper, Utah Quadrangle, 1972

MAP 1



SURFACE CONTROL MAP
Proposed Panther Canyon Drill Site & Access
USGS Helper, Utah Quadrangle, 1972

MAP 2

224. A statement of the period of intended exploration; and

Exploration will commence in late July or as soon as written approval of this application is received by Cyprus Plateau Mining Corp., and proceed for approximately three weeks after commencement. Reclamation activities may extend beyond the three week active exploration (drilling) phase.

225. A description of the method of exploration to be used, the amount of coal to be removed and the practices that will be followed to protect the area from adverse impacts of the exploration activities and to reclaim the area in accordance with the applicable requirements of R645-202.

Method of Exploration

Exploration data collection will involve rotary drilling and core sampling. Only the coal seams and immediate roof and floor will be core drilled. The overlying strata will be plug drilled (open-hole drilled) to a predetermined core point. The primary equipment for the drilling phase will be a truck-mounted, or skid-mounted rotary drilling rig. Backup and auxiliary equipment may include but not be limited to a water truck, a D-8 or similar track-type dozer, a rubber-tired backhoe, an electric generator, electric and mechanical geophysical logging equipment. Access by personnel to drilling site will be by four-wheel drive pick-up truck or similar vehicle.

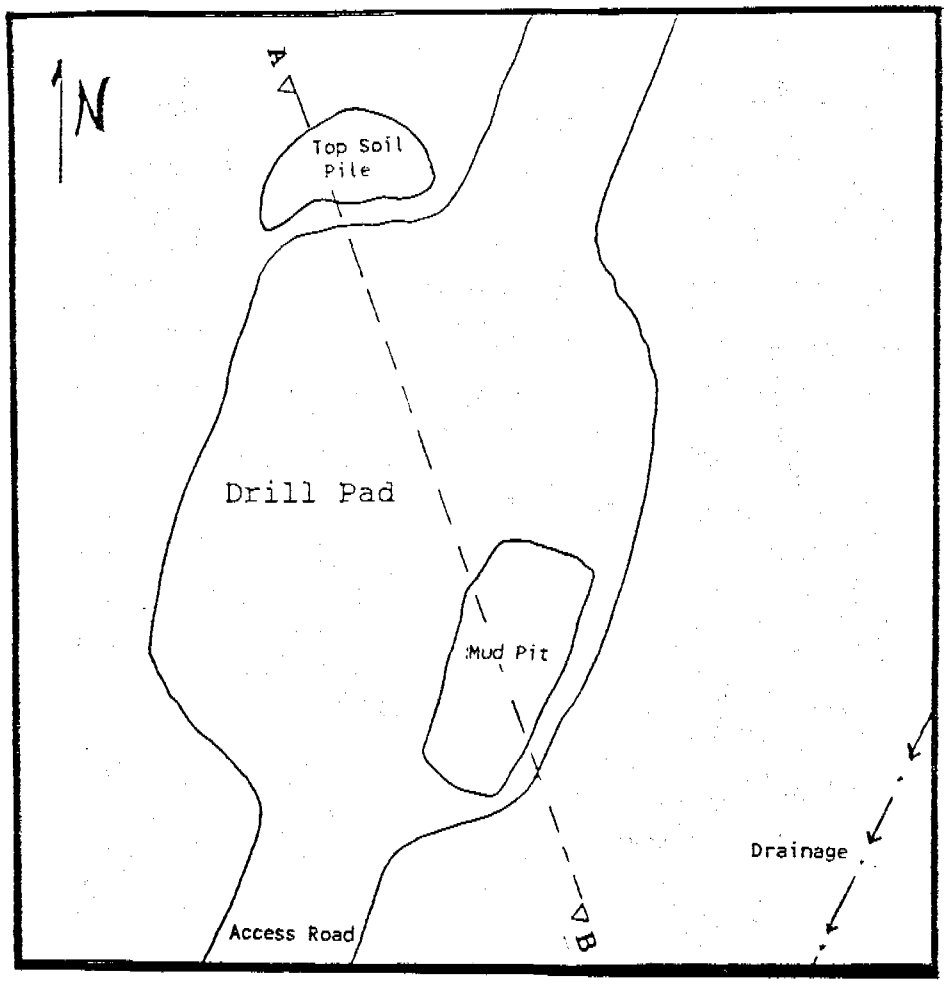
Amount of Coal to be removed

One NX size core cylinder (approximately 2" diameter) with length equal to the thickness of each seam will be removed from each seam for chemical analysis. The amount of coal removed will be less than 250 tons.

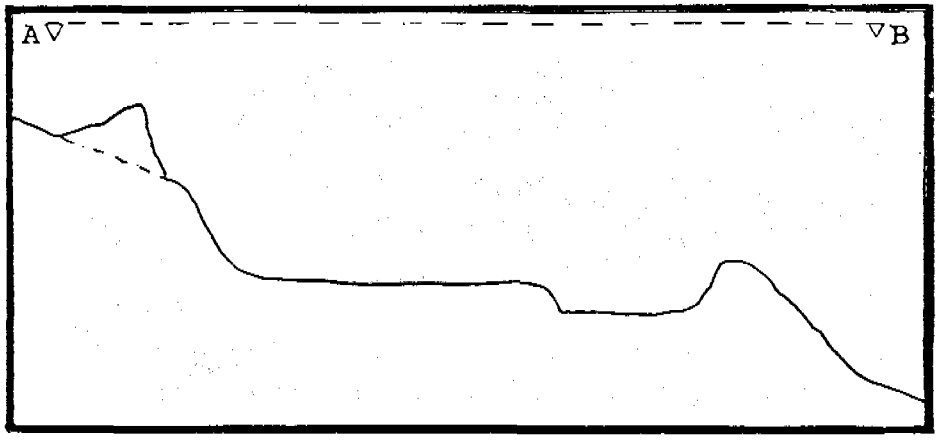
Practices that will be followed to protect the area from adverse impacts

The drill site is located as near as possible to the existing road minimizing the need for construction. The drill pad will be constructed by widening the existing roadway to provide enough space for drilling operations. The drill pad will be made as small as is practical to accommodate the drill rig. A mud pit, approximately 15 feet square by four feet deep, will contain the drilling medium and all effluent drilling materials preventing them from contaminating the surrounding environment shown on **Figure 2 (Proposed Drill Pad Layout)**.

PLAN VIEW



X-SECTION



PROPOSED DRILL PAD LAYOUT

Not To Scale

Panther Canyon Site

Figure 2

Reclamation practices outlined in following section

R645-202. Coal Exploration: Compliance Duties.

R645-202-100. Required Documents.

Each person who conducts coal exploration which substantially disturbs the natural land surface will, while in the exploration area, have available a copy of the approved Minor Coal Exploration Permit or Major Coal Exploration Permit or have available a copy of the Division approval for exploration within the permit area for review by the authorized representative of the Division upon request.

Copies of the approved Minor Coal Exploration Permit will be available on-site to every person working on this project.

R645-202-200. Performance Standards.

210. All coal exploration and reclamation operations which substantially disturb the natural land surface or which remove more than 250 tons of coal will be conducted in accordance with the coal exploration requirements of the State Program, and any conditions on approval for exploration and reclamation imposed by the Division.

Less than 250 tons of coal will be removed during this exploration program and the exploration activities will not substantially disturb the natural land surface. However Cyprus Plateau Mining Corp. will reclaim the disturbed area in accordance with the State Program and in accordance with the conditions on approval of the Minor Coal Exploration Permit.

220. Any person who conducts any coal exploration in violation of the State Program will be subject to the provisions of 40-10-20 of the Act and the applicable inspection and enforcement provisions of the R645 Rules.

Cyprus Plateau Mining Corp. will not conduct coal exploration in violation of the State Program.

230. Operational Standards.

231. 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 U.S.C. 1531 et seq.) will not be disturbed during coal exploration.

The Price River is the only perennial stream or body of water capable of supporting fish within or near the exploration area. Drilling water will be pumped from the Price River using screened suction type pumps from the bank. Cyprus Plateau Mining Corp. has water rights from the Price River. The volume removed (approximately 10,000 gallons) and the methods used to remove the water from the Price river insures that fish and other inhabitants will not be harmed.

Survey's for threatened and endangered species (T&E) and Raptors are now being completed, the results of each will be forwarded as soon as is possible.

232. All roads or other transportation facilities used for coal exploration will comply with the applicable provisions of R645-301-358, R645-301-512.250, R645-301-526.200, R645-301-527.100, R645-301-527.230, R645-301-534.100 through R645-301-534.300, R645-301-542.600, R645-301-742.410 through R645-301-742.420, R645-301-752.200, and R645-301-762.

→ R645-301-358. Protection of Fish, Wildlife, and Related Environmental Values. The operator will, to the extent possible using the best technology currently available, minimize disturbances and adverse impacts on fish, wildlife,m and related environmental values and will achieve enhancement of such resources where practicable.

Addressed under response to R645-202-231. above.

→ R645-301-512.250 Primary Roads. The professional engineer will certify the design and construction or reconstruction of primary roads as meeting the requirements of R645-301-534.200 and R645-301-742.420.

No primary roads will be constructed in this project per definition in R645-301-527.120-123.

→ R645-301-526.200. Utility Installation and Support Facilities.

Not Applicable

→R645-301-527.100. The plan must classify each road.

The access road in Panther Canyon is an ancillary road (per 527.120-130) to be used for a short period during the coal exploration program. This road has existed for many years and is used by private property owners in the area.

→R645-301-527.230. A maintenance plan describing how roads will be maintained throughout their life to meet the design standards throughout their use.

The road will be graded prior to and during the exploration activities as needed.

→R645-301-534.100. Roads will be located, designed, constructed, reconstructed, used, maintained, and reclaimed so as to:

→534.110. Prevent or control damage to public or private property;

The maintenance work required to access the drill site will enhance the value of the road for private property owners in the area.

→534.120. Use non-acid-forming or nontoxic-forming substances in road surfacing; and

The road will not be surfaced.

→534.130 Have, at a minimum, a static safety factor of 1.3 for all embankments.

The existing road has been in place for many years and no new

construction is required.

→534.140. Have a schedule and plan to remove and reclaim each road that would not be retained under an approved postmining land use.

Not Applicable because this road will be retained for the continued use of private property owners in the area.

→534.150. Control or prevent erosion, siltation and the air pollution attendant to erosion by vegetating or otherwise stabilizing all exposed surfaces in accordance with current, prudent engineering practices.

Erosion control measures will be taken, including protecting top soil piles, diverting overland flows around the drill pad, and other measures as required.

→534.200. To ensure environmental protection and safety appropriate for their planned duration and use, including consideration of the type and size of equipment used, the design and reconstruction of roads will incorporate appropriate limits for grade, width, surface materials, and any necessary design criteria established by the Division.

The road is a primitive type drill road which will be accessed by 4X4 vehicles and crawler caterpillar tractor and will maintain a grade appropriate for it's use.

233. Topsoil will be separately removed, stored, and redistributed on areas disturbed by coal exploration activities as necessary to assure successful revegetation or as required by the Division.

Topsoil will be separately removed and stored (Figure 2) then redistributed on the small drill pad when use of the pad is no longer required.

234. Diversions of overland flows and ephemeral, perennial, or intermittent streams will be made in accordance with

R645-301-742.300.

It is anticipate that no diversions will be necessary for the duration of this project. If it becomes necessary, diversions of overland flows will be made in accordance with R645-301-742.300

Water bars, ditches and/or culverts will be used if needed to control overland flow.

235. Coal exploration will be conducted in a manner which minimizes disturbance of the prevailing hydrologic balance in accordance with R645-301-356.300 through R645-301-356.400, R645-301-512.240, R645-301-513.200, R645-301-514.300, R645-301-515.200, R645-301-533.100 through R645-301-533.600, R645-301-731.100 through R645-301-731.522, R645-301-731.800, R645-301-733.220 through R645-301-733.240, R645-301-742.200 through R645-301-742.300, R645-301-743, and R645-301-763. The Division may specify additional measures which will be adopted by the person engaged in coal exploration.

→ 356.300. Siltation structures will be maintained until removal is authorized by the Division and the disturbed area has been stabilized and revegetated. In no case will the structure be removed sooner than two years after the last augmented seeding.

→ 356.400. When a siltation structure is removed, the land on which the siltation structure was located will be revegetated in accordance with the reclamation plan and R645-301-353 through R645-301-357.

Siltation structures will be used to control erosion after drilling and well construction is completed if reclamation is delayed beyond the period immediately after drilling and well construction.

→ 512.240. Impoundments. The professional engineer will use current, prudent, engineering practices and will be experienced in the design and construction of impoundments and certify the design of the impoundment according to R645-301-743.

→ 513.200. Impoundments and sedimentation ponds meeting the size or other qualifying criteria of MSHA, 30 CFR 77.216(a) will comply with the requirements of

MSHA, 30 CFR 77.216 (see R645-301-533.600, R645-301-742.222, and R645-301-742.223).

→ 514.300. Impoundments.

→ 515.200. Impoundment Hazards. The permit application will incorporate a description of notification when potential impoundment hazards exist. The requirements for the description are: If any examination or inspection discloses that a potential hazard exists, the person who examined the impoundment will promptly inform the Division of the finding and of the emergency procedures formulated for public protection and remedial action. If adequate procedures cannot be formulated or implemented, the Division will be notified immediately. The Division will then notify the appropriate agencies that other emergency procedures are required to protect the public.

→ 533.100. An impoundment meeting the size or other criteria of 30 CFR 77.216(a) or located where failure would be expected to cause loss of life or serious property damage will have a minimum static safety factor of 1.5 for a normal pool with steady state seepage saturation conditions, and a seismic safety factor of at least 1.2. Impoundments not meeting the size or other criteria of 30 CFR 77.216(a), except for coal mine waste impounding structure, and located where failure would not be expected to cause loss of life or serious property damage will have a minimum static safety factor of 1.3 for normal pool with steady state seepage saturation conditions or meet the requirements of R645-301-733.210.

→ 533.200. Foundation for temporary and permanent impoundments must be designed so that:

→ 533.210. Foundation and abutments for the impounding structure will be stable under all conditions of construction and operation of the impoundment. Sufficient foundation investigations and laboratory testing will be performed in order to determine the design requirements for foundation stability; and

→ 533.220. All vegetative and organic materials will be removed and foundations excavated and prepared to resist failure. Cutoff trenches will be installed if necessary to ensure stability.

→ 533.300. Slope protection will be provided to protect against surface erosion at the site and protect against sudden drawdown.

→ 533.400. Faces of embankments and surrounding areas will be vegetated except that faces where water is impounded may be riprapped or otherwise stabilized in accordance with accepted design practices.

→ 533.500. The vertical portion of any remaining highwall will be located far enough below the low-water line along the full extent of highwall to provide adequate safety and access for the proposed water users.

→ 533.600. Impoundments meeting the criteria of MSHA, 30 CFR 77.216(a) will comply with the requirements of MSHA, 30 CFR 77.216 and R645-301-512.240, R645-301-514.300, R645-301-515.200, R645-301-533.100 through R645-301-533.600, R645-301-733.220 through R645-301-733.224, and R645-301-743. The plan required to be submitted to the District Manager of MSHA under 30 CFR 77.216 will also be submitted to the Division as part of the permit application.

Not applicable because impoundments, as managed under these regulations, will not be constructed for this exploration project.

→ 731.100. Hydrologic-Balance Protection.

→ 731.110. Ground-Water Protection. In order to protect the hydrologic balance, coal mining and reclamation operations will be conducted according to the plan approved under R645-301-731 and the following:

→ 731.111. Ground-water quality will be protected by handling earth materials and runoff in a manner that minimizes acidic, toxic or other harmful infiltration to ground-water systems and by managing excavations and other disturbances to prevent or control the discharge of pollutants into the ground water; and

Ground-water quality will be protected by handling earth materials and runoff from the drilling activities in a manner that minimizes acidic, toxic and other harmful infiltration by impounding the drill water in open air pit allowing maximum evaporation and thus diminishing the chance of infiltration into ground-water system.

→ 731.112. For the purposes of SURFACE COAL MINING AND RECLAMATION ACTIVITIES ground-water quantity will be protected by handling earth materials and runoff in a manner that will restore approximate premining recharge capacity of the reclaimed area as a whole, excluding coal mine waste disposal areas and fills, so as to allow the movement of water to the ground-water system.

Not applicable because this exploration project will not include surface coal mining.

→ 731.120. Surface-Water Protection. In order to protect the hydrologic balance, coal mining and reclamation operations will be conducted according to the plan approved under R645-301-731 and the following:

→ 731.121. Surface-water quality will be protected by handling earth materials, ground-water discharges and runoff in a manner that minimizes the formation of acidic or toxic drainage; prevents, to the extent possible using the best technology currently available, additional contributions of suspended solids to streamflow outside the permit area; and, otherwise prevent water pollution. If drainage control, restabilization and revegetation of disturbed areas, diversion of runoff, mulching or other reclamation and remedial practices are not adequate to meet the requirements of R645-301-731.100 through R645-301-731.522, R645-301-731.800 and R645-301-751, the operator will use and maintain the necessary water treatment facilities or water quality controls; and

→ 731.122. Surface-water quantity and flow rates will be protected by handling earth materials and runoff in accordance with the steps outlined in the plan approved under R645-301-731.

Surface water quality will be protected from acid forming runoff and surface flow rates will be protected by capturing all drilling fluids in a mud-pit where evaporation will decrease the volume of fluids and the balance will be contained in the pit and the very near surface strata.

→ 731.200. Water Monitoring.

→ 731.210. Ground-Water Monitoring. Ground-water monitoring will be conducted according to the plan approved under R645-301-731.200 and the following:

This exploration program is primarily designed to emplace ground-water monitoring equipment in order to collect baseline data in advance of applying for a mining permit.

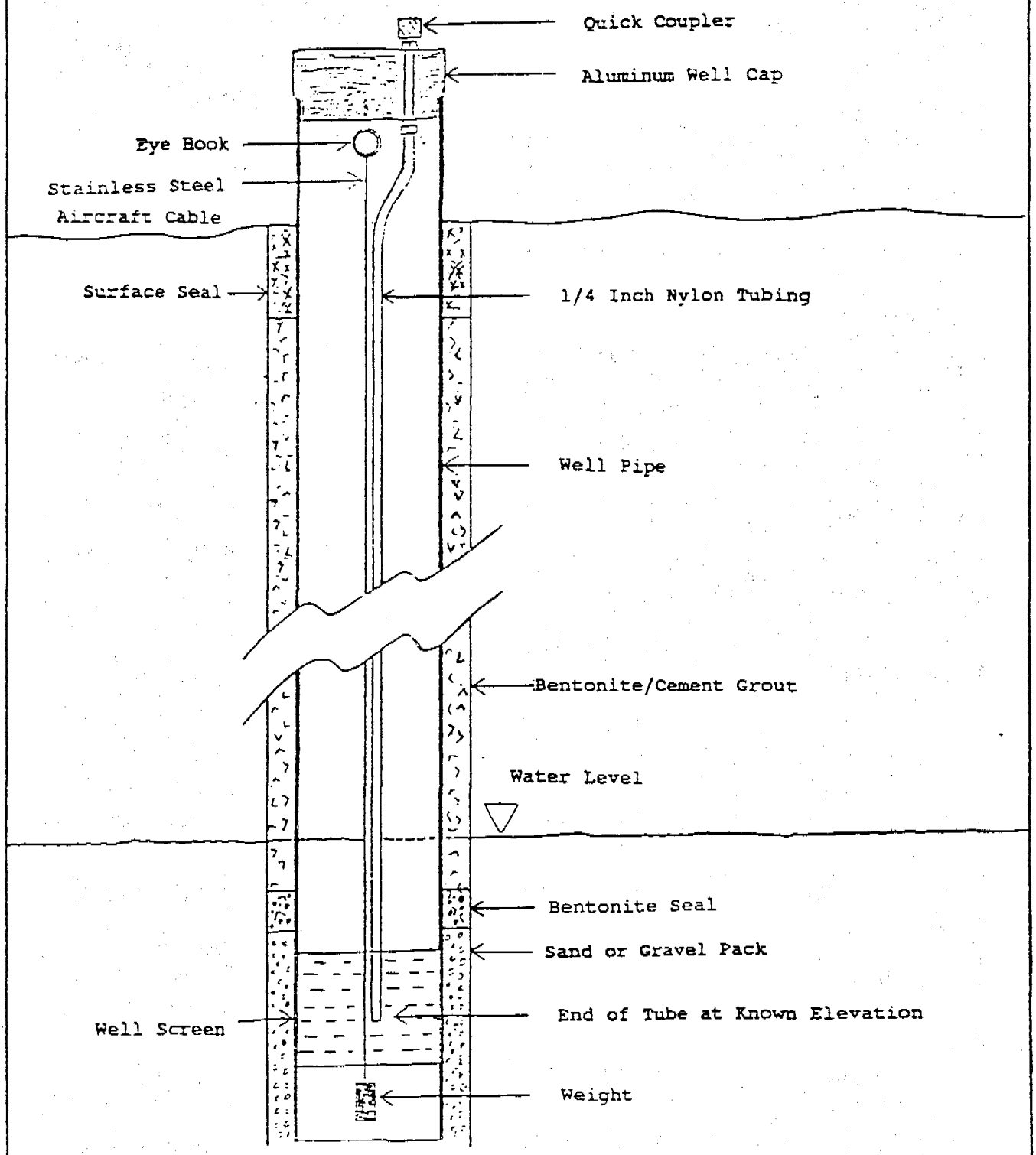
Monitor well installations will be performed by a currently licensed Utah Water Well Driller. Installation and materials will conform to the guidelines set fourth by the State Engineer in the ADMINISTRATIVE RULES FOR WATER WELL DRILLERS , Adopted July 15, 1987.

The monitor well will be completed as shown on **Figures 3 & 4 (Ground Water Monitor Well Detail & Suggested Locking Cap Detail For Monitor Wells)**, with two inch steel well pipe and a ten foot section of approved two inch well screen, near but not at the bottom of the hole. It is anticipated that the screen will be placed near the base of the Aberdeen Sandstone which immediately underlies the lowest minable coal seam.

The hole will be fitted with 1/4 inch nylon tubing as a permanent water level monitoring device. Sand or gravel will be used as filter pack and emplaced in the annular space between the borehole and well screen, extending at least two feet above the top on the well screen. A bentonite seal at, least two feet thick, will be emplaced on top of the filter pack. The annular space between the well pipe and bore hole will be grouted with a bentonite and cement mix or straight cement grout. Both methods are approved by the State Engineer.

→ 731.211. The permit application will include a ground-water monitoring plan based upon the PHC determination required under R645-301-728 and the analysis of all baseline hydrologic, geologic and other information in the permit application. The plan will provide for the monitoring of

Ground Water Monitor Well Detail



Not To Scale

FIGURE 3

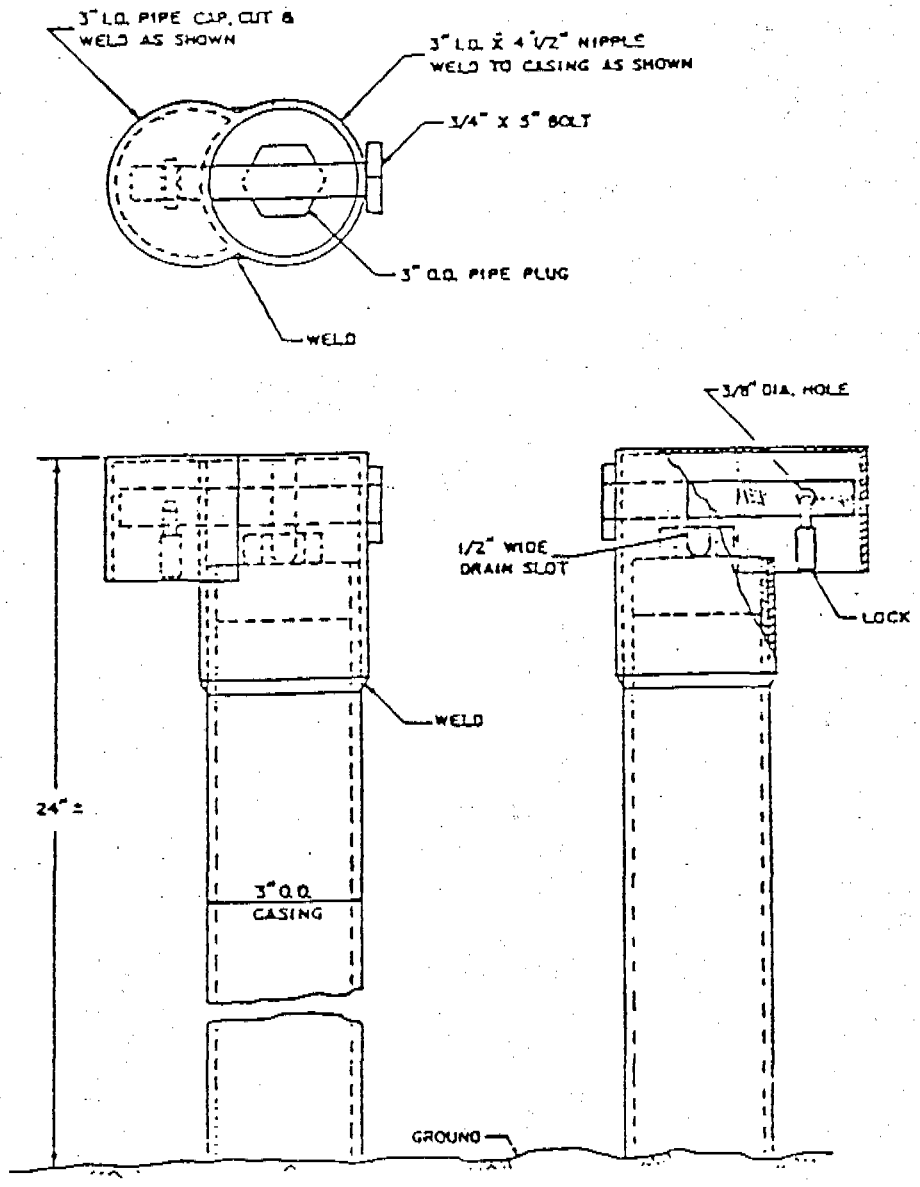


Figure 4
Suggested Locking Cap Detail For Monitoring Wells

parameters that relate to the suitability of the ground water for current and approved postmining land uses and to the objectives for protection of the hydrologic balance set forth in R645-301-731. It will identify the quantity and quality parameters to be monitored, sampling frequency and site locations. It will describe how these data may be used to determine the impacts of the operation upon the hydrologic balance. At a minimum, total dissolved solids or specific conductance corrected to 25 degrees C, PH, total iron, total manganese and water levels will be monitored;

→ 731.212. Ground-water will be monitored and data will be submitted at least every three months for each monitoring location. Monitoring submittals will include analytical results from each sample taken during the approved reporting period. When the analysis of any ground-water sample indicates noncompliance with the permit conditions, then the operator will promptly notify the Division and immediately take the actions provided for in R645-300-145 and R645-301-731;

→ 731.213. If an applicant can demonstrate by the use of the PHC determination and other available information that a particular water-bearing stratum in the proposed permit and adjacent areas is not one which serves as an aquifer which significantly ensures the hydrologic balance within the cumulative impact area, then monitoring of that stratum may be waived by the Division;

→ 731.214. Ground-water monitoring will proceed through mining and continue during reclamation until bond release. Consistent with the procedures of R645-303-220 through R645-303-228, the Division may modify the monitoring requirements including the parameters covered and the sampling frequency if the operator demonstrates, using the monitoring data obtained under R645-301-731.214 that:

→ 731.214.1. The coal mining and reclamation operation has minimized disturbance to the prevailing hydrologic balance in the permit and adjacent areas and prevented material damage to the hydrologic balance outside the permit area; water quantity and quality are suitable to support approved postmining land uses and the SURFACE COAL MINING AND RECLAMATION ACTIVITY has protected or replaced the water rights of other users; or

→ 731.214.2. Monitoring is no longer necessary to achieve the purposes set forth in the monitoring plan approved under R645-301-731.211.

→ 731.215. Equipment, structures and other devices used in conjunction with monitoring the quality and quantity of ground water on-site and off-site will be properly installed, maintained and operated and will be removed by the operator when no longer needed.

→ 731.220. Surface-Water Monitoring. Surface-water monitoring will be conducted according to the plan approved under R645-301-731.220 and the following:

→ 731.221. The permit application will include a surface-water monitoring plan based upon the PHC determination required

under R645-301-728 and the analysis of all baseline hydrologic, geologic and other information in the permit application. The plan will provide for the monitoring of parameters that relate to the suitability of the surface water for current and approved postmining land uses and to the objectives for protection of the hydrologic balance as set forth in R645-301-731 as well as the effluent limitations found in R645-301-751;

→ 731.222. The plan will identify the surface water quantity and quality parameters to be monitored, sampling frequency and site locations. It will describe how these data may be used to determine the impacts of the operation upon the hydrologic balance:

Regulations 731.210 through 731.222 are inappropriately referenced and not applicable to coal exploration.

→ 731.800. Water Rights and Replacement. Any person who conducts SURFACE COAL MINING AND RECLAMATION ACTIVITIES will replace the water supply of an owner of interest in real property who obtains all or part of his or her supply of water for domestic, agricultural, industrial, or other legitimate use from an underground or surface source, where the water supply has been adversely impacted by contamination, diminution, or interruption proximately resulting from the surface mining activities. Baseline hydrologic information required in R645-301-624.100 through R645-301-624.200, R645-301-625, R645-301-626, R645-301-723 through R645-301-724.300, R645-301-724.500, R645-301-725 through R645-301-731, and R645-301-731.210 through R645-301-731.223 will be used to determine the extent of the impact of mining upon ground water and surface water.

Regulation 731.800 is an inappropriate reference and not applicable to coal exploration.

→ 742.200. <u>Siltation Structures.</u>

→ 742.210. <u>General Requirements.</u>

→ 742.211. <u>Additional contributions of suspended solids and sediment to streamflow or runoff outside the permit area will be prevented to the extent possible using the best technology currently available.</u>

→ 742.212. <u>Siltation structures for an area will be constructed before beginning any coal mining and reclamation operations in that area and, upon construction, will be certified by a qualified registered professional engineer to be</u>

constructed as designed and as approved in the reclamation plan.

→ 742.213. Any siltation structures which impounds water will be designed, constructed and maintained in accordance with R645-301-512.240, R645-301-514.300, R645-301-515.200, R645-301-533.100 through R645-301-533.600, R645-301-733.220 through R645-301-733.224, and R645-301-743.

→ 742.214. For the purposes of UNDERGROUND COAL MINING AND RECLAMATION ACTIVITIES, any point-source discharge of water from underground workings to surface waters which does not meet the effluent limitations of R645-301-751 will be passed through a siltation structure before leaving the permit area.

Construction of siltation structures is not a part of this project. If needed, however, alternate sediment control measures will be taken which include temporary siltation structures constructed of straw bails or silt fences.

→ 742.220. Sedimentation Ponds.

→ 742.221. Sedimentation ponds, when used, will:

→ 742.221.1. Be used individually or in series;

→ 742.221.2. Be located as near as possible to the disturbed area and out of perennial streams unless approved by the Division; and

→ 742.221.3. Be designed, constructed, and maintained to:

→ 742.221.31. Provide adequate sediment storage volume;

→ 742.221.32. Provide adequate detention time to allow the effluent from the ponds to meet Utah and federal effluent limitations;

→ 742.221.33. Contain or treat the 10-year, 24-hour precipitation event ("design event") unless a lesser design event is approved by the Division based on terrain, climate, or other site-specific conditions and on a demonstration by the operator that the effluent limitations of R645-301-751 will be met;

→ 742.221.34. Provide a nonclogging dewatering device adequate to maintain the detention time required under R645-301-742.221.32.

→ 742.221.35. Minimize, to the extent possible, short circuiting;

→ 742.221.36. Provide periodic sediment removal sufficient to maintain adequate volume for the design event;

→ 742.221.37. Ensure against excessive settlement;

→ 742.221.38. Be free of sod, large roots, frozen soil, and acid- or toxic forming coal-processing waste; and

→ 742.221.39. Be compacted properly.

→ 742.222. Sedimentation ponds meeting the size or other qualifying criteria of the MSHA, 30 CFR 77.216(a) will comply with all the requirements of that section, and will have a single spillway or principal and emergency spillways that in combination will safely pass a 100-year, 6-hour precipitation event or greater event as demonstrated to be necessary by the Division.

→ 742.223. Sedimentation ponds not meeting the size or other qualifying criteria of the MSHA, 30 CFR 77.216(a) will provide a combination of principal and emergency spillways that will safely discharge a 25-year, 6-hour precipitation event or greater event as demonstrated to be needed by the Division. Such ponds may use a single open channel spillway if the spillway is:

→ 742.223.1. Of nonerodible construction and designed to carry sustained flows; or

→ 742.223.2. Earth- or grass-lined and designed to carry short-term infrequent flows at non-erosive velocities where sustained flows are not expected.

→ 742.224. In lieu of meeting the requirements of R645-301-742.223.1 and 742.223.2 the Division may approve a sedimentation pond that relies primarily on storage to control the runoff from the design precipitation event when it is demonstrated by the operator and certified by a qualified registered professional engineer in accordance with R645-301-512.200 that the sedimentation pond will safely control the design precipitation event. The water will be removed from the pond in accordance with current, prudent, engineering practices and any sediment pond so used will not be located where failure would be expected to cause loss of life or serious property damage.

→ 742.225. An exception to the sediment pond location guidance in R645-301-742.224 may be allowed:

→ 742.225.1. In the case of a sedimentation pond meeting the size or other criteria of 30 CFR 77.216(a), if the pond is designed to control the precipitation of the probable maximum precipitation of a 6 hour event or greater event if specified by the Division; or (30 CFR 816.46(c)(2)(ii)(A))

→ 742.225.2. In the case of a sedimentation pond not meeting the size or other criteria of 30 CFR 77.216(a), if the pond is designed to control the precipitation of a 100 year 6 hour event or greater event if demonstrated to be needed by the Division.

→ 742.230. Other Treatment Facilities.

→ 742.231. Other treatment facilities will be designed to treat the 10-year, 24-hour precipitation event unless a lesser design

event is approved by the Division based on terrain, climate, other site-specific conditions and a demonstration by the operator that the effluent limitations of R645-301-751 will be met.

→ 742.232. Other treatment facilities will be designed in accordance with the applicable requirements of R645-301-742.220.

→ 742.240. Exemptions. Exemptions to the requirements of R645-301-742.200 and R645-301-763 may be granted if the disturbed drainage area within the total disturbed area is small and the operator demonstrates that siltation structures and alternate sediment control measures are not necessary for drainage from the disturbed areas to meet the effluent limitations under R645-301-751 or the applicable Utah and federal water quality standards for the receiving waters.

Regulations 742.220 through 742.240 inappropriately referenced, not applicable to coal exploration.

→ 742.300. Diversions.

Addressed under response to 234. above.

→ 763. Siltation Structures.

→ 763.100. Siltation structures will be maintained until removal is authorized by the Division and the disturbed area has been stabilized and revegetated. In no case will the structure be removed sooner than two years after the last augmented seeding.

→ 763.200. When the siltation structure is removed, the land on which the siltation structure was located will be regraded and revegetated in accordance with the reclamation plan and R645-301-358, R645-301-356, and R645-301-357. Sedimentation ponds approved by the Division for retention as permanent impoundments may be exempted from this requirement.

As stated in the response to 742.214, siltation structures will not be constructed during this project, however, alternate sediment control measures would consist of using straw bails and

silt fences as temporary siltation structures.

236. Acid- or toxic-forming materials will be handled and disposed of in accordance with R645-301-731.110, R645-301-731.300, and R645-301-553.260. The Division may specify additional measures which will be adopted by the person engaged in coal exploration.

Acid-forming or toxic-forming materials will not be used on this project. Drill cuttings will be contained and buried in the mud pit. Core of coal and surrounding strata will be taken off site. Also see response to 731.110 above.

240. Reclamation Standards.

241. If excavations, artificially flat areas, or embankments are created during exploration, these areas will be returned to the approximate original contour promptly after such features are no longer needed for coal exploration.

242. All areas disturbed by coal exploration activities will be revegetated in a manner that encourages prompt revegetation and recovery of a diverse, effective, and permanent vegetative cover. Revegetation will be accomplished in accordance with the following:

242.100. All areas disturbed by coal exploration activities will be seeded or planted to the same seasonal variety native to the areas disturbed. If the land use of the exploration area is intensive agriculture, planting of the crops normally grown will meet the requirements of R645-202-242.100; and

242.200. The vegetative cover will be capable of stabilizing the soil surface from erosion.

The exploration site will have trash and debris removed, mud pit backfilled, and topsoil distributed upon completion of exploration activity. The drill pad will be returned to the approximate original contour, scarified, and re-seeded with the seed mix shown on Table 1. Existing roads will be returned to a condition equal to or better than their condition prior to commencement of the exploration activities. Seeding of the rehabilitated drill pad and access road will be accomplished in the first season following completion of the exploration program.

Table 1

Seed Mix

Common and Scientific Names	Pounds Pure Live Seed per Acre
Western Wheatgrass Elymus smithii	5
Fourwing Saltbush Atriplex canescens	3
Basin Wild Rye Elymus cinereus	3
Lewis Flax Lintum lewisii	1
Yellow Sweet Clover Melilotus officinalis	2
Indian Ricegrass Stipa hymenoides	3
Russian Wild Rye Elymus junceus	3
Total	**20 lbs PLS**

243. Each exploration hole, borehole, well, or other exposed underground opening created during exploration will be reclaimed in accordance with R645-301-529, R645-301-551, R645-301-631, R645-301-738, and R645-301-765.

When the well is no longer needed for ground-water monitoring, it will cemented from the total depth of the hole to the surface.

244. All facilities and equipment will be promptly removed from the exploration area when they are no longer needed for exploration, except for those facilities and equipment that the Division determines may remain to:

244.100. Provide additional environmental data;

244.200. Reduce or control the on-site and off-site effects of the exploration activities; or

244.200. Reduce or control the on-site and off-site effects of the exploration activities; or

244.300. Facilitate future coal mining and reclamation operations by the person conducting the exploration.

All equipment will be promptly removed from the exploration area upon completion of the well and reclamation will be conducted as described in response to 240.-242.200 above. Because the hole will be completed as a monitor well, approximately three feet of well casing covered by a locking cap, shown on **Figure 4 (Suggested Locking Cap Detail For Monitor Wells)**, will remain at the site for continued ground-water monitoring.

A raptor survey has been conducted in the area of the exploration/ground water monitoring well. A copy of the results will also be forwarded as soon as it is available.

State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt
Governor
Ted Stewart
Executive Director
James W. Carter
Division Director

355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
801-538-5340
801-359-3940 (Fax)
801-538-5319 (TDD)

June 16, 1994

Mr. Max J. Evans, Director
Utah Division of State History
300 Rio Grande
Salt Lake City, UT 84101

Re: Minor Coal Exploration, Panther Canyon Site and Dry Canyon and Alrad Canyon Site, Cyprus Plateau Mining Corporation, CEP/007/038-94A (Fee) and CEP/007/038-94B (Federal), Folder #2, Carbon County, Utah

Dear Mr. Evans:

Enclosed please find the site locations for two proposals for "Minor Coal Exploration" for the Panther Canyon site on fee land and Dry Canyon (Federal Coal Lease U-0146345 - BLM Surface) and Alrad Canyon (Federal Coal Lease (SL-048442-05115 - BLM Surface). Please notify the Division with your comments by July 18, 1994.

If you have any questions, please call me. Thank you.

Sincerely,

Pamela Grubaugh-Littig
Permit Supervisor

Enclosure

State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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801-538-5319 (TDD)

June 16, 1994

Mr. Robert Valentine
Interim Director
Utah Division of Wildlife Resources
1596 West North Temple
Salt Lake City, UT 84116

Re: Minor Coal Exploration, Panther Canyon Site and Dry Canyon and Alrad Canyon Site, Cyprus Plateau Mining Corporation, CEP/007/038-94A (Fee) and CEP/007/038-94B (Federal), Folder #2, Carbon County, Utah

Dear Mr. Valentine:

Enclosed please find two proposals for "Minor Coal Exploration" for the Panther Canyon site on fee land and Dry Canyon (Federal Coal Lease U-0146345 - BLM Surface) and Alrad Canyon (Federal Coal Lease (SL-048442-05115 - BLM Surface). A threatened and endangered species investigation and a raptor investigation have been done. The reports on these investigations will be forwarded to your office as soon as the reports are available, sometime during the week of June 20, 1994.

If you have any questions, please call me.

Sincerely,

Pamela Grubaugh-Littig
Permit Supervisor

Enclosure

State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt
Governor
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3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
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June 16, 1994

Mr. Robert Morgan, State Engineer
Utah Division of Water Rights
Department of Natural Resources
1636 North 1950 West
P.O. Box 144810
Salt Lake City, UT 84114-4810

Re: Minor Coal Exploration, Panther Canyon Site and Dry Canyon and Alrad Canyon Site, Cyprus Plateau Mining Corporation, CEP/007/038-94A (Fee) and CEP/007/038-94B (Federal), Folder #2, Carbon County, Utah

Dear Mr. Morgan:

Enclosed please find two proposals for "Minor Coal Exploration" for the Panther Canyon site on fee land and Dry Canyon (Federal Coal Lease U-0146345 - BLM Surface) and Alrad Canyon (Federal Coal Lease (SL-048442-05115 - BLM Surface). Please review these proposals by July 18, 1994 and notify the Division of your findings at that time. Thank you.

If you have any questions, please call me.

Sincerely,

Pamela Grubaugh-Littig
Permit Supervisor

Enclosure

94B

Cyprus Plateau Mining Corporation
P.O. Drawer PMC
Price, Utah 84501
(801) 637-2875
Fax: (801) 637-2247

CYPRUS
Plateau Mining

June 13, 1994

Utah Coal Regulatory Program
Division of Oil, Gas and Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

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JUN 14 1994
DIV. OF OIL, GAS & MINING

Copy PAM

Dear Ms. Littig,

CEP/007/038-94A & 94B

RE: WILLOW CREEK MINE COAL EXPLORATION/GROUND WATER MONITORING WELL PERMIT APPLICATION

Enclosed please find three copies of an application for a permit to explore for coal at the proposed Willow Mine. The exploration hole will be converted into a ground water monitoring well to comply with the Utah/SMCRA regulations. This location is on fee land.

A threatened and Endangered species investigation, and a raptor investigation have been done; reports on these investigations will be forwarded as soon as the reports are available. } 94A

A copy of an application for two exploration/ground water monitoring wells has been submitted to the BLM for lands under their control, a copy of this application is enclosed for your information. } 94B

Please contact me at 636-2227 with any questions.

Respectfully,

Ben Grimes
Project Manager

Enclosures
File: WCENV 2.5.2.9
Chron: BG940607